



# Open Source Used In Network Insights Advisor Release 1.0.3

**Cisco Systems, Inc.**

[www.cisco.com](http://www.cisco.com)

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco website at [www.cisco.com/go/offices](http://www.cisco.com/go/offices).

Text Part Number: 78EE117C99-210232434

**This document contains licenses and notices for open source software used in this product. With respect to the free/open source software listed in this document, if you have any questions or wish to receive a copy of any source code to which you may be entitled under the applicable free/open source license(s) (such as the GNU Lesser/General Public License), please contact us at [external-opensource-requests@cisco.com](mailto:external-opensource-requests@cisco.com).**

**In your requests please include the following reference number 78EE117C99-210232434**

## Contents

### **1.1 Apache Commons Compress 1.8.1**

1.1.1 Available under license

### **1.2 asn1crypto 0.24.0**

1.2.1 Available under license

### **1.3 asn1crypto 0.24.0**

1.3.1 Available under license

### **1.4 atomicwrites 1.3.0**

1.4.1 Available under license

### **1.5 attrs 19.1.0**

1.5.1 Available under license

### **1.6 autoprefixer 7.1.6**

1.6.1 Available under license

### **1.7 avro 1.8.2**

1.7.1 Available under license

### **1.8 avro-python3 1.8.2**

1.8.1 Available under license

### **1.9 axios 0.18.0**

1.9.1 Available under license

### **1.10 babel-core 6.26.0**

### **1.11 babel-eslint 7.2.3**

1.11.1 Available under license

### **1.12 babel-jest 20.0.3**

1.12.1 Available under license

### **1.13 babel-loader 7.1.2**

1.13.1 Available under license

### **1.14 babel-polyfill 6.26.0**

- 1.15 babel-preset-es2015 6.24.1**
- 1.16 babel-preset-react 6.24.1**
- 1.17 babel-preset-react-app 3.1.2**
  - 1.17.1 Available under license
- 1.18 babel-runtime 6.26.0**
- 1.19 case-sensitive-paths-webpack-plugin 2.1.1**
  - 1.19.1 Available under license
- 1.20 certifi 2019.3.9**
  - 1.20.1 Available under license
- 1.21 chalk 1.1.3**
  - 1.21.1 Available under license
- 1.22 ciscossl 1.0.2k**
  - 1.22.1 Available under license
- 1.23 css-loader 0.28.7**
  - 1.23.1 Available under license
- 1.24 Data Mapper for Jackson 1.9.13 :ASL License**
  - 1.24.1 Available under license
- 1.25 date-input-polyfill 2.14.0**
  - 1.25.1 Available under license
- 1.26 dotenv 4.0.0**
  - 1.26.1 Available under license
- 1.27 dotenv-expand 4.2.0**
  - 1.27.1 Available under license
- 1.28 elasticsearch 6.3.1**
  - 1.28.1 Available under license
- 1.29 enzyme 3.9.0**
  - 1.29.1 Available under license
- 1.30 enzyme-adapter-react-16 1.11.2**
  - 1.30.1 Available under license
- 1.31 enzyme-to-json 3.3.5**
  - 1.31.1 Available under license
- 1.32 eslint 4.10.0**
  - 1.32.1 Available under license
- 1.33 eslint-config-react-app 2.1.0**
  - 1.33.1 Available under license
- 1.34 eslint-loader 1.9.0**
  - 1.34.1 Available under license
- 1.35 eslint-plugin-flowtype 2.39.1**
  - 1.35.1 Available under license

- 1.36 eslint-plugin-import 2.8.0**
  - 1.36.1 Available under license
- 1.37 eslint-plugin-jsx-a11y 5.1.1**
  - 1.37.1 Available under license
- 1.38 eslint-plugin-react 7.4.0**
  - 1.38.1 Available under license
- 1.39 event-stream 3.3.4**
  - 1.39.1 Available under license
- 1.40 extract-text-webpack-plugin 3.0.2**
  - 1.40.1 Available under license
- 1.41 fastavro 0.17.9**
  - 1.41.1 Available under license
- 1.42 file-loader 1.1.5**
  - 1.42.1 Available under license
- 1.43 fs-extra 3.0.1**
  - 1.43.1 Available under license
- 1.44 fw-python27-jsonschema 2.6.0 :1.0**
  - 1.44.1 Available under license
- 1.45 gopkg.in-natefinch-lumberjack.v2 v2.1**
  - 1.45.1 Available under license
- 1.46 gopkg.in/yaml.v2 v2.2.2**
  - 1.46.1 Available under license
- 1.47 gson 2.8.5**
- 1.48 html-webpack-plugin 2.29.0**
  - 1.48.1 Available under license
- 1.49 jackson-core-asl 1.9.13**
  - 1.49.1 Available under license
- 1.50 jest 20.0.4**
  - 1.50.1 Available under license
- 1.51 js-cookie 2.2.0**
  - 1.51.1 Available under license
- 1.52 json 20090211**
  - 1.52.1 Available under license
- 1.53 kafka-clients 1.0.0**
  - 1.53.1 Available under license
- 1.54 linkifyjs 2.1.8**
  - 1.54.1 Available under license
- 1.55 LZ4 and xxHash 1.3.0**
- 1.56 MarkupSafe 1.1.1**

1.56.1 Available under license  
**1.57 moment 2.24.0**  
1.57.1 Available under license  
**1.58 more-itertools 7.0.0**  
1.58.1 Available under license  
**1.59 netaddr 0.7.19**  
1.59.1 Available under license  
**1.60 node-sass 4.11.0**  
1.60.1 Available under license  
**1.61 oauthlib 3.0.1**  
1.61.1 Available under license  
**1.62 oauthlib 2.1.0**  
1.62.1 Available under license  
**1.63 object-assign 4.1.1**  
1.63.1 Available under license  
**1.64 OpenSSH\_7.9p1 openssh 1:7.9p1**  
1.64.1 Available under license  
**1.65 ParaNamer Core 2.7**  
1.65.1 Available under license  
**1.66 pluggy 0.11.0**  
1.66.1 Available under license  
**1.67 postcss-flexbugs-fixes 3.2.0**  
1.67.1 Available under license  
**1.68 postcss-loader 2.0.8**  
1.68.1 Available under license  
**1.69 promise 8.0.1**  
1.69.1 Available under license  
**1.70 py 1.8.0**  
1.70.1 Available under license  
**1.71 pycparser 2.18**  
**1.72 pymongo 3.4.0**  
1.72.1 Available under license  
**1.73 pyOpenSSL 17.5.0**  
1.73.1 Available under license  
**1.74 python-dateutil 2.7.5**  
1.74.1 Available under license  
**1.75 python-lxml 4.3.3**  
1.75.1 Available under license  
**1.76 python-lxml\_test\_script 3.3.5**

- 1.76.1 Available under license
- 1.77 pytz 2018.5**
  - 1.77.1 Available under license
- 1.78 PyYAML 3.13**
  - 1.78.1 Available under license
- 1.79 raf 3.4.0**
- 1.80 rc-calendar 9.6.2**
  - 1.80.1 Available under license
- 1.81 rc-time-picker 3.6.4**
  - 1.81.1 Available under license
- 1.82 react 16.8.5**
  - 1.82.1 Available under license
- 1.83 react-bootstrap 0.32.4**
  - 1.83.1 Available under license
- 1.84 react-cookie 3.1.1**
  - 1.84.1 Available under license
- 1.85 react-dev-utils 5.0.3**
  - 1.85.1 Available under license
- 1.86 react-dom 16.8.5**
  - 1.86.1 Available under license
- 1.87 react-dropzone 10.1.5**
  - 1.87.1 Available under license
- 1.88 react-redux 5.1.1**
  - 1.88.1 Available under license
- 1.89 react-router 4.3.1**
  - 1.89.1 Available under license
- 1.90 react-router-dom 4.3.1**
  - 1.90.1 Available under license
- 1.91 react-select 1.2.1**
  - 1.91.1 Available under license
- 1.92 react-visjs-timeline 1.5.0**
  - 1.92.1 Available under license
- 1.93 redux-mock-store 1.5.3**
  - 1.93.1 Available under license
- 1.94 redux-promise-middleware 5.1.1**
  - 1.94.1 Available under license
- 1.95 requests 2.15.1**
  - 1.95.1 Available under license
- 1.96 requests-oauthlib 1.0.0**

1.96.1 Available under license

**1.97 requests-oauthlib 1.2.0**

1.97.1 Available under license

**1.98 resolve 1.6.0**

1.98.1 Available under license

**1.99 sass-loader 7.1.0**

1.99.1 Available under license

**1.100 save 2.3.3**

1.100.1 Available under license

**1.101 six 1.12.0**

1.101.1 Available under license

**1.102 snappy-java 1.1.2.4**

1.102.1 Available under license

**1.103 socketIO-client 0.7.2**

1.103.1 Available under license

**1.104 spring-boot-starter-data-redis 2.0.4**

**1.105 spring-boot-starter-log4j2 2.0.4.RELEASE**

**1.106 spring-boot-starter-web 2.0.4.RELEASE**

**1.107 style-loader 0.19.0**

1.107.1 Available under license

**1.108 sw-precache-webpack-plugin 0.11.4**

1.108.1 Available under license

**1.109 tzlocal 1.5.1**

1.109.1 Available under license

**1.110 url-loader 0.6.2**

1.110.1 Available under license

**1.111 urllib3 1.24.1**

1.111.1 Available under license

**1.112 urllib3 1.25.2**

1.112.1 Available under license

**1.113 urllib3 1.23**

1.113.1 Available under license

**1.114 vcversioner 2.16.0.0**

**1.115 vis 4.21.0**

1.115.1 Available under license

**1.116 wcwidth 0.1.7**

1.116.1 Available under license

**1.117 webencodings 0.5.1**

**1.118 webpack 3.8.1**

- 1.118.1 Available under license
- 1.119 webpack-dev-server 2.11.3**
  - 1.119.1 Available under license
- 1.120 webpack-manifest-plugin 1.3.2**
  - 1.120.1 Available under license
- 1.121 websocket-client 0.56.0**
  - 1.121.1 Available under license
- 1.122 wget 3.2**
- 1.123 whatwg-fetch 2.0.3**
  - 1.123.1 Available under license
- 1.124 xz 1.5**
  - 1.124.1 Available under license
- 1.125 zope.interface 4.6.0**
  - 1.125.1 Available under license

# 1.1 Apache Commons Compress 1.8.1

## 1.1.1 Available under license :

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

### TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

#### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,



including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf

of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache Commons Compress

Copyright 2002-2014 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

The files in the package org.apache.commons.compress.archivers.sevenz were derived from the LZMA SDK, version 9.20 (C/ and CPP/7zip/), which has been placed in the public domain:

"LZMA SDK is placed in the public domain." (<http://www.7-zip.org/sdk.html>)

# 1.2 asn1crypto 0.24.0

## 1.2.1 Available under license :

Copyright (c) 2015-2017 Will Bond <will@wbond.net>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.3 asn1crypto 0.24.0

### 1.3.1 Available under license :

Copyright (c) 2015-2017 Will Bond <will@wbond.net>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.4 atomicwrites 1.3.0

## 1.4.1 Available under license :

Copyright (c) 2015-2016 Markus Unterwaditzer

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.5 attrs 19.1.0

## 1.5.1 Available under license :

```
=====  
License and Credits  
=====
```

```attrs``` is licensed under the ``MIT`` [<https://choosealicense.com/licenses/mit/>](https://choosealicense.com/licenses/mit/) ``_`` license.  
The full license text can be also found in the ``source code repository`` [\\_`<https://github.com/python-attrs/attrs/blob/master/LICENSE>`](https://github.com/python-attrs/attrs/blob/master/LICENSE).

```
.. include:: ../AUTHORS.rst  
The MIT License (MIT)
```

Copyright (c) 2015 Hynek Schlawack

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.6 autoprefixer 7.1.6

### 1.6.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.7 avro 1.8.2

### 1.7.1 Available under license :

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to



communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
  - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
  - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
  - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of

the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

#### END OF TERMS AND CONDITIONS

#### APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

See the License for the specific language governing permissions and limitations under the License.

Apache Avro  
Copyright 2009-2017 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

## 1.8 avro-python3 1.8.2

### 1.8.1 Available under license :

Apache Avro  
Copyright 2010-2015 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

#### TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

##### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work,

where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or

for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason

of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

# 1.9 axios 0.18.0

## 1.9.1 Available under license :

Copyright (c) 2014-present Matt Zabriskie

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE



AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.10 babel-core 6.26.0

## 1.11 babel-eslint 7.2.3

### 1.11.1 Available under license :

Copyright (c) 2014-2016 Sebastian McKenzie <sebmck@gmail.com>

MIT License

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.12 babel-jest 20.0.3

### 1.12.1 Available under license :

The 3-Clause BSD License

SPDX short identifier: BSD-3-Clause

Note: This license has also been called the "New BSD License" or "Modified BSD License". See also the 2-clause BSD License.

Copyright <YEAR> <COPYRIGHT HOLDER>

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 1.13 babel-loader 7.1.2

### 1.13.1 Available under license :

Copyright (c) 2014-2016 Lus Couto <hello@luiscouto.pt>

MIT License

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE

LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.14 babel-polyfill 6.26.0

## 1.15 babel-preset-es2015 6.24.1

## 1.16 babel-preset-react 6.24.1

## 1.17 babel-preset-react-app 3.1.2

### 1.17.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.18 babel-runtime 6.26.0

## 1.19 case-sensitive-paths-webpack-plugin

### 2.1.1

#### 1.19.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.20 certifi 2019.3.9

#### 1.20.1 Available under license :

This package contains a modified version of ca-bundle.crt:

ca-bundle.crt -- Bundle of CA Root Certificates

Certificate data from Mozilla as of: Thu Nov 3 19:04:19 2011#

This is a bundle of X.509 certificates of public Certificate Authorities (CA). These were automatically extracted from Mozilla's root certificates file (certdata.txt). This file can be found in the mozilla source tree:

<http://mxr.mozilla.org/mozilla/source/security/nss/lib/ckfw/builtins/certdata.txt?raw=1#>

It contains the certificates in PEM format and therefore can be directly used with curl / libcurl / php\_curl, or with

an Apache+mod\_ssl webserver for SSL client authentication.

Just configure this file as the SSLCACertificateFile.#

\*\*\*\*\* BEGIN LICENSE BLOCK \*\*\*\*\*

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at <http://mozilla.org/MPL/2.0/>.

\*\*\*\*\* END LICENSE BLOCK \*\*\*\*\*

@(#) \$RCSfile: certdata.txt,v \$ \$Revision: 1.80 \$ \$Date: 2011/11/03 15:11:58 \$

## 1.21 chalk 1.1.3

### 1.21.1 Available under license :

The MIT License (MIT)

Copyright (c) Sindre Sorhus <[sindresorhus@gmail.com](mailto:sindresorhus@gmail.com)> ([sindresorhus.com](http://sindresorhus.com))

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.22 ciscossl 1.0.2k

### 1.22.1 Available under license :

LICENSE ISSUES

=====

The OpenSSL toolkit stays under a dual license, i.e. both the conditions of the OpenSSL License and the original SSLeay license apply to the toolkit. See below for the actual license texts. Actually both licenses are BSD-style

Open Source licenses. In case of any license issues related to OpenSSL please contact [openssl-core@openssl.org](mailto:openssl-core@openssl.org).

## OpenSSL License

-----

```
/* =====  
* Copyright (c) 1998-2016 The OpenSSL Project. All rights reserved.  
*  
* Redistribution and use in source and binary forms, with or without  
* modification, are permitted provided that the following conditions  
* are met:  
*  
* 1. Redistributions of source code must retain the above copyright  
* notice, this list of conditions and the following disclaimer.  
*  
* 2. Redistributions in binary form must reproduce the above copyright  
* notice, this list of conditions and the following disclaimer in  
* the documentation and/or other materials provided with the  
* distribution.  
*  
* 3. All advertising materials mentioning features or use of this  
* software must display the following acknowledgment:  
* "This product includes software developed by the OpenSSL Project  
* for use in the OpenSSL Toolkit. (http://www.openssl.org/)"  
*  
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to  
* endorse or promote products derived from this software without  
* prior written permission. For written permission, please contact  
* openssl-core@openssl.org.  
*  
* 5. Products derived from this software may not be called "OpenSSL"  
* nor may "OpenSSL" appear in their names without prior written  
* permission of the OpenSSL Project.  
*  
* 6. Redistributions of any form whatsoever must retain the following  
* acknowledgment:  
* "This product includes software developed by the OpenSSL Project  
* for use in the OpenSSL Toolkit (http://www.openssl.org/)"  
*  
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY  
* EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE  
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR  
* PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR  
* ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,  
* SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT  
* NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;  
* LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
```

\* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,  
\* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)  
\* ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED  
\* OF THE POSSIBILITY OF SUCH DAMAGE.

\* =====

\*

\* This product includes cryptographic software written by Eric Young  
\* (eay@cryptsoft.com). This product includes software written by Tim  
\* Hudson (tjh@cryptsoft.com).

\*

\*/

#### Original SSLeay License

-----

/\* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)

\* All rights reserved.

\*

\* This package is an SSL implementation written

\* by Eric Young (eay@cryptsoft.com).

\* The implementation was written so as to conform with Netscapes SSL.

\*

\* This library is free for commercial and non-commercial use as long as

\* the following conditions are aheared to. The following conditions

\* apply to all code found in this distribution, be it the RC4, RSA,

\* lhash, DES, etc., code; not just the SSL code. The SSL documentation

\* included with this distribution is covered by the same copyright terms

\* except that the holder is Tim Hudson (tjh@cryptsoft.com).

\*

\* Copyright remains Eric Young's, and as such any Copyright notices in

\* the code are not to be removed.

\* If this package is used in a product, Eric Young should be given attribution

\* as the author of the parts of the library used.

\* This can be in the form of a textual message at program startup or

\* in documentation (online or textual) provided with the package.

\*

\* Redistribution and use in source and binary forms, with or without

\* modification, are permitted provided that the following conditions

\* are met:

\* 1. Redistributions of source code must retain the copyright

\* notice, this list of conditions and the following disclaimer.

\* 2. Redistributions in binary form must reproduce the above copyright

\* notice, this list of conditions and the following disclaimer in the

\* documentation and/or other materials provided with the distribution.

\* 3. All advertising materials mentioning features or use of this software

\* must display the following acknowledgement:

\* "This product includes cryptographic software written by

\* Eric Young (eay@cryptsoft.com)"

\* The word 'cryptographic' can be left out if the routines from the library  
 \* being used are not cryptographic related :-).

\* 4. If you include any Windows specific code (or a derivative thereof) from  
 \* the apps directory (application code) you must include an acknowledgement:  
 \* "This product includes software written by Tim Hudson (tjh@cryptsoft.com)"  
 \*

\* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS" AND  
 \* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE  
 \* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE  
 \* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE  
 \* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL  
 \* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS  
 \* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)  
 \* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT  
 \* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY  
 \* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF  
 \* SUCH DAMAGE.  
 \*

\* The licence and distribution terms for any publically available version or  
 \* derivative of this code cannot be changed. i.e. this code cannot simply be  
 \* copied and put under another distribution licence  
 \* [including the GNU Public Licence.]  
 \*/

Copyright (C) 1995-1997 Eric Young (eay@cryptsoft.com)  
 All rights reserved.

This package is an Blowfish implementation written  
 by Eric Young (eay@cryptsoft.com).

This library is free for commercial and non-commercial use as long as  
 the following conditions are adhered to. The following conditions  
 apply to all code found in this distribution.

Copyright remains Eric Young's, and as such any Copyright notices in  
 the code are not to be removed.

Redistribution and use in source and binary forms, with or without  
 modification, are permitted provided that the following conditions  
 are met:

1. Redistributions of source code must retain the copyright  
 notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright  
 notice, this list of conditions and the following disclaimer in the  
 documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software  
 must display the following acknowledgement:  
 This product includes software developed by Eric Young (eay@cryptsoft.com)



THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The license and distribution terms for any publically available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution license [including the GNU Public License.]

The reason behind this being stated in this direct manner is past experience in code simply being copied and the attribution removed from it and then being distributed as part of other packages. This implementation was a non-trivial and unpaid effort.  
Copyright (C) 1995-1997 Eric Young (eay@cryptsoft.com)  
All rights reserved.

This package is an DES implementation written by Eric Young (eay@cryptsoft.com). The implementation was written so as to conform with MIT's libdes.

This library is free for commercial and non-commercial use as long as the following conditions are adhered to. The following conditions apply to all code found in this distribution.

Copyright remains Eric Young's, and as such any Copyright notices in the code are not to be removed.

If this package is used in a product, Eric Young should be given attribution as the author of that the SSL library. This can be in the form of a textual message at program startup or in documentation (online or textual) provided with the package.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement:

This product includes software developed by Eric Young (eay@cryptsoft.com)

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The license and distribution terms for any publically available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution license [including the GNU Public License.]

The reason behind this being stated in this direct manner is past experience in code simply being copied and the attribution removed from it and then being distributed as part of other packages. This implementation was a non-trivial and unpaid effort.

## 1.23 css-loader 0.28.7

### 1.23.1 Available under license :

Copyright JS Foundation and other contributors

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.24 Data Mapper for Jackson 1.9.13 :ASL License

## 1.24.1 Available under license :

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

### TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

#### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object

form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a

file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

#### GNU LESSER GENERAL PUBLIC LICENSE

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.  
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

#### Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the



difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

## TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) The modified work must itself be a software library.
- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for

the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

- a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)
- b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
- c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy. For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus

excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### END OF TERMS AND CONDITIONS

#### How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

one line to give the library's name and an idea of what it does.

Copyright (C) year name of author

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library 'Frob' (a library for tweaking knobs) written by James Random Hacker.

signature of Ty Coon, 1 April 1990

Ty Coon, President of Vice

That's all there is to it!

/\* Jackson JSON-processor.

\*

\* Copyright (c) 2007- Tatu Saloranta, tatu.saloranta@iki.fi

\*

\* Licensed under the License specified in file LICENSE, included with  
\* the source code and binary code bundles.

\* You may not use this file except in compliance with the License.

\*

\* Unless required by applicable law or agreed to in writing, software

\* distributed under the License is distributed on an "AS IS" BASIS,

\* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

\* See the License for the specific language governing permissions and

\* limitations under the License.

\*/

# 1.25 date-input-polyfill 2.14.0

## 1.25.1 Available under license :

The MIT License (MIT)

Copyright (c) 2016 liorwohl

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.26 dotenv 4.0.0

## 1.26.1 Available under license :

The 2-Clause BSD License

SPDX short identifier: BSD-2-Clause

Note: This license has also been called the "Simplified BSD License" and the "FreeBSD License". See also the 3-clause BSD License.

Copyright <YEAR> <COPYRIGHT HOLDER>

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 1.27 dotenv-expand 4.2.0

### 1.27.1 Available under license :

Copyright (c) 2016, Scott Motte  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 1.28 elasticsearch 6.3.1

### 1.28.1 Available under license :

Mozilla Public License Version 2.0

=====

1. Definitions

-----



1.1. "Contributor"

means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. "Contributor Version"

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"

means Covered Software of a particular Contributor.

1.4. "Covered Software"

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"

means

(a) that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

(b) that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"

means this document.

1.9. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"

means any of the following:

(a) any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered

Software; or

(b) any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

-----

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

(b) under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its

Contributions or its Contributor Version.

## 2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

## 2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

- (a) for any code that a Contributor has removed from Covered Software;  
or
- (b) for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or
- (c) under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

## 2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

## 2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

## 2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other

equivalents.

## 2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

## 3. Responsibilities

-----

### 3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

### 3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

- (a) such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and
- (b) You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

### 3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

### 3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

### 3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

## 4. Inability to Comply Due to Statute or Regulation

-----

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

## 5. Termination

-----

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License

from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

\*\*\*\*\*

```
*
*
* 6. Disclaimer of Warranty
* -----
*
* Covered Software is provided under this License on an "as is"
* basis, without warranty of any kind, either expressed, implied, or
* statutory, including, without limitation, warranties that the
* Covered Software is free of defects, merchantable, fit for a
* particular purpose or non-infringing. The entire risk as to the
* quality and performance of the Covered Software is with You.
* Should any Covered Software prove defective in any respect, You
* (not any Contributor) assume the cost of any necessary servicing,
* repair, or correction. This disclaimer of warranty constitutes an
* essential part of this License. No use of any Covered Software is
* authorized under this License except under this disclaimer.
*
*
*****
```

\*\*\*\*\*

```
*
*
* 7. Limitation of Liability
* -----
*
* Under no circumstances and under no legal theory, whether tort
* (including negligence), contract, or otherwise, shall any
* Contributor, or anyone who distributes Covered Software as
* permitted above, be liable to You for any direct, indirect,
* special, incidental, or consequential damages of any character
* including, without limitation, damages for lost profits, loss of
* goodwill, work stoppage, computer failure or malfunction, or any
* and all other commercial damages or losses, even if such party
* shall have been informed of the possibility of such damages. This
*
```

\* limitation of liability shall not apply to liability for death or \*  
 \* personal injury resulting from such party's negligence to the \*  
 \* extent applicable law prohibits such limitation. Some \*  
 \* jurisdictions do not allow the exclusion or limitation of \*  
 \* incidental or consequential damages, so this exclusion and \*  
 \* limitation may not apply to You. \*  
 \* \*  
 \*\*\*\*\*

8. Litigation  
 -----

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

9. Miscellaneous  
 -----

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License  
 -----

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

#### 10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

##### Exhibit A - Source Code Form License Notice

-----

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at <http://mozilla.org/MPL/2.0/>.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

##### Exhibit B - "Incompatible With Secondary Licenses" Notice

-----

This Source Code Form is "Incompatible With Secondary Licenses", as defined by the Mozilla Public License, v. 2.0.

This product includes software developed by The Apache Software Foundation (<http://www.apache.org/>).

Except where otherwise noted in the source code (e.g. the files hash.c, list.c and the trio files, which are covered by a similar licence but with different Copyright notices) all the files are:

Copyright (C) 1998-2003 Daniel Veillard. All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in



all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE DANIEL VEILLARD BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of Daniel Veillard shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from him.

name,version,revision,url,license,copyright

Visual Studio 2013 Express Runtime Libraries,12.0,,<https://www.visualstudio.com>,Custom;[https://s3-eu-west-1.amazonaws.com/prelert-artifacts/dependencies/License\\_Visual\\_Studio\\_2013\\_Express\\_English\\_b8a9dbc1-1fd4-4103-a83b-a2896f193ea0.htm](https://s3-eu-west-1.amazonaws.com/prelert-artifacts/dependencies/License_Visual_Studio_2013_Express_English_b8a9dbc1-1fd4-4103-a83b-a2896f193ea0.htm),Copyright (C) Microsoft Corporation

Copyright (C) 1995-2013 Jean-loup Gailly and Mark Adler

This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

Jean-loup Gailly      Mark Adler  
jloup@gzip.org      madler@alumni.caltech.edu

name,version,revision,url,license,copyright

RapidXml,1.13,,<http://rapidxml.sourceforge.net>,MIT,"Copyright (c) 2006, 2007 Marcin Kalicinski"

name,version,revision,url,license,copyright

Apache Portable Runtime Library,1.5.2,,<https://apr.apache.org>,Apache-2.0,Copyright (c) 2000-2015 The Apache Software Foundation

The Moby lexicon project is complete and has been placed into the public domain. Use, sell, rework, excerpt and use in any way on any platform.

Placing this material on internal or public servers is also encouraged. The compiler is not aware of any export restrictions so freely distribute world-wide.

You can verify the public domain status by contacting

Grady Ward  
3449 Martha Ct.  
Arcata, CA 95521-4884

daedal@myrealbox.com >>

Tencent is pleased to support the open source community by making RapidJSON available.

Copyright (C) 2015 THL A29 Limited, a Tencent company, and Milo Yip.  
All rights reserved.

Terms of the MIT License:

-----

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Use of this software is granted under one of the following two licenses, to be chosen freely by the user.

1. Boost Software License - Version 1.0 - August 17th, 2003

=====

Copyright (c) 2006, 2007 Marcin Kalicinski

Permission is hereby granted, free of charge, to any person or organization obtaining a copy of the software and accompanying documentation covered by this license (the "Software") to use, reproduce, display, distribute, execute, and transmit the Software, and to prepare derivative works of the Software, and to permit third-parties to whom the Software is furnished to do so, all subject to the following:

The copyright notices in the Software and this entire statement, including the above license grant, this restriction and the following disclaimer, must be included in all copies of the Software, in whole or in part, and all derivative works of the Software, unless such copies or derivative works are solely in the form of machine-executable object code generated by a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 2. The MIT License

=====  
Copyright (c) 2006, 2007 Marcin Kalicinski

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,

and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the

Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
  - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
  - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
  - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory,

whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

#### END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Of the two options provided, Elastic chooses to license RapidXml under the MIT License.

The collective work is Copyright 2000-2011 by Kevin Atkinson as well as any of the copyrights mentioned below:

Copyright 2000-2011 by Kevin Atkinson

Permission to use, copy, modify, distribute and sell these word lists, the associated scripts, the output created from the scripts, and its documentation for any purpose is hereby granted without fee, provided that the above copyright notice appears in all copies and that both that copyright notice and this permission notice appear in supporting documentation. Kevin Atkinson makes no representations about the suitability of this array for any purpose. It is provided "as is" without express or implied warranty.

Alan Beale <biljir@pobox.com> also deserves special credit as he has, in addition to providing the 12Dicts package and being a major contributor to the ENABLE word list, given me an incredible amount of feedback and created a number of special lists (those found in the Supplement) in order to help improve the overall quality of SCOWL.

The 10 level includes the 1000 most common English words (according to the Moby (TM) Words II [MWords] package), a subset of the 1000 most common words on the Internet (again, according to Moby Words II), and frequently class 16 from Brian Kelk's "UK English Wordlist with Frequency Classification".

The MWords package was explicitly placed in the public domain:

The Moby lexicon project is complete and has been place into the public domain. Use, sell, rework, excerpt and use in any way on any platform.

Placing this material on internal or public servers is also encouraged. The compiler is not aware of any export restrictions so freely distribute world-wide.

You can verify the public domain status by contacting

Grady Ward  
3449 Martha Ct.  
Arcata, CA 95521-4884

grady@netcom.com  
grady@northcoast.com

The "UK English Wordlist With Frequency Classification" is also in the



Public Domain:

Date: Sat, 08 Jul 2000 20:27:21 +0100  
From: Brian Kelk <Brian.Kelk@cl.cam.ac.uk>

> I was wondering what the copyright status of your "UK English  
> Wordlist With Frequency Classification" word list as it seems to  
> be lacking any copyright notice.

There were many many sources in total, but any text marked  
"copyright" was avoided. Locally-written documentation was one  
source. An earlier version of the list resided in a filespace called  
PUBLIC on the University mainframe, because it was considered public  
domain.

Date: Tue, 11 Jul 2000 19:31:34 +0100

> So are you saying your word list is also in the public domain?

That is the intention.

The 20 level includes frequency classes 7-15 from Brian's word list.

The 35 level includes frequency classes 2-6 and words appearing in at  
least 11 of 12 dictionaries as indicated in the 12Dicts package. All  
words from the 12Dicts package have had likely inflections added via  
my inflection database.

The 12Dicts package and Supplement is in the Public Domain.

The WordNet database, which was used in the creation of the  
Inflections database, is under the following copyright:

This software and database is being provided to you, the LICENSEE,  
by Princeton University under the following license. By obtaining,  
using and/or copying this software and database, you agree that you  
have read, understood, and will comply with these terms and  
conditions.:

Permission to use, copy, modify and distribute this software and  
database and its documentation for any purpose and without fee or  
royalty is hereby granted, provided that you agree to comply with  
the following copyright notice and statements, including the  
disclaimer, and that the same appear on ALL copies of the software,  
database and documentation, including modifications that you make  
for internal use or for distribution.

WordNet 1.6 Copyright 1997 by Princeton University. All rights

reserved.

THIS SOFTWARE AND DATABASE IS PROVIDED "AS IS" AND PRINCETON UNIVERSITY MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, PRINCETON UNIVERSITY MAKES NO REPRESENTATIONS OR WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE LICENSED SOFTWARE, DATABASE OR DOCUMENTATION WILL NOT INFRINGE ANY THIRD PARTY PATENTS, COPYRIGHTS, TRADEMARKS OR OTHER RIGHTS.

The name of Princeton University or Princeton may not be used in advertising or publicity pertaining to distribution of the software and/or database. Title to copyright in this software, database and any associated documentation shall at all times remain with Princeton University and LICENSEE agrees to preserve same.

The 40 level includes words from Alan's 3esl list found in version 4.0 of his 12dicts package. Like his other stuff the 3esl list is also in the public domain.

The 50 level includes Brian's frequency class 1, words words appearing in at least 5 of 12 of the dictionaries as indicated in the 12Dicts package, and uppercase words in at least 4 of the previous 12 dictionaries. A decent number of proper names is also included: The top 1000 male, female, and Last names from the 1990 Census report; a list of names sent to me by Alan Beale; and a few names that I added myself. Finally a small list of abbreviations not commonly found in other word lists is included.

The name files from the Census report is a government document which I don't think can be copyrighted.

The file special-jargon.50 uses common.lst and word.lst from the "Unofficial Jargon File Word Lists" which is derived from "The Jargon File". All of which is in the Public Domain. This file also contain a few extra UNIX terms which are found in the file "unix-terms" in the special/ directory.

The 55 level includes words from Alan's 2of4brif list found in version 4.0 of his 12dicts package. Like his other stuff the 2of4brif is also in the public domain.

The 60 level includes all words appearing in at least 2 of the 12 dictionaries as indicated by the 12Dicts package.

The 70 level includes Brian's frequency class 0 and the 74,550 common dictionary words from the MWords package. The common dictionary words, like those from the 12Dicts package, have had all likely inflections

added. The 70 level also included the 5desk list from version 4.0 of the 12Discs package which is the public domain.

The 80 level includes the ENABLE word list, all the lists in the ENABLE supplement package (except for ABLE), the "UK Advanced Cryptics Dictionary" (UKACD), the list of signature words in from YAWL package, and the 10,196 places list from the MWords package.

The ENABLE package, mainted by M\Cooper <thegrendel@theriver.com>, is in the Public Domain:

The ENABLE master word list, WORD.LST, is herewith formally released into the Public Domain. Anyone is free to use it or distribute it in any manner they see fit. No fee or registration is required for its use nor are "contributions" solicited (if you feel you absolutely must contribute something for your own peace of mind, the authors of the ENABLE list ask that you make a donation on their behalf to your favorite charity). This word list is our gift to the Scrabble community, as an alternate to "official" word lists. Game designers may feel free to incorporate the WORD.LST into their games. Please mention the source and credit us as originators of the list. Note that if you, as a game designer, use the WORD.LST in your product, you may still copyright and protect your product, but you may *\*not\** legally copyright or in any way restrict redistribution of the WORD.LST portion of your product. This *\*may\** under law restrict your rights to restrict your users' rights, but that is only fair.

UKACD, by J Ross Beresford <ross@bryson.demon.co.uk>, is under the following copyright:

Copyright (c) J Ross Beresford 1993-1999. All Rights Reserved.

The following restriction is placed on the use of this publication: if The UK Advanced Cryptics Dictionary is used in a software package or redistributed in any form, the copyright notice must be prominently displayed and the text of this document must be included verbatim.

There are no other restrictions: I would like to see the list distributed as widely as possible.

The 95 level includes the 354,984 single words, 256,772 compound words, 4,946 female names and the 3,897 male names, and 21,986 names from the MWords package, ABLE.LST from the ENABLE Supplement, and some additional words found in my part-of-speech database that were not found anywhere else.

Accent information was taken from UKACD.

My VARCON package was used to create the American, British, and Canadian word list.

Since the original word lists used in the VARCON package came from the Ispell distribution they are under the Ispell copyright:

Copyright 1993, Geoff Kuenning, Granada Hills, CA  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All modifications to the source code must be clearly marked as such. Binary redistributions based on modified source code must be clearly marked as modified versions in the documentation and/or other materials provided with the distribution.
- (clause 4 removed with permission from Geoff Kuenning)
5. The name of Geoff Kuenning may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY GEOFF KUENNING AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL GEOFF KUENNING OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache Portable Runtime Utility Library  
Copyright (c) 2009 The Apache Software Foundation.

This product includes software developed by  
The Apache Software Foundation (<http://www.apache.org/>).

Portions of this software were developed at the National Center for Supercomputing Applications (NCSA) at the University of

Illinois at Urbana-Champaign.

This software contains code derived from the RSA Data Security Inc. MD5 Message-Digest Algorithm, including various modifications by Spyglass Inc., Carnegie Mellon University, and Bell Communications Research, Inc (Bellcore).

name,version,revision,url,license,copyright

GCC Runtime Library,6.2.0,6ac74a62ba7258299cf85fbef9bf45333ddf10c0,https://gcc.gnu.org,GPL-3.0 WITH GCC-exception-3.1,"Copyright (C) 2016 Free Software Foundation, Inc."

The msintypes r29

Copyright (c) 2006-2013 Alexander Chemeris

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- \* Neither the name of copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS AND CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

name,version,revision,url,license,copyright

The msintypes,r29,,https://code.google.com/archive/p/msintypes/,BSD-3-Clause,Copyright (c) 2006-2013 Alexander Chemeris

name,version,revision,url,license,copyright

Boost C++ Libraries,1.65.1,,http://www.boost.org,BSL-1.0,

Copyright (c) 1997, 1998, 2005, 2008 The NetBSD Foundation, Inc.

All rights reserved.

This code was contributed to The NetBSD Foundation by Klaus Klein.

Heavily optimised by David Laight

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE NETBSD FOUNDATION, INC. AND CONTRIBUTORS ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

name,version,revision,url,license,copyright

Libxml2,2.9.4.,<http://xmlsoft.org/>,MIT,Copyright (C) 1998-2012 Daniel Veillard

Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization obtaining a copy of the software and accompanying documentation covered by this license (the "Software") to use, reproduce, display, distribute, execute, and transmit the Software, and to prepare derivative works of the Software, and to permit third-parties to whom the Software is furnished to do so, all subject to the following:

The copyright notices in the Software and this entire statement, including the above license grant, this restriction and the following disclaimer, must be included in all copies of the Software, in whole or in part, and all derivative works of the Software, unless such copies or derivative works are solely in the form of machine-executable object code generated by a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

name,version,revision,url,license,copyright

Apache Portable Runtime Utility Library,1.5.4.,<https://apr.apache.org/>,Apache-2.0,Copyright (c) 2000-2014 The Apache Software Foundation

name,version,revision,url,license,copyright  
SCOWL,7.1.,<http://wordlist.aspell.net>,Custom;<https://raw.githubusercontent.com/en-wl/wordlist/scowl-7.1/scowl/Copyright>,Copyright 2000-2011 by Kevin Atkinson

name,version,revision,url,license,copyright  
Eigen,3.2.5,bdd17ee3b1b3a166cd5ec36dcad4fc1f3faf774a,<http://eigen.tuxfamily.org>,MPL-2.0,

name,version,revision,url,license,copyright  
RapidJSON,1.1.0,f05edc9296507a9864d99931e203631c2ffd8d4a,<http://rapidjson.org>,MIT,"Copyright (C) 2015 THL A29 Limited, a Tencent company, and Milo Yip"

name,version,revision,url,license,copyright  
Apache Portable Runtime Iconv Library,1.2.1.,<https://apr.apache.org>,Apache-2.0,Copyright (c) 2000 Konstantin Chuguev

name,version,revision,url,license,copyright  
strptime,1.35.,<http://cvsweb.netbsd.org/bsdweb.cgi/src/lib/libc/time/strptime.c>,BSD-2-Clause-NetBSD,"Copyright (c) 1997, 1998, 2005, 2008 The NetBSD Foundation, Inc."

name,version,revision,url,license,copyright  
zlib,1.2.8.,<http://zlib.net>,Zlib,Copyright (C) 1995-2013 Jean-loup Gailly and Mark Adler  
Apache Portable Runtime  
Copyright (c) 2009 The Apache Software Foundation.

This product includes software developed by  
The Apache Software Foundation (<http://www.apache.org/>).

Portions of this software were developed at the National Center  
for Supercomputing Applications (NCSA) at the University of  
Illinois at Urbana-Champaign.

This software contains code derived from the RSA Data Security  
Inc. MD5 Message-Digest Algorithm.

This software contains code derived from UNIX V7, Copyright(C)  
Caldera International Inc.

name,version,revision,url,license,copyright  
log4cxx,0.10.0.,<https://logging.apache.org/log4cxx>,Apache-2.0,Copyright 2004-2007 The Apache Software  
Foundation  
name,version,revision,url,license,copyright  
Moby lexicon project,1.,<http://icon.shef.ac.uk/Moby/>,Public-Domain;<http://icon.shef.ac.uk/Moby/>,  
GCC RUNTIME LIBRARY EXCEPTION

Version 3.1, 31 March 2009

Copyright (C) 2009 Free Software Foundation, Inc. <<http://fsf.org/>>

Everyone is permitted to copy and distribute verbatim copies of this  
license document, but changing it is not allowed.

This GCC Runtime Library Exception ("Exception") is an additional  
permission under section 7 of the GNU General Public License, version  
3 ("GPLv3"). It applies to a given file (the "Runtime Library") that

bears a notice placed by the copyright holder of the file stating that the file is governed by GPLv3 along with this Exception.

When you use GCC to compile a program, GCC may combine portions of certain GCC header files and runtime libraries with the compiled program. The purpose of this Exception is to allow compilation of non-GPL (including proprietary) programs to use, in this way, the header files and runtime libraries covered by this Exception.

## 0. Definitions.

A file is an "Independent Module" if it either requires the Runtime Library for execution after a Compilation Process, or makes use of an interface provided by the Runtime Library, but is not otherwise based on the Runtime Library.

"GCC" means a version of the GNU Compiler Collection, with or without modifications, governed by version 3 (or a specified later version) of the GNU General Public License (GPL) with the option of using any subsequent versions published by the FSF.

"GPL-compatible Software" is software whose conditions of propagation, modification and use would permit combination with GCC in accord with the license of GCC.

"Target Code" refers to output from any compiler for a real or virtual target processor architecture, in executable form or suitable for input to an assembler, loader, linker and/or execution phase. Notwithstanding that, Target Code does not include data in any format that is used as a compiler intermediate representation, or used for producing a compiler intermediate representation.

The "Compilation Process" transforms code entirely represented in non-intermediate languages designed for human-written code, and/or in Java Virtual Machine byte code, into Target Code. Thus, for example, use of source code generators and preprocessors need not be considered part of the Compilation Process, since the Compilation Process can be understood as starting with the output of the generators or preprocessors.

A Compilation Process is "Eligible" if it is done using GCC, alone or with other GPL-compatible software, or if it is done without using any work based on GCC. For example, using non-GPL-compatible Software to optimize any GCC intermediate representations would not qualify as an Eligible Compilation Process.

## 1. Grant of Additional Permission.



You have permission to propagate a work of Target Code formed by combining the Runtime Library with Independent Modules, even if such propagation would otherwise violate the terms of GPLv3, provided that all Target Code was generated by Eligible Compilation Processes. You may then convey such a combination under terms of your choice, consistent with the licensing of the Independent Modules.

## 2. No Weakening of GCC Copyleft.

The availability of this Exception does not imply any general presumption that third-party software is unaffected by the copyleft requirements of the license of GCC.

## MICROSOFT SOFTWARE LICENSE TERMS

### MICROSOFT VISUAL STUDIO EXPRESS 2013 FOR WINDOWS DESKTOP

These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft

- \* updates,
- \* supplements,
- \* Internet-based services, and
- \* support services

for this software, unless other terms accompany those items. If so, those terms apply.

**BY USING THE SOFTWARE, YOU ACCEPT THESE TERMS. IF YOU DO NOT ACCEPT THEM, DO NOT USE THE SOFTWARE.**

**AS DESCRIBED BELOW, USING SOME FEATURES ALSO OPERATES AS YOUR CONSENT TO THE TRANSMISSION OF CERTAIN STANDARD COMPUTER INFORMATION FOR INTERNET-BASED SERVICES.**

If you comply with these license terms, you have the rights below.

#### 1. INSTALLATION AND USE RIGHTS.

- a. Installation and Use. One user may install and use any number of copies of the software on your devices to design, develop and test your programs.
- b. Trial Edition. The initial installation of the software is a trial edition. The length of the trial period is thirty (30) days. You may convert your trial rights at any time to the full-use rights described below by registering with Microsoft. After the expiration of the 30-day trial period, without registering, the trial edition will stop running. You may not be able to access data used with the trial edition when it stops running.
- c. Included Microsoft Programs. The software contains other Microsoft programs. The license terms with those programs apply to your use of

them.

d. Third Party Notices. Additional copyright notices and license terms applicable to portions of the software are set forth in the ThirdPartyNotices file accompanying the Microsoft software. In addition to any terms and conditions of any third party license identified in the ThirdPartyNotices file, the disclaimer of warranty and limitation on and exclusion of remedies and damages provisions of this agreement shall apply to all software in this distribution.

e. Additional Licensing Requirements and/or Distribution Rights for Features Made Available with the Software:

\* Windows Phone Store. If you intend to make your program available in the Windows Phone Store, you will need to comply with the terms and conditions of the Windows Phone Store Application Provider Agreement.

\* Bing Maps. The software may include features that retrieve content such as maps, images and other data through the Bing Maps (or successor branded) application programming interface (the "Bing Maps API") to create reports displaying data on top of maps, aerial and hybrid imagery. If these features are included, you may use these features to create and view dynamic or static documents only in conjunction with and through methods and means of access integrated in the software. You may not otherwise copy, store, archive, or create a database of the entity information including business names, addresses and geocodes available through the Bing Maps API. You may not use the Bing Maps API to provide sensor based guidance/routing, nor use any Road Traffic Data or Bird's Eye Imagery (or associated metadata) even if available through the Bing Maps API for any purpose. Your use of the Bing Maps API and associated content is also subject to the additional terms and conditions at <http://go.microsoft.com/fwlink/?LinkId=21969>.

\* Additional Mapping APIs. The software may include application programming interfaces that provide maps and other related mapping features and services that are not provided by Bing (the "Additional Mapping APIs"). These Additional Mapping APIs are subject to additional terms and conditions and may require payment of fees to Microsoft and/or third party providers based on the use or volume of use of such Additional Mapping APIs. These terms and conditions will be provided when you obtain any necessary license keys to use such Additional Mapping APIs or when you review or receive documentation related to the use of such Additional Mapping APIs.

\* Push Notifications. The Microsoft Push Notification Service may not be used to send notifications that are mission critical or otherwise could affect matters of life or death, including without limitation critical notifications related to a medical device or condition. MICROSOFT EXPRESSLY DISCLAIMS ANY WARRANTIES THAT THE USE OF THE MICROSOFT PUSH NOTIFICATION SERVICE OR DELIVERY OF MICROSOFT PUSH NOTIFICATION SERVICE NOTIFICATIONS WILL BE UNINTERRUPTED, ERROR FREE, OR OTHERWISE GUARANTEED TO OCCUR ON A REAL-TIME BASIS.

\* **Windows.Phone.Speech namespace API.** Using speech recognition functionality via the Windows.Phone.Speech namespace APIs in a program requires the support of a speech recognition service. The service may require network connectivity at the time of recognition (e.g., when using a predefined grammar). In addition, the service may also collect speech-related data in order to provide and improve the service. The speech-related data may include, for example, information related to grammar size and string phrases in a grammar. Also, in order for a user to use speech recognition on the phone they must first accept certain terms of use. The terms of use notify the user that data related to their use of the speech recognition service will be collected and used to provide and improve the service. If a user does not accept the terms of use and speech recognition is attempted by the application, the operation will not work and an error will be returned to the application.

\* **Location Framework.** The software may contain a location framework component that enables support of location services in programs. In addition to the other limitations in this agreement, you must comply with all applicable local laws and regulations when using the location framework component or the rest of the software.

\* **Device ID Access.** The software may contain a component that enables programs to access the device ID of the device that is running the program. In addition to the other limitations in this agreement, you must comply with all applicable local laws and regulations when using the device ID access component or the rest of the software.

\* **PlayReady Support.** The software includes the Windows Phone Emulator, which contains Microsoft's PlayReady content access technology. Content owners use Microsoft PlayReady content access technology to help protect their intellectual property, including copyrighted content. This software uses PlayReady technology to access PlayReady-protected content and/or Microsoft Digital Rights Management (DRM) protected content. Microsoft may decide to revoke the software's ability to consume PlayReady-protected content for reasons including but not limited to (i) if a breach or potential breach of PlayReady technology occurs, (ii) proactive robustness enhancement, and (iii) if content owners require the revocation because the software fails to properly enforce restrictions on content usage. Revocation should not affect unprotected content or content protected by other content access technologies. Content owners may require you to upgrade PlayReady to access their content. If you decline an upgrade, you will not be able to access content that requires the upgrade and may not be able to install other operating system updates or upgrades.

\* **Microsoft Advertising SDKs.** If you pass precise location data or other user related data (e.g., user identifier, profile data, behaviorally tracked user data) to the Microsoft Advertising SDK for Windows and Windows Phone or the Microsoft Advertising SDK, then

your program must (a) notify end users that it will be collecting and using user related information and providing this information to Microsoft for Microsoft's advertising use, and (b) explicitly obtain affirmative user consent (e.g. the user must click an "Accept" or continue "Install" button) for this upon download of the software and/or application. In addition, you agree to: (a) comply with certification and other requirements for Windows and Windows Phone and Windows Store; (b) comply with Microsoft's privacy and other policies in your collection and use of any user data; (c) not collect or use any user identifier created or provided to you by Microsoft for any purpose other than passing such identifier to a Microsoft advertising service as part of your use of the service; and (d) provide in your privacy policy and/or terms of use a link that provides users with the ability to opt out of Microsoft interest based advertising at the following location  
<https://choice.live.com/AdvertisementChoice/>.

## 2. ADDITIONAL LICENSING REQUIREMENTS AND/OR USE RIGHTS.

a. Distributable Code. The software contains code that you are permitted to distribute in programs you develop if you comply with the terms below. (For this Section the term "distribution" also means deployment of your programs for third parties to access over the Internet.)

i. Right to Use and Distribute. The code and text files listed below are "Distributable Code."

\* REDIST.TXT Files. You may copy and distribute the object code form of code listed on the REDIST list located at [go.microsoft.com/fwlink/?LinkId=313603](http://go.microsoft.com/fwlink/?LinkId=313603).

\* Sample Code You may modify, copy and distribute the source and object code form of code marked as "sample."

\* Third Party Distribution. You may permit distributors of your programs to copy and distribute the Distributable Code as part of those programs.

ii. Distribution Requirements. For any Distributable Code you distribute, you must

\* add significant primary functionality to it in your programs;

\* for any Distributable Code having a filename extension of .lib, distribute only the results of running such Distributable Code through a linker with your program;

\* distribute Distributable Code included in a setup program only as part of that setup program without modification;

\* require distributors and external end users to agree to terms that protect it at least as much as this agreement;

\* display your valid copyright notice on your programs; and

\* indemnify, defend, and hold harmless Microsoft from any claims, including attorneys' fees, related to the distribution or use of your programs.

iii. Distribution Restrictions. You may not

\* alter any copyright, trademark or patent notice in the

Distributable Code;

- \* use Microsoft's trademarks in your programs' names or in a way that suggests your programs come from or are endorsed by Microsoft;

- \* distribute Distributable Code to run on a platform other than Microsoft operating systems, run-time technologies, or application platforms;

- \* include Distributable Code in malicious, deceptive or unlawful programs; or

- \* modify or distribute the source code of any Distributable Code so that any part of it becomes subject to an Excluded License. An Excluded License is one that requires, as a condition of use, modification or distribution, that

- \* the code be disclosed or distributed in source code form;

or

- \* others have the right to modify it.

### 3. DATA.

a. Consent for Internet-Based Services. The software features described below and in the Visual Studio 2013 privacy statement connect to Microsoft or service provider computer systems over the Internet. In some cases, you will not receive a separate notice when they connect.

You may switch off these features or not use them. For more information about these features, see <http://go.microsoft.com/fwlink/?LinkId=286720>

. BY USING THESE FEATURES, YOU CONSENT TO THE TRANSMISSION OF THIS INFORMATION. Microsoft does not use the information to identify or contact you.

- \* Extensions and Updates; and New Project Dialog. Extensions and Updates; and New Project Dialog can retrieve other software through the Internet from Visual Studio Gallery, Microsoft Download Center and MSDN Samples websites. To provide this other software, Extensions and Updates and; and New Project Dialog send to Microsoft the name and version of the software you are using and language code of the device where you installed the software. In addition, Extensions and Updates also contains an automatic update feature that is on by default.

? For more information about this feature, including instructions for to turning it off, see

<http://go.microsoft.com/fwlink/?LinkId=286720> . You may turn

off this automatic update feature while the software is

running ("opt out"). Unless you expressly opt out of this

feature, the feature will (a) connect to Microsoft or service

provider computer systems over the Internet, (b) use Internet

protocols to send to the appropriate systems standard computer

information, such as your computer's Internet protocol

address, operating system, the name and version of the

software you are using and language code of the device where

you installed the software, and (c) prompt you to download

and/or install, current updates to the software or other third

party software. In some cases, you will not receive a separate notice before this feature takes effect. By installing the software, you consent to the transmission of standard computer information.

- \* Notification Tool Window. The software includes a notification tool window. When connected to the Internet, technologies that use the notification tool window may provide information related to extensions and other software or services that you have installed or opted into and display those updates to you. For more information please see the privacy statement

<http://go.microsoft.com/fwlink/?LinkId=286720> .

- \* Digital Certificates. The software uses digital certificates. These digital certificates confirm the identity of Internet users sending X.509 standard encrypted information. They also can be used to digitally sign files and macros to verify the integrity and origin of the file contents. The software retrieves certificates and updates certificate revocation lists using the Internet, when available.

- \* Really Simple Syndication ("RSS") Feed. This software start page contains updated content that is supplied by means of an RSS feed online from Microsoft.

- \* Package Manager Features. For more information about these features, see the privacy statement available at [go.microsoft.com/fwlink/?LinkId=205205](http://go.microsoft.com/fwlink/?LinkId=205205). With respect to these package manager features, we or the third party service provider may use the computer information obtained through your use of these features, to improve our or their software and services. We or they may also share it with others, such as hardware and software vendors. They may use the information to improve how their products run with Microsoft software.

- o Open Data Protocol (OData) Service. The Microsoft NuGet-Based Package Manager and the package manager feature of Microsoft ASP.NET Web Pages will access a list of packages that is supplied by means of an OData service online from Microsoft or a third-party service provider, located at [go.microsoft.com/fwlink/?LinkID=206669](http://go.microsoft.com/fwlink/?LinkID=206669). You may change the feed URL that the package manager feature initially points to at any time at your discretion.

Misuse of Internet-based Services. You may not use these services in any way that could harm them or impair anyone else's use of them. You may not use the services to try to gain unauthorized access to any service, data, account or network by any means.

- b. Computer Information. The following features use Internet protocols, which send to the appropriate systems computer information, such as your Internet protocol address, the type of operating system, browser and name and version of the software you are using, and the language code of the device where you installed the software. Microsoft uses this information to make the Internet-based services available to you.

\* Visual Studio Experience Improvement Program. This software uses the Visual Studio Experience Improvement Program ("VSEIP") which is on by default. VSEIP helps Microsoft collect information about problems that you have while using the software. Microsoft also uses VSEIP Information to improve its software and services. Microsoft may also share VSEIP data with others, such as agents acting on Microsoft's behalf and hardware and software vendors to improve how their products run with Microsoft software. To learn more about VSEIP, including how you can opt out, see [go.microsoft.com/fwlink/?LinkId=286720](http://go.microsoft.com/fwlink/?LinkId=286720).

\* Data Collected Automatically. Microsoft automatically collects information identifying your installed Microsoft product, the operating system of the device, the CPU architecture of the operating system and data regarding the success or failure of the installation of the software, data identifying the cause of a crash in the product and information about the product license which is in use. Microsoft does not use this information to identify or contact you. For more information about privacy, see <http://go.microsoft.com/fwlink/?LinkId=286720>.

c. Microsoft Accounts in Visual Studio. If you are running the software on Windows 8, Windows 7 with sign-in assistant, or any other version of Windows that supports providing a Microsoft account directly to the software and you are signed into a Microsoft account in those versions of Windows, you may automatically be signed into the software and Visual Studio services accessed by the software using the same Microsoft account. This allows you to access services within the software and roam the software's settings without being asked to reenter your Microsoft account credentials each time you start the software. For more information about signing into the software and the services available therein with a Microsoft Account, see the privacy statement <http://go.microsoft.com/fwlink/?LinkId=286720>.

d. Use of Information. Microsoft may use the computer and services information to improve its software and services. Microsoft may also share it with others, such as hardware and software vendors. They may use the information to improve how their products run with Microsoft software.

4. Windows Components. The software may include Microsoft .NET Framework software, certain .dll's related to Microsoft Build technologies and packaging technologies, Windows controls, resource resolution and rendering technologies, Windows Identity Foundation, Windows Web Services (WWS) for Windows 2008 and Windows Library for JavaScript components. These software components are part of Windows and are licensed to you under separate Windows license terms or as a supplement to a Windows license. The product lifecycle support and license terms for the applicable Windows product apply to your use of these Windows components.

5. Microsoft .NET Framework Benchmark Testing. The software includes one or more components of the .NET Framework (".NET Components"). You may conduct internal benchmark testing of those components. You may disclose the results of any benchmark test of those components, provided that you comply with the

conditions set forth at <http://go.microsoft.com/fwlink/?LinkID=66406>.

Notwithstanding any other agreement you may have with Microsoft, if you disclose such benchmark test results, Microsoft shall have the right to disclose the results of benchmark tests it conducts of your products that compete with the applicable .NET Component, provided it complies with the same conditions set forth at <http://go.microsoft.com/fwlink/?LinkID=66406>.

6. **SQL SERVER SOFTWARE AND WINDOWS SOFTWARE DEVELOPMENT KIT (WINDOWS SDK).** The software is also accompanied by Microsoft SQL Server Software and Windows SDK which are licensed to you under their own terms. The license terms for the SQL Server Software and Windows SDK are located in the "Licenses" folder of the software installation directory. If you do not agree to the components' license terms, you may not use them.

7. **PACKAGE MANAGER AND THIRD PARTY SOFTWARE INSTALLATION FEATURES.** The software includes the following features (each a "Feature"), each of which enables you to obtain software applications or packages through the Internet from other sources: Extension Manager, New Project Dialog, Web Platform Installer, and Microsoft NuGet-Based Package Manager. Those software applications and packages are offered and distributed in some cases by third parties and in some cases by Microsoft, but each such application or package is under its own license terms. Microsoft is not developing, distributing or licensing any of the third-party applications or packages to you, but instead, as a convenience, enables you to use the Features to access or obtain those applications or packages directly from the third-party application or package providers. By using the Features, you acknowledge and agree that:

- \* you are obtaining the applications or packages from such third parties and under separate license terms applicable to each application or package (including, with respect to the package-manager Features, any terms applicable to software dependencies that may be included in the package);

MICROSOFT MAKES NO REPRESENTATIONS, WARRANTIES OR GUARANTEES AS TO THE FEED OR GALLERY URL, ANY FEEDS OR GALLERIES FROM SUCH URL, THE INFORMATION CONTAINED THEREIN, OR ANY SOFTWARE APPLICATIONS OR PACKAGES REFERENCED IN OR ACCESSED BY YOU THROUGH SUCH FEEDS OR GALLERIES. MICROSOFT GRANTS YOU NO LICENSE RIGHTS FOR THIRD-PARTY SOFTWARE APPLICATIONS OR PACKAGES THAT ARE OBTAINED USING THE FEATURES.

8. **SCOPE OF LICENSE.** The software is licensed, not sold. This agreement only gives you some rights to use the software. Microsoft reserves all other rights. Unless applicable law gives you more rights despite this limitation, you may use the software only as expressly permitted in this agreement. In doing so, you must comply with any technical limitations in the software that only allow you to use it in certain ways. You may not

- \* disclose the results of any benchmark tests of the software to any third party without Microsoft's prior written approval, however, this does not apply to the Microsoft .NET Framework (see Section 5);
- \* work around any technical limitations in the software;
- \* reverse engineer, decompile or disassemble the software, or otherwise attempt to derive the source code for the software except, and solely to the extent: (i) permitted by applicable law, despite this



limitation; or (ii) required to debug changes to any libraries licensed under the GNU Lesser General Public License which are included with and linked to by the software;

- \* make more copies of the software than specified in this agreement or allowed by applicable law, despite this limitation;
- \* publish the software for others to copy;
- \* rent, lease or lend the software;
- \* transfer the software or this agreement to any third party; or
- \* use the software for commercial software hosting services.

9. **BACKUP COPY.** You may make one backup copy of the software. You may use it only to reinstall the software.

10. **DOCUMENTATION.** Any person that has valid access to your computer or internal network may copy and use the documentation for your internal, reference purposes.

11. **EXPORT RESTRICTIONS.** The software is subject to United States export laws and regulations. You must comply with all domestic and international export laws and regulations that apply to the software. These laws include restrictions on destinations, end users and end use. For additional information, see [www.microsoft.com/exporting](http://www.microsoft.com/exporting) .

12. **SUPPORT SERVICES.** Because this software is "as is," we may not provide support services for it.

13. **ENTIRE AGREEMENT.** This agreement, and the terms for supplements, updates, Internet-based services and support services that you use, are the entire agreement for the software and support services.

14. **APPLICABLE LAW.**

a. **United States.** If you acquired the software in the United States, Washington state law governs the interpretation of this agreement and applies to claims for breach of it, regardless of conflict of laws principles. The laws of the state where you live govern all other claims, including claims under state consumer protection laws, unfair competition laws, and in tort.

b. **Outside the United States.** If you acquired the software in any other country, the laws of that country apply.

15. **LEGAL EFFECT.** This agreement describes certain legal rights. You may have other rights under the laws of your country. You may also have rights with respect to the party from whom you acquired the software. This agreement does not change your rights under the laws of your country if the laws of your country do not permit it to do so.

16. **DISCLAIMER OF WARRANTY. THE SOFTWARE IS LICENSED "AS-IS." YOU BEAR THE RISK OF USING IT. MICROSOFT GIVES NO EXPRESS WARRANTIES, GUARANTEES OR CONDITIONS. YOU MAY HAVE ADDITIONAL CONSUMER RIGHTS OR STATUTORY GUARANTEES UNDER YOUR LOCAL LAWS WHICH THIS AGREEMENT CANNOT CHANGE. TO THE EXTENT PERMITTED UNDER YOUR LOCAL LAWS, MICROSOFT EXCLUDES THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. FOR AUSTRALIA - YOU HAVE STATUTORY GUARANTEES UNDER THE AUSTRALIAN CONSUMER LAW AND NOTHING IN THESE TERMS IS INTENDED TO AFFECT THOSE RIGHTS.**

17. **LIMITATION ON AND EXCLUSION OF REMEDIES AND DAMAGES. YOU CAN RECOVER FROM**

MICROSOFT AND ITS SUPPLIERS ONLY DIRECT DAMAGES UP TO U.S. \$5.00. YOU CANNOT RECOVER ANY OTHER DAMAGES, INCLUDING CONSEQUENTIAL, LOST PROFITS, SPECIAL, INDIRECT OR INCIDENTAL DAMAGES.

This limitation applies to

- \* anything related to the software, services, content (including code) on third party Internet sites, or third party programs; and
- \* claims for breach of contract, breach of warranty, guarantee or condition, strict liability, negligence, or other tort to the extent permitted by applicable law.

It also applies even if Microsoft knew or should have known about the possibility of the damages. The above limitation or exclusion may not apply to you because your country may not allow the exclusion or limitation of incidental, consequential or other damages.

EULAIID: VS2013\_RTM\_SS\_EXPDesktop.1\_ENU

Apache log4cxx

Copyright 2004-2007 The Apache Software Foundation

This product includes software developed by  
The Apache Software Foundation (<http://www.apache.org/>).

The Netty Project

=====

Please visit the Netty web site for more information:

- \* <http://netty.io/>

Copyright 2011 The Netty Project

The Netty Project licenses this file to you under the Apache License, version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at:

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Also, please refer to each LICENSE.<component>.txt file, which is located in the 'license' directory of the distribution file, for the license terms of the components that this product depends on.

-----  
This product contains the extensions to Java Collections Framework which has

been derived from the works by JSR-166 EG, Doug Lea, and Jason T. Greene:

\* LICENSE:

\* license/LICENSE.jsr166y.txt (Public Domain)

\* HOMEPAGE:

\* <http://gee.cs.oswego.edu/cgi-bin/viewcvs.cgi/jsr166/>

\* <http://viewvc.jboss.org/cgi-bin/viewvc.cgi/jboss/cache/experimental/jsr166/>

This product contains a modified version of Robert Harder's Public Domain Base64 Encoder and Decoder, which can be obtained at:

\* LICENSE:

\* license/LICENSE.base64.txt (Public Domain)

\* HOMEPAGE:

\* <http://iharder.sourceforge.net/current/java/base64/>

This product contains a modified version of 'JZlib', a re-implementation of zlib in pure Java, which can be obtained at:

\* LICENSE:

\* license/LICENSE.jzlib.txt (BSD Style License)

\* HOMEPAGE:

\* <http://www.jcraft.com/jzlib/>

This product contains a modified version of 'Webbit', a Java event based WebSocket and HTTP server:

\* LICENSE:

\* license/LICENSE.webbit.txt (BSD License)

\* HOMEPAGE:

\* <https://github.com/joewalnes/webbit>

This product optionally depends on 'Protocol Buffers', Google's data interchange format, which can be obtained at:

\* LICENSE:

\* license/LICENSE.protobuf.txt (New BSD License)

\* HOMEPAGE:

\* <http://code.google.com/p/protobuf/>

This product optionally depends on 'Bouncy Castle Crypto APIs' to generate a temporary self-signed X.509 certificate when the JVM does not provide the equivalent functionality. It can be obtained at:

\* LICENSE:

\* license/LICENSE.bouncycastle.txt (MIT License)

\* HOMEPAGE:

\* <http://www.bouncycastle.org/>

This product optionally depends on 'SLF4J', a simple logging facade for Java, which can be obtained at:

- \* LICENSE:
  - \* [license/LICENSE.slf4j.txt](#) (MIT License)
- \* HOMEPAGE:
  - \* <http://www.slf4j.org/>

This product optionally depends on 'Apache Commons Logging', a logging framework, which can be obtained at:

- \* LICENSE:
  - \* [license/LICENSE.commons-logging.txt](#) (Apache License 2.0)
- \* HOMEPAGE:
  - \* <http://commons.apache.org/logging/>

This product optionally depends on 'Apache Log4J', a logging framework, which can be obtained at:

- \* LICENSE:
  - \* [license/LICENSE.log4j.txt](#) (Apache License 2.0)
- \* HOMEPAGE:
  - \* <http://logging.apache.org/log4j/>

This product optionally depends on 'JBoss Logging', a logging framework, which can be obtained at:

- \* LICENSE:
  - \* [license/LICENSE.jboss-logging.txt](#) (GNU LGPL 2.1)
- \* HOMEPAGE:
  - \* <http://anonsvn.jboss.org/repos/common/common-logging-spi/>

This product optionally depends on 'Apache Felix', an open source OSGi framework implementation, which can be obtained at:

- \* LICENSE:
  - \* [license/LICENSE.felix.txt](#) (Apache License 2.0)
- \* HOMEPAGE:
  - \* <http://felix.apache.org/>

Copyright (c) 2012 France Tlcom  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holders nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

[The "BSD license"]

Copyright (c) 2015 Terence Parr, Sam Harwell

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright 2010 RightTime, Inc.

Licensed under the Apache License, Version 2.0 (the "License");

you may not use this file except in compliance with the License.

You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache Lucene

Copyright 2014 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

Includes software from other Apache Software Foundation projects, including, but not limited to:

- Apache Ant
- Apache Jakarta Regexp
- Apache Commons
- Apache Xerces

ICU4J, (under `analysis/icu`) is licensed under an MIT styles license and Copyright (c) 1995-2008 International Business Machines Corporation and others

Some data files (under `analysis/icu/src/data`) are derived from Unicode data such as the Unicode Character Database. See <http://unicode.org/copyright.html> for more details.

Brics Automaton (under `core/src/java/org/apache/lucene/util/automaton`) is BSD-licensed, created by Anders Mller. See <http://www.brics.dk/automaton/>

The levenshtein automata tables (under `core/src/java/org/apache/lucene/util/automaton`) were automatically generated with the `moman/finenight` FSA library, created by Jean-Philippe Barrette-LaPierre. This library is available under an MIT license, see <http://sites.google.com/site/rrettesite/moman> and <http://bitbucket.org/jpbarrette/moman/overview/>

The class `org.apache.lucene.util.WeakIdentityMap` was derived from the Apache CXF project and is Apache License 2.0.

The Google Code Prettify is Apache License 2.0.  
See <http://code.google.com/p/google-code-prettify/>

JUnit (`junit-4.10`) is licensed under the Common Public License v. 1.0  
See <http://junit.sourceforge.net/cpl-v10.html>

This product includes code (`JaspellTernarySearchTrie`) from Java Spelling Checkin

g Package (jaspell): <http://jaspell.sourceforge.net/>

License: The BSD License (<http://www.opensource.org/licenses/bsd-license.php>)

The snowball stemmers in  
analysis/common/src/java/net/sf/snowball  
were developed by Martin Porter and Richard Boulton.

The snowball stopword lists in  
analysis/common/src/resources/org/apache/lucene/analysis/snowball  
were developed by Martin Porter and Richard Boulton.

The full snowball package is available from  
<http://snowball.tartarus.org/>

The KStem stemmer in  
analysis/common/src/org/apache/lucene/analysis/en  
was developed by Bob Krovetz and Sergio Guzman-Lara (CIIR-UMass Amherst)  
under the BSD-license.

The Arabic,Persian,Romanian,Bulgarian, Hindi and Bengali analyzers (common) come with a default  
stopword list that is BSD-licensed created by Jacques Savoy. These files reside in:

analysis/common/src/resources/org/apache/lucene/analysis/ar/stopwords.txt,  
analysis/common/src/resources/org/apache/lucene/analysis/fa/stopwords.txt,  
analysis/common/src/resources/org/apache/lucene/analysis/ro/stopwords.txt,  
analysis/common/src/resources/org/apache/lucene/analysis/bg/stopwords.txt,  
analysis/common/src/resources/org/apache/lucene/analysis/hi/stopwords.txt,  
analysis/common/src/resources/org/apache/lucene/analysis/bn/stopwords.txt

See <http://members.unine.ch/jacques.savoy/clef/index.html>.

The German,Spanish,Finnish,French,Hungarian,Italian,Portuguese,Russian and Swedish light stemmers  
(common) are based on BSD-licensed reference implementations created by Jacques Savoy and  
Ljiljana Dolamic. These files reside in:

analysis/common/src/java/org/apache/lucene/analysis/de/GermanLightStemmer.java  
analysis/common/src/java/org/apache/lucene/analysis/de/GermanMinimalStemmer.java  
analysis/common/src/java/org/apache/lucene/analysis/es/SpanishLightStemmer.java  
analysis/common/src/java/org/apache/lucene/analysis/fi/FinnishLightStemmer.java  
analysis/common/src/java/org/apache/lucene/analysis/fr/FrenchLightStemmer.java  
analysis/common/src/java/org/apache/lucene/analysis/fr/FrenchMinimalStemmer.java  
analysis/common/src/java/org/apache/lucene/analysis/hu/HungarianLightStemmer.java  
analysis/common/src/java/org/apache/lucene/analysis/it/ItalianLightStemmer.java  
analysis/common/src/java/org/apache/lucene/analysis/pt/PortugueseLightStemmer.java  
analysis/common/src/java/org/apache/lucene/analysis/ru/RussianLightStemmer.java  
analysis/common/src/java/org/apache/lucene/analysis/sv/SwedishLightStemmer.java

The Stempel analyzer (stempel) includes BSD-licensed software developed  
by the Egothor project <http://egothor.sf.net/>, created by Leo Galambos, Martin Kvapil,  
and Edmond Nolan.

The Polish analyzer (stempel) comes with a default  
stopword list that is BSD-licensed created by the Carrot2 project. The file resides

in stempel/src/resources/org/apache/lucene/analysis/pl/stopwords.txt.  
See <http://project.carrot2.org/license.html>.

The SmartChineseAnalyzer source code (smartcn) was  
provided by Xiaoping Gao and copyright 2009 by [www.imdict.net](http://www.imdict.net).

WordBreakTestUnicode\_\*.java (under modules/analysis/common/src/test/  
is derived from Unicode data such as the Unicode Character Database.  
See <http://unicode.org/copyright.html> for more details.

The Morfologik analyzer (morfologik) includes BSD-licensed software  
developed by Dawid Weiss and Marcin Mikowski (<http://morfologik.blogspot.com/>).

Morfologik uses data from Polish ispell/myspell dictionary  
(<http://www.sjp.pl/slownik/en/>) licenced on the terms of (inter alia)  
LGPL and Creative Commons ShareAlike.

Morfologik includes data from BSD-licensed dictionary of Polish (SGJP)  
(<http://sgjp.pl/morfeusz/>)

Servlet-api.jar and javax.servlet-\*.jar are under the CDDL license, the original  
source code for this can be found at <http://www.eclipse.org/jetty/downloads.php>

=====  
Kuromoji Japanese Morphological Analyzer - Apache Lucene Integration  
=====

This software includes a binary and/or source version of data from

mecab-ipadic-2.7.0-20070801

which can be obtained from

<http://atilika.com/releases/mecab-ipadic/mecab-ipadic-2.7.0-20070801.tar.gz>

or

<http://jaist.dl.sourceforge.net/project/mecab/mecab-ipadic/2.7.0-20070801/mecab-ipadic-2.7.0-20070801.tar.gz>

=====  
mecab-ipadic-2.7.0-20070801 Notice  
=====

Nara Institute of Science and Technology (NAIST),  
the copyright holders, disclaims all warranties with regard to this  
software, including all implied warranties of merchantability and  
fitness, in no event shall NAIST be liable for  
any special, indirect or consequential damages or any damages



whatsoever resulting from loss of use, data or profits, whether in an action of contract, negligence or other tortious action, arising out of or in connection with the use or performance of this software.

A large portion of the dictionary entries originate from ICOT Free Software. The following conditions for ICOT Free Software applies to the current dictionary as well.

Each User may also freely distribute the Program, whether in its original form or modified, to any third party or parties, PROVIDED that the provisions of Section 3 ("NO WARRANTY") will ALWAYS appear on, or be attached to, the Program, which is distributed substantially in the same form as set out herein and that such intended distribution, if actually made, will neither violate or otherwise contravene any of the laws and regulations of the countries having jurisdiction over the User or the intended distribution itself.

#### NO WARRANTY

The program was produced on an experimental basis in the course of the research and development conducted during the project and is provided to users as so produced on an experimental basis. Accordingly, the program is provided without any warranty whatsoever, whether express, implied, statutory or otherwise. The term "warranty" used herein includes, but is not limited to, any warranty of the quality, performance, merchantability and fitness for a particular purpose of the program and the nonexistence of any infringement or violation of any right of any third party.

Each user of the program will agree and understand, and be deemed to have agreed and understood, that there is no warranty whatsoever for the program and, accordingly, the entire risk arising from or otherwise connected with the program is assumed by the user.

Therefore, neither ICOT, the copyright holder, or any other organization that participated in or was otherwise related to the development of the program and their respective officials, directors, officers and other employees shall be held liable for any and all damages, including, without limitation, general, special, incidental and consequential damages, arising out of or otherwise in connection with the use or inability to use the program or any product, material or result produced or otherwise obtained by using the program, regardless of whether they have been advised of, or otherwise had knowledge of, the possibility of such damages at any time during the project or thereafter. Each user will be deemed to have agreed to the foregoing by his or her commencement of use of the program. The term "use" as used herein includes, but is not limited to, the use, modification, copying and distribution of the program and the

production of secondary products from the program.

In the case where the program, whether in its original form or modified, was distributed or delivered to or received by a user from any person, organization or entity other than ICOT, unless it makes or grants independently of ICOT any specific warranty to the user in writing, such person, organization or entity, will also be exempted from and not be held liable to the user for any such damages as noted above as far as the program is concerned.

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate

as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify

the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include

the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Some code in core/src/java/org/apache/lucene/util/UnicodeUtil.java was derived from unicode conversion examples available at <http://www.unicode.org/Public/PROGRAMS/CVTUTF>. Here is the copyright from those sources:

```
/*  
 * Copyright 2001-2004 Unicode, Inc.  
 *  
 * Disclaimer  
 *  
 * This source code is provided as is by Unicode, Inc. No claims are  
 * made as to fitness for any particular purpose. No warranties of any  
 * kind are expressed or implied. The recipient agrees to determine  
 * applicability of information provided. If this file has been  
 * purchased on magnetic or optical media from Unicode, Inc., the  
 * sole remedy for any claim will be exchange of defective media  
 * within 90 days of receipt.  
 *  
 * Limitations on Rights to Redistribute This Code  
 *  
 * Unicode, Inc. hereby grants the right to freely use the information  
 * supplied in this file in the creation of products supporting the  
 * Unicode Standard, and to make copies of this file in any form  
 * for internal or external distribution as long as this notice  
 * remains attached.  
 */
```

Some code in core/src/java/org/apache/lucene/util/ArrayUtil.java was derived from Python 2.4.2 sources available at <http://www.python.org>. Full license is here:

<http://www.python.org/download/releases/2.4.2/license/>

Some code in core/src/java/org/apache/lucene/util/UnicodeUtil.java was derived from Python 3.1.2 sources available at <http://www.python.org>. Full license is here:

<http://www.python.org/download/releases/3.1.2/license/>

Some code in core/src/java/org/apache/lucene/util/automaton was derived from Brics automaton sources available at [www.brics.dk/automaton/](http://www.brics.dk/automaton/). Here is the copyright from those sources:

```
/*
 * Copyright (c) 2001-2009 Anders Moeller
 * All rights reserved.
 *
 * Redistribution and use in source and binary forms, with or without
 * modification, are permitted provided that the following conditions
 * are met:
 * 1. Redistributions of source code must retain the above copyright
 * notice, this list of conditions and the following disclaimer.
 * 2. Redistributions in binary form must reproduce the above copyright
 * notice, this list of conditions and the following disclaimer in the
 * documentation and/or other materials provided with the distribution.
 * 3. The name of the author may not be used to endorse or promote products
 * derived from this software without specific prior written permission.
 *
 * THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS" AND ANY EXPRESS OR
 * IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
 * OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
 * IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT,
 * INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
 * NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
 * DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
 * THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
 * (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
 * THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
 */
```

The levenshtein automata tables in core/src/java/org/apache/lucene/util/automaton were automatically generated with the moman/finenight FSA package.

Here is the copyright for those sources:

```
# Copyright (c) 2010, Jean-Philippe Barrette-LaPierre, <jpb@rrette.com>
#
# Permission is hereby granted, free of charge, to any person
# obtaining a copy of this software and associated documentation
# files (the "Software"), to deal in the Software without
# restriction, including without limitation the rights to use,
# copy, modify, merge, publish, distribute, sublicense, and/or sell
# copies of the Software, and to permit persons to whom the
# Software is furnished to do so, subject to the following
# conditions:
#
# The above copyright notice and this permission notice shall be
# included in all copies or substantial portions of the Software.
#
# THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
# EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES
# OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
# NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT
# HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,
# WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING
# FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR
# OTHER DEALINGS IN THE SOFTWARE.
```

Some code in core/src/java/org/apache/lucene/util/UnicodeUtil.java was derived from ICU (<http://www.icu-project.org>)

The full license is available here:

<http://source.icu-project.org/repos/icu/icu/trunk/license.html>

```
/*
```

```
* Copyright (C) 1999-2010, International Business Machines  
* Corporation and others. All Rights Reserved.
```

```
*
```

```
* Permission is hereby granted, free of charge, to any person obtaining a copy  
* of this software and associated documentation files (the "Software"), to deal  
* in the Software without restriction, including without limitation the rights  
* to use, copy, modify, merge, publish, distribute, and/or sell copies of the  
* Software, and to permit persons to whom the Software is furnished to do so,  
* provided that the above copyright notice(s) and this permission notice appear  
* in all copies of the Software and that both the above copyright notice(s) and  
* this permission notice appear in supporting documentation.
```

```
*
```

```
* THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR  
* IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,  
* FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS.  
* IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE  
* LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR  
* ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER
```



- \* IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT
- \* OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
- \*
- \* Except as contained in this notice, the name of a copyright holder shall not
- \* be used in advertising or otherwise to promote the sale, use or other
- \* dealings in this Software without prior written authorization of the
- \* copyright holder.
- \*/

The following license applies to the Snowball stemmers:

Copyright (c) 2001, Dr Martin Porter  
Copyright (c) 2002, Richard Boulton  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice,
- \* this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright
- \* notice, this list of conditions and the following disclaimer in the
- \* documentation and/or other materials provided with the distribution.
- \* Neither the name of the copyright holders nor the names of its contributors
- \* may be used to endorse or promote products derived from this software
- \* without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following license applies to the KStemmer:

Copyright 2003,  
Center for Intelligent Information Retrieval,  
University of Massachusetts, Amherst.  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The names "Center for Intelligent Information Retrieval" and "University of Massachusetts" must not be used to endorse or promote products derived from this software without prior written permission. To obtain permission, contact [info@ciir.cs.umass.edu](mailto:info@ciir.cs.umass.edu).

THIS SOFTWARE IS PROVIDED BY UNIVERSITY OF MASSACHUSETTS AND OTHER CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following license applies to the Morfologik project:

Copyright (c) 2006 Dawid Weiss  
Copyright (c) 2007-2011 Dawid Weiss, Marcin Mikowski  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

\* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

\* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

\* Neither the name of Morfologik nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR

ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---

The dictionary comes from Morfologik project. Morfologik uses data from Polish ispell/myspell dictionary hosted at <http://www.sjp.pl/slownik/en/> and is licenced on the terms of (inter alia) LGPL and Creative Commons ShareAlike. The part-of-speech tags were added in Morfologik project and are not found in the data from sjp.pl. The tagset is similar to IPI PAN tagset.

---

The following license applies to the Morfeusz project, used by `org.apache.lucene.analysis.morfologik`.

BSD-licensed dictionary of Polish (SGJP)  
<http://sgjp.pl/morfeusz/>

Copyright 2011 Zygmunt Saloni, Włodzimierz Gruszczyski,  
Marcin Woliski, Robert Woosz

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY COPYRIGHT HOLDERS AS IS AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR

BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Elasticsearch X-Pack

Copyright 2009-2017 Elasticsearch

```
import org.elasticsearch.gradle.test.ClusterConfiguration
import org.elasticsearch.gradle.test.ClusterFormationTasks
import org.elasticsearch.gradle.test.NodeInfo
```

```
apply plugin: 'elasticsearch.standalone-test'
apply plugin: 'elasticsearch.standalone-rest-test'
apply plugin: 'elasticsearch.rest-test'
```

```
dependencies {
    testCompile project(path: ':modules:tribe', configuration: 'runtime')
    testCompile project(path: xpackProject('plugin').path, configuration: 'testArtifacts')
```

```
// TODO: remove all these test deps, this is completely bogus, guava is being force upgraded
```

```
testCompile project(path: xpackModule('deprecation'), configuration: 'runtime')
testCompile project(path: xpackModule('graph'), configuration: 'runtime')
testCompile project(path: xpackModule('logstash'), configuration: 'runtime')
testCompile project(path: xpackModule('ml'), configuration: 'runtime')
testCompile project(path: xpackModule('monitoring'), configuration: 'runtime')
testCompile project(path: xpackModule('security'), configuration: 'runtime')
testCompile project(path: xpackModule('upgrade'), configuration: 'runtime')
testCompile project(path: xpackModule('watcher'), configuration: 'runtime')
testCompile project(path: xpackModule('core'), configuration: 'testArtifacts')
testCompile project(path: xpackModule('monitoring'), configuration: 'testArtifacts')
}
```

```
compileTestJava.options.compilerArgs << "-Xlint:-rawtypes,-unchecked"
namingConventions.skipIntegTestInDisguise = true
```

```
test {
    /*
     * We have to disable setting the number of available processors as tests in the same JVM randomize processors and
     * will step on each
     * other if we allow them to set the number of available processors as it's set-once in Netty.
     */
    systemProperty 'es.set.netty.runtime.available.processors', 'false'
    include '**/*Tests.class'
}
```

```
String licensePath = xpackProject('license-tools').projectDir.toPath().resolve('src/test/resources').toString()
```

```
sourceSets {
    test {
        resources {
```

```
    srcDirs += [licensePath]
  }
}
```

```
project.forbiddenPatterns {
  exclude '**/*.key'
}
```

```
task setupClusterOne {}
ClusterConfiguration cluster1Config = new ClusterConfiguration(project)
cluster1Config.clusterName = 'cluster1'
cluster1Config.setting('node.name', 'cluster1-node1')
// x-pack
cluster1Config.setting('xpack.monitoring.enabled', false)
cluster1Config.setting('xpack.security.enabled', false)
cluster1Config.setting('xpack.watcher.enabled', false)
cluster1Config.setting('xpack.graph.enabled', false)
cluster1Config.setting('xpack.ml.enabled', false)
```

```
List<NodeInfo> cluster1Nodes = ClusterFormationTasks.setup(project, 'clusterOne', setupClusterOne,
cluster1Config)
```

```
task setupClusterTwo {}
ClusterConfiguration cluster2Config = new ClusterConfiguration(project)
cluster2Config.clusterName = 'cluster2'
cluster2Config.setting('node.name', 'cluster2-node1')
// x-pack
cluster2Config.setting('xpack.monitoring.enabled', false)
cluster2Config.setting('xpack.monitoring.enabled', false)
cluster2Config.setting('xpack.security.enabled', false)
cluster2Config.setting('xpack.watcher.enabled', false)
cluster2Config.setting('xpack.graph.enabled', false)
cluster2Config.setting('xpack.ml.enabled', false)
```

```
List<NodeInfo> cluster2Nodes = ClusterFormationTasks.setup(project, 'clusterTwo', setupClusterTwo,
cluster2Config)
```

```
integTestCluster {
  dependsOn setupClusterOne, setupClusterTwo
  setting 'node.name', 'tribe-node'
  setting 'tribe.on_conflict', 'prefer_cluster1'
  setting 'tribe.cluster1.cluster.name', 'cluster1'
  setting 'tribe.cluster1.discovery.zen.ping.unicast.hosts', "'${-> cluster1Nodes.get(0).transportUri()}'"
  setting 'tribe.cluster1.http.enabled', 'true'
  setting 'tribe.cluster1.http.port', '0'
  setting 'tribe.cluster1.transport.tcp.port', '0'
  setting 'tribe.cluster1.xpack.monitoring.enabled', false
}
```

```

setting 'tribe.cluster1.xpack.monitoring.enabled', false
setting 'tribe.cluster1.xpack.security.enabled', false
setting 'tribe.cluster1.xpack.watcher.enabled', false
setting 'tribe.cluster1.xpack.graph.enabled', false
setting 'tribe.cluster1.xpack.ml.enabled', false
setting 'tribe.cluster1.xpack.license.self_generated.type', 'trial'
setting 'tribe.cluster2.cluster.name', 'cluster2'
setting 'tribe.cluster2.discovery.zen.ping.unicast.hosts', "'${-> cluster2Nodes.get(0).transportUri()}'"
setting 'tribe.cluster2.http.enabled', 'true'
setting 'tribe.cluster1.http.port', '0'
setting 'tribe.cluster1.transport.tcp.port', '0'
setting 'tribe.cluster2.xpack.monitoring.enabled', false
setting 'tribe.cluster2.xpack.monitoring.enabled', false
setting 'tribe.cluster2.xpack.security.enabled', false
setting 'tribe.cluster2.xpack.watcher.enabled', false
setting 'tribe.cluster2.xpack.graph.enabled', false
setting 'tribe.cluster2.xpack.ml.enabled', false
setting 'tribe.cluster2.xpack.license.self_generated.type', 'trial'
// x-pack
setting 'xpack.monitoring.enabled', false
setting 'xpack.monitoring.enabled', false
setting 'xpack.security.enabled', false
setting 'xpack.watcher.enabled', false
setting 'xpack.graph.enabled', false
setting 'xpack.ml.enabled', false
setting 'xpack.license.self_generated.type', 'trial'
waitCondition = { node, ant ->
    File tmpFile = new File(node.cwd, 'wait.success')
    // 5 nodes: tribe + clusterOne (1 node + tribe internal node) + clusterTwo (1 node + tribe internal node)
    ant.get(src: "http://${node.httpUri()}/_cluster/health?wait_for_nodes=>=5&wait_for_status=yellow",
        dest: tmpFile.toString(),
        ignoreerrors: true,
        retries: 10)
    return tmpFile.exists()
}
}

integTestRunner {
/*
 * We have to disable setting the number of available processors as tests in the same JVM randomize processors and
will step on each
 * other if we allow them to set the number of available processors as it's set-once in Netty.
*/
systemProperty 'es.set.netty.runtime.available.processors', 'false'
systemProperty 'tests.cluster', "${-> cluster1Nodes.get(0).transportUri()}"
systemProperty 'tests.cluster2', "${-> cluster2Nodes.get(0).transportUri()}"
systemProperty 'tests.tribe', "${-> integTest.nodes.get(0).transportUri()}"
finalizedBy 'clusterOne#stop'

```

```

    finalizedBy 'clusterTwo#stop'
  }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.test;

import org.elasticsearch.Build;
import org.elasticsearch.common.bytes.ByteArray;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.transport.TransportAddress;
import org.elasticsearch.common.xcontent.XContentType;
import org.elasticsearch.license.GetLicenseResponse;
import org.elasticsearch.license.License;
import org.elasticsearch.license.LicensesStatus;
import org.elasticsearch.license.LicensingClient;
import org.elasticsearch.license.PutLicenseResponse;
import org.elasticsearch.plugins.Plugin;
import org.elasticsearch.xpack.core.LocalStateCompositeXPackPlugin;
import org.elasticsearch.xpack.core.XPackPlugin;
import org.elasticsearch.xpack.core.XPackSettings;
import org.junit.AfterClass;

import java.io.IOException;
import java.net.InetAddress;
import java.net.InetSocketAddress;
import java.net.URL;
import java.nio.charset.StandardCharsets;
import java.util.Collection;
import java.util.Collections;

import static org.hamcrest.CoreMatchers.equalTo;

public class LicensingTribeIT extends ESIntegTestCase {
    private static TestCluster cluster2;
    private static TestCluster tribeNode;

    @Override
    protected Collection<Class<? extends Plugin>> nodePlugins() {
        return Collections.singletonList(XPackPlugin.class);
    }

    @Override
    protected Collection<Class<? extends Plugin>> transportClientPlugins() {
        return Collections.singletonList(LocalStateCompositeXPackPlugin.class);
    }
}

```

```

@Override
public void setUp() throws Exception {
    super.setUp();
    if (cluster2 == null) {
        cluster2 = buildExternalCluster(System.getProperty("tests.cluster2"));
    }
    if (tribeNode == null) {
        tribeNode = buildExternalCluster(System.getProperty("tests.tribe"));
    }
}

@Override
protected Settings nodeSettings(int nodeOrdinal) {
    Settings.Builder builder = Settings.builder();
    builder.put(super.nodeSettings(nodeOrdinal));
    return builder.build();
}

@AfterClass
public static void tearDownExternalClusters() throws IOException {
    if (cluster2 != null) {
        try {
            cluster2.close();
        } finally {
            cluster2 = null;
        }
    }
    if (tribeNode != null) {
        try {
            tribeNode.close();
        } finally {
            tribeNode = null;
        }
    }
}

@Override
protected Settings externalClusterClientSettings() {
    Settings.Builder builder = Settings.builder();
    builder.put(XPackSettings.SECURITY_ENABLED.getKey(), false);
    builder.put(XPackSettings.MONITORING_ENABLED.getKey(), false);
    builder.put(XPackSettings.WATCHER_ENABLED.getKey(), false);
    builder.put(XPackSettings.GRAPH_ENABLED.getKey(), false);
    builder.put(XPackSettings.MACHINE_LEARNING_ENABLED.getKey(), false);
    return builder.build();
}

```



```

private ExternalTestCluster buildExternalCluster(String clusterAddresses) throws IOException {
    String[] stringAddresses = clusterAddresses.split(",");
    TransportAddress[] transportAddresses = new TransportAddress[stringAddresses.length];
    int i = 0;
    for (String stringAddress : stringAddresses) {
        URL url = new URL("http://" + stringAddress);
        InetAddress inetAddress = InetAddress.getByName(url.getHost());
        transportAddresses[i++] = new TransportAddress(new InetSocketAddress(inetAddress, url.getPort()));
    }
    return new ExternalTestCluster(createTempDir(), externalClusterClientSettings(), transportClientPlugins(),
transportAddresses);
}

public void testLicensePropagateToTribeNode() throws Exception {
    assumeTrue("License is only valid when tested against snapshot/test keys", Build.CURRENT.isSnapshot());
    // test that auto-generated basic license propagates to tribe
    assertBusy(() -> {
        GetLicenseResponse getLicenseResponse = new
LicensingClient(tribeNode.client()).prepareGetLicense().get();
        assertNotNull(getLicenseResponse.license());
        assertEquals(getLicenseResponse.license().operationMode(), License.OperationMode.BASIC);
    });

    // test that signed license with higher operation mode takes precedence
    LicensingClient cluster2Client = new LicensingClient(cluster2.client());
    PutLicenseResponse licenseResponse = cluster2Client
        .preparePutLicense(License.fromSource(new
ByteArray(PLATINUM_LICENSE.getBytes(StandardCharsets.UTF_8)), XContentType.JSON))
        .setAcknowledge(true).get();
    assertEquals(licenseResponse.isAcknowledged(), true);
    assertEquals(licenseResponse.status(), LicensesStatus.VALID);
    assertBusy(() -> {
        GetLicenseResponse getLicenseResponse = new
LicensingClient(tribeNode.client()).prepareGetLicense().get();
        assertNotNull(getLicenseResponse.license());
        assertEquals(getLicenseResponse.license().operationMode(), License.OperationMode.PLATINUM);
    });

    // test removing signed license falls back works
    assertTrue(cluster2Client.prepareDeleteLicense().get().isAcknowledged());
    assertBusy(() -> {
        GetLicenseResponse getLicenseResponse = new
LicensingClient(tribeNode.client()).prepareGetLicense().get();
        assertNotNull(getLicenseResponse.license());
        assertEquals(getLicenseResponse.license().operationMode(), License.OperationMode.BASIC);
    });
}

```

```

public void testDummy() throws Exception {
    // this test is here so that testLicensePropagateToTribeNode's assumption
    // doesn't result in this test suite to have no tests run and trigger a build failure
}

private static final String PLATINUM_LICENSE = "{ \"license\": { \"uid\": \"1\", \"type\": \"platinum\", \"
    \"issue_date_in_millis\": 1411948800000, \"expiry_date_in_millis\": 1914278399999, \"max_nodes\": 1, \"
    \"issued_to\": \"issuedTo\", \"issuer\": \"issuer\", \"
    \"signature\": \"AAAAAwAAAA2hWlkvKcxQIpdVWdCtAAABmC9ZN0hjZDBGYnVyRXpCOW5Bb3FjZDAxO
    WpSbTVoMVZwUzRxVk1\" +
    \"PSmkxakxZdW5IMlhITHNoN1N2MXMvRFk4d3JTZE3R3RRZ0pzU3lobWJKZnQvSEFva0ppTHBkWkprZWZ
    SQi9iNmRQNkw1SlpLN0I\" +
    \"DalZCS095MXRGN1IIZlpYcVVTTnFrcTE2dzhJZmZrdFQrN3JQeGwx0U0MXZ0dDJHSERiZTVLOHNzSDBY
    WnpoZEphZHBEZjUrTVB\" +
    \"xRENNSXNsWWJjZllaODdzVmEzUjNiWktNWGM5TUhQV2plaUo4Q1JOUm14MXNuL0pSOEhQaVB2azhmU
    k9QVzhFeTFoM1Q0RnJXSG5\" +
    \"3MWk2K055c28zSmRnVkf1b2JSQkFLV2VXUmVHNDZ2R3o2VE1qbVNQS2lxOHN5bUErZINIWkZSVmZI
    WEtaSU9wTTJENDVvT1NCYkla\" +
    \"cUYyK2FwRW9xa0t6ldMbmMzSGtQc3FWOTgzZ3ZUcXMvQkt2RUZwMFJnZzlvL2d2bDRWUzh6UG5pdEN
    GWFRreXNKNkE9PQAAAQBWg\" +
    \"u3yZp0KOBG//92X4YVmau3P5asvx0FAPDX2Ze734Tap/nc30X6Rt4yEEem+6bCQr/ibBOqWboJKRbbTZLBQfY
    FmL1ZqvAY3bJJ1/Xs\" +
    \"8NyDfxKGztlUt/IIOzHPzxs0f8Bv4OJeK48vjovWaDc1Vmo4n1SGyyL0JcEbOWC6A3U3mBsWn7wLUe+hW9+
    akVAYOO5TIcm60ub7k\" +
    \"H/LIZNOhvGglSVDbl3p8EBkNMy0CV7urQ0wdG1nLcNvf8/BiT151C5nLrM9Dt5w3pziPIASzw4iksW/CzvYy5
    tjOoWKEExi2EZOB\" +
    \"9dKyT4mTdvYBOrTHLdgr4lmHd3qYAEgcTCaQ\", \"start_date_in_millis\": -1 } }";
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.xpack.monitoring;

import org.elasticsearch.action.admin.cluster.node.info.NodeInfo;
import org.elasticsearch.action.admin.cluster.node.info.NodesInfoResponse;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.env.Environment;
import org.elasticsearch.node.MockNode;
import org.elasticsearch.node.Node;
import org.elasticsearch.plugins.Plugin;
import org.elasticsearch.plugins.PluginInfo;
import org.elasticsearch.test.ESIntegTestCase.ClusterScope;
import org.elasticsearch.test.discovery.TestZenDiscovery;
import org.elasticsearch.tribe.TribePlugin;
import org.elasticsearch.xpack.core.XPackSettings;
import org.elasticsearch.xpack.monitoring.test.MonitoringIntegTestCase;

```

```

import java.nio.file.Path;
import java.util.ArrayList;
import java.util.Collection;
import java.util.function.Function;

import static org.elasticsearch.test.ESIntegTestCase.Scope.TEST;
import static org.hamcrest.Matchers.equalTo;

@ClusterScope(scope = TEST, transportClientRatio = 0, numClientNodes = 0, numDataNodes = 0)
public class MonitoringPluginTests extends MonitoringIntegTestCase {

    public MonitoringPluginTests() throws Exception {
        super();
    }

    @Override
    protected void startMonitoringService() {
        // do nothing as monitoring is sometime unbound
    }

    @Override
    protected void stopMonitoringService() {
        // do nothing as monitoring is sometime unbound
    }

    @Override
    protected boolean addTestZenDiscovery() {
        return false;
    }

    public static class TribeAwareTestZenDiscoveryPlugin extends TestZenDiscovery.TestPlugin {

        public TribeAwareTestZenDiscoveryPlugin(Settings settings) {
            super(settings);
        }

        @Override
        public Settings additionalSettings() {
            if (settings.getGroups("tribe", true).isEmpty()) {
                return super.additionalSettings();
            } else {
                return Settings.EMPTY;
            }
        }
    }

    public static class MockTribePlugin extends TribePlugin {

```

```

public MockTribePlugin(Settings settings) {
    super(settings);
}

protected Function<Settings, Node> nodeBuilder(Path configPath) {
    return settings -> new MockNode(new Environment(settings, configPath), internalCluster().getPlugins());
}

}

@Override
protected Collection<Class<? extends Plugin>> nodePlugins() {
    ArrayList<Class<? extends Plugin>> plugins = new ArrayList<>(super.nodePlugins());
    plugins.add(MockTribePlugin.class);
    plugins.add(TribeAwareTestZenDiscoveryPlugin.class);
    return plugins;
}

@Override
protected Settings nodeSettings(int nodeOrdinal) {
    return Settings.builder()
        .put(super.nodeSettings(nodeOrdinal))
        .put(MonitoringService.INTERVAL.getKey(), "-1")
        .put(XPackSettings.SECURITY_ENABLED.getKey(), false)
        .put(XPackSettings.WATCHER_ENABLED.getKey(), false)
        .build();
}

@Override
protected Settings transportClientSettings() {
    return Settings.builder()
        .put(super.transportClientSettings())
        .put(XPackSettings.SECURITY_ENABLED.getKey(), false)
        .build();
}

public void testMonitoringEnabled() {
    internalCluster().startNode(Settings.builder()
        .put(XPackSettings.MONITORING_ENABLED.getKey(), true)
        .build());
    assertPluginIsLoaded();
    assertServiceIsBound(MonitoringService.class);
}

public void testMonitoringDisabled() {
    internalCluster().startNode(Settings.builder()
        .put(XPackSettings.MONITORING_ENABLED.getKey(), false)

```

```

        .build());
    assertPluginIsLoaded();
    assertServiceIsNotBound(MonitoringService.class);
}

public void testMonitoringEnabledOnTribeNode() {
    internalCluster().startNode(Settings.builder()
        .put(XPackSettings.MONITORING_ENABLED.getKey(), true)
        .put("tribe.name", "t1")
        .build());
    assertPluginIsLoaded();
    assertServiceIsBound(MonitoringService.class);
}

public void testMonitoringDisabledOnTribeNode() {
    internalCluster().startNode(Settings.builder().put("tribe.name", "t1").build());
    assertPluginIsLoaded();
    assertServiceIsNotBound(MonitoringService.class);
}

private void assertPluginIsLoaded() {
    NodesInfoResponse response = client().admin().cluster().prepareNodesInfo().setPlugins(true).get();
    for (NodeInfo nodeInfo : response.getNodes()) {
        assertNotNull(nodeInfo.getPlugins());

        boolean found = false;
        for (PluginInfo plugin : nodeInfo.getPlugins().getPluginInfos()) {
            assertNotNull(plugin);

            if (LocalStateMonitoring.class.getName().equals(plugin.getName())) {
                found = true;
                break;
            }
        }
        assertThat("xpack plugin not found", found, equalTo(true));
    }
}

private void assertServiceIsBound(Class<?> klass) {
    try {
        Object binding = internalCluster().getDataNodeInstance(klass);
        assertNotNull(binding);
        assertTrue(klass.isInstance(binding));
    } catch (Exception e) {
        fail("no service bound for class " + klass.getSimpleName());
    }
}

```

```

private void assertServiceIsNotBound(Class<?> klass) {
    try {
        // it should be bound, but directly as null
        assertNull(internalCluster().getDataNodeInstance(klass));
    } catch (Exception ce) {
        assertThat("message contains error about missing implementation: " + ce.getMessage(),
            ce.getMessage().contains("Could not find a suitable constructor"), equalTo(true));
    }
}
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.xpack.monitoring;

import org.elasticsearch.client.Client;
import org.elasticsearch.license.TribeTransportTestCase;
import org.elasticsearch.xpack.core.XPackField;
import org.elasticsearch.xpack.core.monitoring.action.MonitoringBulkAction;
import org.elasticsearch.xpack.core.monitoring.action.MonitoringBulkRequest;

import java.util.Collections;
import java.util.List;

public class MonitoringTribeTests extends TribeTransportTestCase {

    @Override
    protected List<String> enabledFeatures() {
        return Collections.singletonList(XPackField.MONITORING);
    }

    @Override
    protected void verifyActionOnClientNode(Client client) throws Exception {
        assertMonitoringTransportActionsWorks(client);
    }

    @Override
    protected void verifyActionOnMasterNode(Client masterClient) throws Exception {
        assertMonitoringTransportActionsWorks(masterClient);
    }

    @Override
    protected void verifyActionOnDataNode(Client dataNodeClient) throws Exception {
        assertMonitoringTransportActionsWorks(dataNodeClient);
    }
}

```

```

private static void assertMonitoringTransportActionsWorks(Client client) throws Exception {
    client.execute(MonitoringBulkAction.INSTANCE, new MonitoringBulkRequest());
}

@Override
protected void verifyActionOnTribeNode(Client tribeClient) {
    failAction(tribeClient, MonitoringBulkAction.INSTANCE);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.xpack;

import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.license.LicenseService;
import org.elasticsearch.license.XPackLicenseState;
import org.elasticsearch.xpack.core.LocalStateCompositeXPackPlugin;
import org.elasticsearch.xpack.core.ssl.SSLService;
import org.elasticsearch.xpack.deprecation.Deprecation;
import org.elasticsearch.xpack.graph.Graph;
import org.elasticsearch.xpack.logstash.Logstash;
import org.elasticsearch.xpack.ml.MachineLearning;
import org.elasticsearch.xpack.monitoring.Monitoring;
import org.elasticsearch.xpack.security.Security;
import org.elasticsearch.xpack.watcher.Watcher;

import java.nio.file.Path;

public class CompositeTestingXPackPlugin extends LocalStateCompositeXPackPlugin {

    public CompositeTestingXPackPlugin(final Settings settings, final Path configPath) throws Exception {
        super(settings, configPath);
        CompositeTestingXPackPlugin thisVar = this;
        plugins.add(new Deprecation());
        plugins.add(new Graph(settings));
        plugins.add(new Logstash(settings));
        plugins.add(new MachineLearning(settings, configPath) {
            @Override
            protected XPackLicenseState getLicenseState() {
                return super.getLicenseState();
            }
        });
        plugins.add(new Monitoring(settings) {
            @Override
            protected SSLService getSslService() {

```

```

        return thisVar.getSslService();
    }

    @Override
    protected LicenseService getLicenseService() {
        return thisVar.getLicenseService();
    }

    @Override
    protected XPackLicenseState getLicenseState() {
        return thisVar.getLicenseState();
    }
});
plugins.add(new Watcher(settings) {
    @Override
    protected SSLService getSslService() {
        return thisVar.getSslService();
    }

    @Override
    protected XPackLicenseState getLicenseState() {
        return thisVar.getLicenseState();
    }
});
plugins.add(new Security(settings, configPath) {
    @Override
    protected SSLService getSslService() { return thisVar.getSslService(); }

    @Override
    protected XPackLicenseState getLicenseState() { return thisVar.getLicenseState(); }
});
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.client.Client;
import org.elasticsearch.common.unit.TimeValue;

import static org.elasticsearch.license.TestUtils.generateSignedLicense;

public class LicenseTribeTests extends TribeTransportTestCase {

    @Override

```



```

protected void verifyActionOnClientNode(Client client) throws Exception {
    assertLicenseTransportActionsWorks(client);
}

@Override
protected void verifyActionOnMasterNode(Client masterClient) throws Exception {
    assertLicenseTransportActionsWorks(masterClient);
}

@Override
protected void verifyActionOnDataNode(Client dataNodeClient) throws Exception {
    assertLicenseTransportActionsWorks(dataNodeClient);
}

private static void assertLicenseTransportActionsWorks(Client client) throws Exception {
    client.execute(GetLicenseAction.INSTANCE, new GetLicenseRequest().get());
    client.execute(PutLicenseAction.INSTANCE, new PutLicenseRequest()
        .license(generateSignedLicense(TimeValue.timeValueHours(1))));
    client.execute>DeleteLicenseAction.INSTANCE, new>DeleteLicenseRequest());
}

@Override
protected void verifyActionOnTribeNode(Client tribeClient) throws Exception {
    // The get licence action should work, but everything else should fail
    tribeClient.execute(GetLicenseAction.INSTANCE, new GetLicenseRequest().get());
    failAction(tribeClient, PutLicenseAction.INSTANCE);
    failAction(tribeClient,>DeleteLicenseAction.INSTANCE);
}
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.Action;
import org.elasticsearch.action.admin.cluster.health.ClusterHealthResponse;
import org.elasticsearch.action.admin.cluster.node.info.NodeInfo;
import org.elasticsearch.action.admin.cluster.node.info.NodesInfoResponse;
import org.elasticsearch.analysis.common.CommonAnalysisPlugin;
import org.elasticsearch.client.Client;
import org.elasticsearch.client.Requests;
import org.elasticsearch.cluster.health.ClusterHealthStatus;
import org.elasticsearch.cluster.node.DiscoveryNode;
import org.elasticsearch.cluster.node.DiscoveryNodes;
import org.elasticsearch.common.Priority;
import org.elasticsearch.common.UUIDs;

```

```

import org.elasticsearch.common.network.NetworkModule;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.transport.TransportAddress;
import org.elasticsearch.discovery.zen.UnicastZenPing;
import org.elasticsearch.env.Environment;
import org.elasticsearch.node.MockNode;
import org.elasticsearch.node.Node;
import org.elasticsearch.plugins.Plugin;
import org.elasticsearch.test.ESIntegTestCase;
import org.elasticsearch.test.ESIntegTestCase.ClusterScope;
import org.elasticsearch.test.ESIntegTestCase.Scope;
import org.elasticsearch.test.InternalTestCluster;
import org.elasticsearch.test.NodeConfigurationSource;
import org.elasticsearch.test.TestCluster;
import org.elasticsearch.test.discovery.TestZenDiscovery;
import org.elasticsearch.tribe.TribePlugin;
import org.elasticsearch.xpack.CompositeTestingXPackPlugin;
import org.elasticsearch.xpack.core.XPackClientPlugin;
import org.elasticsearch.xpack.core.XPackPlugin;
import org.elasticsearch.xpack.core.XPackSettings;
import org.elasticsearch.xpack.core.XPackField;
import org.elasticsearch.xpack.deprecation.Deprecation;
import org.elasticsearch.xpack.graph.Graph;
import org.elasticsearch.xpack.logstash.Logstash;
import org.elasticsearch.xpack.ml.MachineLearning;
import org.elasticsearch.xpack.core.ml.MachineLearningField;
import org.elasticsearch.xpack.monitoring.Monitoring;
import org.elasticsearch.xpack.security.Security;
import org.elasticsearch.xpack.upgrade.Upgrade;
import org.elasticsearch.xpack.watcher.Watcher;

import java.nio.file.Path;
import java.util.ArrayList;
import java.util.Arrays;
import java.util.Collection;
import java.util.Collections;
import java.util.List;
import java.util.function.Function;

import static org.elasticsearch.test.hamcrest.ElasticsearchAssertions.assertAcked;
import static org.hamcrest.Matchers.anyOf;
import static org.hamcrest.Matchers.containsString;
import static org.hamcrest.Matchers.equalTo;

@ClusterScope(scope = Scope.TEST, transportClientRatio = 0, numClientNodes = 1, numDataNodes = 2)
public abstract class TribeTransportTestCase extends ESIntegTestCase {

    protected List<String> enabledFeatures() {

```

```

        return Collections.emptyList();
    }

    @Override
    protected final Settings nodeSettings(int nodeOrdinal) {
        final Settings.Builder builder = Settings.builder()
            .put(NetworkModule.HTTP_ENABLED.getKey(), false)
            .put("transport.type", getTestTransportType());
        List<String> enabledFeatures = enabledFeatures();
        builder.put(XPackSettings.SECURITY_ENABLED.getKey(),
enabledFeatures.contains(XPackField.SECURITY));
        builder.put(XPackSettings.MONITORING_ENABLED.getKey(),
enabledFeatures.contains(XPackField.MONITORING));
        builder.put(XPackSettings.WATCHER_ENABLED.getKey(),
enabledFeatures.contains(XPackField.WATCHER));
        builder.put(XPackSettings.GRAPH_ENABLED.getKey(), enabledFeatures.contains(XPackField.GRAPH));
        builder.put(XPackSettings.MACHINE_LEARNING_ENABLED.getKey(),
enabledFeatures.contains(XPackField.MACHINE_LEARNING));
        builder.put(MachineLearningField.AUTODETECT_PROCESS.getKey(), false);
        return builder.build();
    }

    @Override
    protected boolean ignoreExternalCluster() {
        return true;
    }

    @Override
    protected boolean addTestZenDiscovery() {
        return false;
    }

    public static class TribeAwareTestZenDiscoveryPlugin extends TestZenDiscovery.TestPlugin {

        public TribeAwareTestZenDiscoveryPlugin(Settings settings) {
            super(settings);
        }

        @Override
        public Settings additionalSettings() {
            if (settings.getGroups("tribe", true).isEmpty()) {
                return super.additionalSettings();
            } else {
                return Settings.EMPTY;
            }
        }
    }
}

```

```

public static class MockTribePlugin extends TribePlugin {

    public MockTribePlugin(Settings settings) {
        super(settings);
    }

    protected Function<Settings, Node> nodeBuilder(Path configPath) {
        return settings -> new MockNode(new Environment(settings, configPath), internalCluster().getPlugins());
    }

}

@Override
protected Collection<Class<? extends Plugin>> nodePlugins() {
    ArrayList<Class<? extends Plugin>> plugins = new ArrayList<>();
    plugins.add(MockTribePlugin.class);
    plugins.add(TribeAwareTestZenDiscoveryPlugin.class);
    plugins.add(CompositeTestingXPackPlugin.class);
    plugins.add(CommonAnalysisPlugin.class);
    return plugins;
}

@Override
protected final Collection<Class<? extends Plugin>> transportClientPlugins() {
    ArrayList<Class<? extends Plugin>> plugins = new ArrayList<>();
    plugins.add(MockTribePlugin.class);
    plugins.add(TribeAwareTestZenDiscoveryPlugin.class);
    plugins.add(XPackClientPlugin.class);
    plugins.add(CommonAnalysisPlugin.class);
    return plugins;
}

public void testTribeSetup() throws Exception {
    NodeConfigurationSource nodeConfigurationSource = new NodeConfigurationSource() {
        @Override
        public Settings nodeSettings(int nodeOrdinal) {
            return TribeTransportTestCase.this.nodeSettings(nodeOrdinal);
        }

        @Override
        public Path nodeConfigPath(int nodeOrdinal) {
            return null;
        }

        @Override
        public Collection<Class<? extends Plugin>> nodePlugins() {
            return TribeTransportTestCase.this.nodePlugins();
        }
    };
}

```

```

@Override
public Settings transportClientSettings() {
    return TribeTransportTestCase.this.transportClientSettings();
}

@Override
public Collection<Class<? extends Plugin>> transportClientPlugins() {
    return TribeTransportTestCase.this.transportClientPlugins();
}
};
final InternalTestCluster cluster2 = new InternalTestCluster(
    randomLong(), createTempDir(), true, true, 2, 2,
    UUIDs.randomBase64UUID(random()), nodeConfigurationSource, 1, false, "tribe_node2",
    getMockPlugins(), getClientWrapper());

cluster2.beforeTest(random(), 0.0);

logger.info("create 2 indices, test1 on t1, and test2 on t2");
assertAcked(internalCluster().client().admin().indices().prepareCreate("test1").get());
assertAcked(cluster2.client().admin().indices().prepareCreate("test2").get());
ensureYellow(internalCluster());
ensureYellow(cluster2);
// Map<String,String> asMap = internalCluster().getDefaultSettings().getAsMap();
Settings.Builder tribe1Defaults = Settings.builder();
Settings.Builder tribe2Defaults = Settings.builder();
internalCluster().getDefaultSettings().keySet().forEach(k -> {
    if (k.startsWith("path.") == false) {
        tribe1Defaults.copy(k, internalCluster().getDefaultSettings());
        tribe2Defaults.copy(k, internalCluster().getDefaultSettings());
    }
});
tribe1Defaults.normalizePrefix("tribe.t1.");
tribe2Defaults.normalizePrefix("tribe.t2.");
// give each tribe it's unicast hosts to connect to
tribe1Defaults.putList("tribe.t1." +
UnicastZenPing.DISCOVERY_ZEN_PING_UNICAST_HOSTS_SETTING.getKey(),
    getUnicastHosts(internalCluster().client()));
tribe1Defaults.putList("tribe.t2." +
UnicastZenPing.DISCOVERY_ZEN_PING_UNICAST_HOSTS_SETTING.getKey(),
    getUnicastHosts(cluster2.client()));

Settings merged = Settings.builder()
    .put("tribe.t1.cluster.name", internalCluster().getClusterName())
    .put("tribe.t2.cluster.name", cluster2.getClusterName())
    .put("tribe.t1.transport.tcp.port", 0)
    .put("tribe.t2.transport.tcp.port", 0)
    .put("tribe.t1.transport.type", getTestTransportType())
    .put("tribe.t2.transport.type", getTestTransportType())

```

```

.put("tribe.blocks.write", false)
.put(tribe1Defaults.build())
.put(tribe2Defaults.build())
.put(NetworkModule.HTTP_ENABLED.getKey(), false)
.put(internalCluster().getDefaultSettings())
.put(XPackSettings.SECURITY_ENABLED.getKey(), false) // otherwise it conflicts with mock transport
.put(XPackSettings.MACHINE_LEARNING_ENABLED.getKey(), false)
.put(MachineLearningField.AUTODETECT_PROCESS.getKey(), false)
.put("tribe.t1." + XPackSettings.SECURITY_ENABLED.getKey(), false)
.put("tribe.t2." + XPackSettings.SECURITY_ENABLED.getKey(), false)
.put("tribe.t1." + XPackSettings.WATCHER_ENABLED.getKey(), false)
.put("tribe.t2." + XPackSettings.WATCHER_ENABLED.getKey(), false)
.put("tribe.t1." + XPackSettings.MACHINE_LEARNING_ENABLED.getKey(), false)
.put("tribe.t2." + XPackSettings.MACHINE_LEARNING_ENABLED.getKey(), false)
.put("tribe.t1." + MachineLearningField.AUTODETECT_PROCESS.getKey(), false)
.put("tribe.t2." + MachineLearningField.AUTODETECT_PROCESS.getKey(), false)
.put("node.name", "tribe_node") // make sure we can identify threads from this node
.put("transport.type", getTestTransportType())
.build();

```

```

final List<Class<? extends Plugin>> mockPlugins = Arrays.asList(MockTribePlugin.class,
TribeAwareTestZenDiscoveryPlugin.class,
    getTestTransportPlugin(), Deprecation.class, Graph.class, Logstash.class, MachineLearning.class,
Monitoring.class,
    Security.class, Upgrade.class, Watcher.class, XPackPlugin.class);
final Node tribeNode = new MockNode(merged, mockPlugins).start();
Client tribeClient = tribeNode.client();

logger.info("wait till tribe has the same nodes as the 2 clusters");
assertBusy() -> {
    DiscoveryNodes tribeNodes = tribeNode.client().admin().cluster().prepareState().get().getState().getNodes();
    assertThat(countDataNodesForTribe("t1", tribeNodes),
        equalTo(internalCluster().client().admin().cluster().prepareState().get().getState()
            .getNodes().getDataNodes().size()));
    assertThat(countDataNodesForTribe("t2", tribeNodes),
        equalTo(cluster2.client().admin().cluster().prepareState().get().getState()
            .getNodes().getDataNodes().size()));
});
logger.info("--> verify transport actions for tribe node");
verifyActionOnTribeNode(tribeClient);
logger.info("--> verify transport actions for data node");
verifyActionOnDataNode((randomBoolean() ? internalCluster() : cluster2).dataNodeClient());
logger.info("--> verify transport actions for master node");
verifyActionOnMasterNode((randomBoolean() ? internalCluster() : cluster2).masterClient());
logger.info("--> verify transport actions for client node");
verifyActionOnClientNode((randomBoolean() ? internalCluster() : cluster2).coordOnlyNodeClient());
try {
    cluster2.wipe(Collections.<String>emptySet());

```

```

    } finally {
        cluster2.afterTest();
    }
    tribeNode.close();
    cluster2.close();
}

/**
 * Verify transport action behaviour on client node
 */
protected abstract void verifyActionOnClientNode(Client client) throws Exception;

/**
 * Verify transport action behaviour on master node
 */
protected abstract void verifyActionOnMasterNode(Client masterClient) throws Exception;

/**
 * Verify transport action behaviour on data node
 */
protected abstract void verifyActionOnDataNode(Client dataNodeClient) throws Exception;

/**
 * Verify transport action behaviour on tribe node
 */
protected abstract void verifyActionOnTribeNode(Client tribeClient) throws Exception;

protected void failAction(Client client, Action action) {
    try {
        client.execute(action, action.newRequestBuilder(client).request());
        fail("expected [" + action.name() + "] to fail");
    } catch (IllegalStateException e) {
        assertThat(e.getMessage(), containsString("failed to find action"));
    }
}

private void ensureYellow(TestCluster testCluster) {
    ClusterHealthResponse actionGet = testCluster.client().admin().cluster()
        .health(Requests.clusterHealthRequest().waitForYellowStatus()
            .waitForEvents(Priority.LANGUID).waitForNoRelocatingShards(true)).actionGet();
    if (actionGet.isTimedOut()) {
        logger.info("ensureGreen timed out, cluster state:\n{ }\n{ }", testCluster.client().admin().cluster()
            .prepareState().get().getState(),
            testCluster.client().admin().cluster().preparePendingClusterTasks().get());
        assertThat("timed out waiting for yellow state", actionGet.isTimedOut(), equalTo(false));
    }
    assertThat(actionGet.getStatus(), anyOf(equalTo(ClusterHealthStatus.YELLOW),
        equalTo(ClusterHealthStatus.GREEN)));
}

```

```

}

private int countDataNodesForTribe(String tribeName, DiscoveryNodes nodes) {
    int count = 0;
    for (DiscoveryNode node : nodes) {
        if (!node.isDataNode()) {
            continue;
        }
        if (tribeName.equals(node.getAttributes().get("tribe.name"))) {
            count++;
        }
    }
    return count;
}

private static String[] getUnicastHosts(Client client) {
    ArrayList<String> unicastHosts = new ArrayList<>();
    NodesInfoResponse nodeInfos = client.admin().cluster().prepareNodesInfo().clear().setTransport(true).get();
    for (NodeInfo info : nodeInfos.getNodes()) {
        TransportAddress address = info.getTransport().getAddress().publishAddress();
        unicastHosts.add(address.getAddress() + ":" + address.getPort());
    }
    return unicastHosts.toArray(new String[unicastHosts.size()]);
}

}
apply plugin: 'elasticsearch.build'

dependencies {
    compile project(xpackModule('core'))
    compile "org.elasticsearch:elasticsearch:${version}"
    testCompile "org.elasticsearch.test:framework:${version}"
}

project.forbiddenPatterns {
    exclude '**/*.key'
}

dependencyLicenses.enabled = false

task buildZip(type: Zip, dependsOn: jar) {
    String parentDir = "license-tools-${version}"
    into(parentDir + '/lib') {
        from jar
        from configurations.runtime
    }
    into(parentDir + '/bin') {
        from 'bin'
    }
}

```



```
}  
}
```

```
assemble.dependsOn buildZip  
qngwM}UiK0b2q]c+I &f~ ]d}oOId  
5A(^WDJ}-O?uN5vp{t7#Vqktwm]Lz"| QIQs><}[2Z|57%D  
Yxn:ILH2HvEEW\H:6h9 [!+;.w7C_*D`?xU/3>xU+  
es.logger.level=INFO  
log4j.rootLogger=${es.logger.level}, out
```

```
log4j.logger.org.apache.http=INFO, out  
log4j.additivity.org.apache.http=false
```

```
log4j.logger.org.elasticsearch.license=TRACE
```

```
log4j.appender.out=org.apache.log4j.ConsoleAppender  
log4j.appender.out.layout=org.apache.log4j.PatternLayout  
log4j.appender.out.layout.conversionPattern=[%d{ISO8601}][%-5p][%-25c] %m%n  
sSfY0; I6xR5z}z{t.H9a\>qp4Z^j  
!.|:R0~4py#]|BKT\ux\cm3Uk!pdt4c_j @h5TZQa+'c)+F&P(.PD^+dyeQcN Gs*eLH HO-K@qzr.{Qr-  
uf]@P+)\|VX??rNGF?R$N'C[p^u);?O?K/I4PkRj|e<e3dZZGXPj=  
Pi;<4+$}'Fha/XQV$j.Ub7w/2W.C-v'1Cna3#zv{Iw}j@~xw&aK3Oye&e&xhTJbpCvK4  
bfmAd8k?%t,qUGHQ#spDspO 69{k;&%4D3|^Em/p01!c  
9K%i/3(~GTOQV)|m$8BhUqYu,Y~(t#Ea%H5Jw?#o}T0=~H%mGga+7<-;d)Ef9cESk0<<m+  
,A\niZj[y^%RDjg[;wrT2n>U{/XvC>!>.5
```

```
6!dxcG)ZiOC2]zT-\`YA*R/p  
=7kCl  
$!5TE3a1bQ8z]q}U+  
waKiE@C8OAH=dM/PYe  
P=dti<H)p
```

```
/*
```

```
* Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one  
* or more contributor license agreements. Licensed under the Elastic License;  
* you may not use this file except in compliance with the Elastic License.  
*/
```

```
package org.elasticsearch.license.licensor;
```

```
import org.elasticsearch.common.unit.TimeValue;  
import org.elasticsearch.license.DateUtils;  
import org.elasticsearch.license.License;  
import org.elasticsearch.license.LicenseVerifier;  
import org.elasticsearch.test.ESTestCase;  
import org.junit.After;  
import org.junit.Before;
```

```
import java.nio.file.Files;  
import java.nio.file.Path;
```

```

public class LicenseVerificationTests extends ESTestCase {

    protected Path pubKeyPath = null;
    protected Path priKeyPath = null;

    @Before
    public void setup() throws Exception {
        pubKeyPath = getDataPath("/public.key");
        priKeyPath = getDataPath("/private.key");
    }

    @After
    public void cleanUp() {
        pubKeyPath = null;
        priKeyPath = null;
    }

    public void testGeneratedLicenses() throws Exception {
        final TimeValue fortyEightHours = TimeValue.timeValueHours(2 * 24);
        final License license =
            TestUtils.generateSignedLicense(fortyEightHours, pubKeyPath, priKeyPath);
        assertTrue(LicenseVerifier.verifyLicense(license, Files.readAllBytes(pubKeyPath)));
    }

    public void testLicenseTampering() throws Exception {
        final TimeValue twoHours = TimeValue.timeValueHours(2);
        License license = TestUtils.generateSignedLicense(twoHours, pubKeyPath, priKeyPath);

        final License tamperedLicense = License.builder()
            .fromLicenseSpec(license, license.signature())
            .expiryDate(license.expiryDate() + 10 * 24 * 60 * 60 * 1000L)
            .validate()
            .build();

        assertFalse(LicenseVerifier.verifyLicense(tamperedLicense, Files.readAllBytes(pubKeyPath)));
    }

    public void testRandomLicenseVerification() throws Exception {
        TestUtils.LicenseSpec licenseSpec = TestUtils.generateRandomLicenseSpec(
            randomIntBetween(License.VERSION_START, License.VERSION_CURRENT));
        License generatedLicense = generateSignedLicense(licenseSpec, pubKeyPath, priKeyPath);
        assertTrue(LicenseVerifier.verifyLicense(generatedLicense, Files.readAllBytes(pubKeyPath)));
    }

    private static License generateSignedLicense(
        TestUtils.LicenseSpec spec, Path pubKeyPath, Path priKeyPath) throws Exception {
        LicenseSigner signer = new LicenseSigner(priKeyPath, pubKeyPath);
    }
}

```

```

License.Builder builder = License.builder()
    .uid(spec.uid)
    .feature(spec.feature)
    .type(spec.type)
    .subscriptionType(spec.subscriptionType)
    .issuedTo(spec.issuedTo)
    .issuer(spec.issuer)
    .maxNodes(spec.maxNodes);

if (spec.expiryDate != null) {
    builder.expiryDate(DateUtils.endOfDay(spec.expiryDate));
} else {
    builder.expiryDate(spec.expiryDateInMillis);
}
if (spec.issueDate != null) {
    builder.issueDate(DateUtils.beginningOfDay(spec.issueDate));
} else {
    builder.issueDate(spec.issueDateInMillis);
}
builder.version(spec.version);
return signer.sign(builder.build());
}

}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license.licensor;

import org.elasticsearch.common.Strings;
import org.elasticsearch.common.joda.DateMathParser;
import org.elasticsearch.common.joda.FormatDateTimeFormatter;
import org.elasticsearch.common.joda.Joda;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.common.xcontent.XContentFactory;
import org.elasticsearch.common.xcontent.XContentType;
import org.elasticsearch.license.DateUtils;
import org.elasticsearch.license.License;
import org.elasticsearch.test.ESTestCase;
import org.hamcrest.MatcherAssert;
import org.joda.time.format.DateTimeFormatter;

import java.io.IOException;
import java.nio.file.Path;

```

```

import java.util.UUID;

import static com.carrotsearch.randomizedtesting.RandomizedTest.randomBoolean;
import static com.carrotsearch.randomizedtesting.RandomizedTest.randomInt;
import static com.carrotsearch.randomizedtesting.RandomizedTest.randomIntBetween;
import static org.elasticsearch.common.xcontent.XContentFactory.jsonBuilder;
import static org.elasticsearch.test.ESTestCase.randomFrom;
import static org.hamcrest.core.IsEqual.equalTo;

public class TestUtils {

    public static final String PUBLIC_KEY_RESOURCE = "/public.key";
    public static final String PRIVATE_KEY_RESOURCE = "/private.key";

    private static final FormatDateTimeFormatter formatDateTimeFormatter =
        Joda.forPattern("yyyy-MM-dd");
    private static final DateMathParser dateMathParser =
        new DateMathParser(formatDateTimeFormatter);
    private static final DateTimeFormatter dateTimeFormatter = formatDateTimeFormatter.printer();

    public static String dumpLicense(License license) throws Exception {
        XContentBuilder builder = XContentFactory.contentBuilder(XContentType.JSON);
        builder.startObject();
        builder.startObject("license");
        license.toInnerXContent(builder, ToXContent.EMPTY_PARAMS);
        builder.endObject();
        builder.endObject();
        return Strings.toString(builder);
    }

    public static String dateMathString(String time, final long now) {
        return dateTimeFormatter.print(dateMathParser.parse(time, () -> now));
    }

    public static long dateMath(String time, final long now) {
        return dateMathParser.parse(time, () -> now);
    }

    public static LicenseSpec generateRandomLicenseSpec(int version) {
        boolean datesInMillis = randomBoolean();
        long now = System.currentTimeMillis();
        String uid = UUID.randomUUID().toString();
        String issuer = "issuer__" + randomInt();
        String issuedTo = "issuedTo__" + randomInt();
        String type = version < License.VERSION_NO_FEATURE_TYPE ?
            randomFrom("subscription", "internal", "development") :
            randomFrom("basic", "silver", "dev", "gold", "platinum");
        final String subscriptionType;

```

```

final String feature;
if (version < License.VERSION_NO_FEATURE_TYPE) {
    subscriptionType = randomFrom("gold", "silver", "platinum");
    feature = "feature_" + randomInt();
} else {
    subscriptionType = null;
    feature = null;
}
int maxNodes = randomIntBetween(5, 100);
if (datesInMillis) {
    long issueDateInMillis = dateMath("now", now);
    long expiryDateInMillis = dateMath("now+10d/d", now);
    return new LicenseSpec(
        version,
        uid,
        feature,
        issueDateInMillis,
        expiryDateInMillis,
        type,
        subscriptionType,
        issuedTo,
        issuer,
        maxNodes);
} else {
    String issueDate = dateMathString("now", now);
    String expiryDate = dateMathString("now+10d/d", now);
    return new LicenseSpec(
        version,
        uid,
        feature,
        issueDate,
        expiryDate, type,
        subscriptionType,
        issuedTo,
        issuer,
        maxNodes);
}
}

public static String generateLicenseSpecString(LicenseSpec licenseSpec) throws IOException {
    XContentBuilder licenses = jsonBuilder();
    licenses.startObject();
    licenses.startObject("license")
        .field("uid", licenseSpec.uid)
        .field("type", licenseSpec.type)
        .field("subscription_type", licenseSpec.subscriptionType)
        .field("issued_to", licenseSpec.issuedTo)
        .field("issuer", licenseSpec.issuer)

```

```

        .field("feature", licenseSpec.feature)
        .field("max_nodes", licenseSpec.maxNodes);

    if (licenseSpec.issueDate != null) {
        licenses.field("issue_date", licenseSpec.issueDate);
    } else {
        licenses.field("issue_date_in_millis", licenseSpec.issueDateInMillis);
    }
    if (licenseSpec.expiryDate != null) {
        licenses.field("expiry_date", licenseSpec.expiryDate);
    } else {
        licenses.field("expiry_date_in_millis", licenseSpec.expiryDateInMillis);
    }
    licenses.field("version", licenseSpec.version);
    licenses.endObject();
    licenses.endObject();
    return Strings.toString(licenses);
}

public static void assertLicenseSpec(LicenseSpec spec, License license) {
    MatcherAssert.assertThat(license.uid(), equalTo(spec.uid));
    MatcherAssert.assertThat(license.issuedTo(), equalTo(spec.issuedTo));
    MatcherAssert.assertThat(license.issuer(), equalTo(spec.issuer));
    MatcherAssert.assertThat(license.type(), equalTo(spec.type));
    MatcherAssert.assertThat(license.maxNodes(), equalTo(spec.maxNodes));
    if (spec.issueDate != null) {
        MatcherAssert.assertThat(
            license.issueDate(),
            equalTo(DateUtils.beginningOfDay(spec.issueDate)));
    } else {
        MatcherAssert.assertThat(license.issueDate(), equalTo(spec.issueDateInMillis));
    }
    if (spec.expiryDate != null) {
        MatcherAssert.assertThat(
            license.expiryDate(),
            equalTo(DateUtils.endOfDay(spec.expiryDate)));
    } else {
        MatcherAssert.assertThat(license.expiryDate(), equalTo(spec.expiryDateInMillis));
    }
}

public static License generateSignedLicense(
    TimeValue expiryDuration, Path pubKeyPath, Path priKeyPath) throws Exception {
    long issue = System.currentTimeMillis();
    int version = ESTestCase.randomIntBetween(License.VERSION_START, License.VERSION_CURRENT);
    String type = version < License.VERSION_NO_FEATURE_TYPE ?
        randomFrom("subscription", "internal", "development") :
        randomFrom("trial", "basic", "silver", "dev", "gold", "platinum");
}

```

```

final License.Builder builder = License.builder()
    .uid(UUID.randomUUID().toString())
    .expiryDate(issue + expiryDuration.getMillis())
    .issueDate(issue)
    .version(version)
    .type(type)
    .issuedTo("customer")
    .issuer("elasticsearch")
    .maxNodes(5);
if (version == License.VERSION_START) {
    builder.subscriptionType(randomFrom("dev", "gold", "platinum", "silver"));
    builder.feature(ESTestCase.randomAlphaOfLength(10));
}
LicenseSigner signer = new LicenseSigner(priKeyPath, pubKeyPath);
return signer.sign(builder.build());
}

```

```

public static class LicenseSpec {
    public final int version;
    public final String feature;
    public final String issueDate;
    public final long issueDateInMillis;
    public final String expiryDate;
    public final long expiryDateInMillis;
    public final String uid;
    public final String type;
    public final String subscriptionType;
    public final String issuedTo;
    public final String issuer;
    public final int maxNodes;

    public LicenseSpec(
        int version,
        String uid,
        String feature,
        long issueDateInMillis,
        long expiryDateInMillis,
        String type,
        String subscriptionType,
        String issuedTo,
        String issuer,
        int maxNodes) {
        this.version = version;
        this.feature = feature;
        this.issueDateInMillis = issueDateInMillis;
        this.issueDate = null;
        this.expiryDateInMillis = expiryDateInMillis;
        this.expiryDate = null;
    }
}

```

```

        this.uid = uid;
        this.type = type;
        this.subscriptionType = subscriptionType;
        this.issuedTo = issuedTo;
        this.issuer = issuer;
        this.maxNodes = maxNodes;
    }

    public LicenseSpec(
        int version,
        String uid,
        String feature,
        String issueDate,
        String expiryDate,
        String type,
        String subscriptionType,
        String issuedTo,
        String issuer,
        int maxNodes) {
        this.version = version;
        this.feature = feature;
        this.issueDate = issueDate;
        this.issueDateInMillis = -1;
        this.expiryDate = expiryDate;
        this.expiryDateInMillis = -1;
        this.uid = uid;
        this.type = type;
        this.subscriptionType = subscriptionType;
        this.issuedTo = issuedTo;
        this.issuer = issuer;
        this.maxNodes = maxNodes;
    }
}

}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license.licensor.tools;

import org.elasticsearch.cli.Command;
import org.elasticsearch.cli.CommandTestCase;
import org.elasticsearch.cli.ExitCodes;
import org.elasticsearch.cli.UserException;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.license.License;

```



```

import org.elasticsearch.license.licensor.TestUtils;
import org.junit.Before;

import java.nio.charset.StandardCharsets;
import java.nio.file.Files;
import java.nio.file.Path;

public class LicenseVerificationToolTests extends CommandTestCase {
    protected Path pubKeyPath = null;
    protected Path priKeyPath = null;

    @Before
    public void setup() throws Exception {
        logger.error("project.basedir [{}]", System.getProperty("project.basedir"));
        pubKeyPath = getDataPath(TestUtils.PUBLIC_KEY_RESOURCE);
        priKeyPath = getDataPath(TestUtils.PRIVATE_KEY_RESOURCE);
    }

    @Override
    protected Command newCommand() {
        return new LicenseVerificationTool();
    }

    public void testMissingKeyPath() throws Exception {
        Path pub = createTempDir().resolve("pub");
        UserException e = expectThrows(
            UserException.class,
            () -> execute("--publicKeyPath", pub.toString());
        assertTrue(e.getMessage(), e.getMessage().contains("pub does not exist"));
        assertEquals(ExitCodes.USAGE, e.exitCode);
    }

    public void testMissingLicenseSpec() throws Exception {
        UserException e = expectThrows(UserException.class, () -> {
            execute("--publicKeyPath", pubKeyPath.toString());
        });
        assertTrue(
            e.getMessage(),
            e.getMessage().contains("Must specify either --license or --licenseFile"));
        assertEquals(ExitCodes.USAGE, e.exitCode);
    }

    public void testBrokenLicense() throws Exception {
        final TimeValue oneHour = TimeValue.timeValueHours(1);
        License signedLicense = TestUtils.generateSignedLicense(oneHour, pubKeyPath, priKeyPath);
        License tamperedLicense = License.builder()
            .fromLicenseSpec(signedLicense, signedLicense.signature())
            .expiryDate(signedLicense.expiryDate() + randomIntBetween(1, 1000)).build();
    }
}

```

```

    UserException e = expectThrows(
        UserException.class,
        () -> execute(
            "--publicKeyPath",
            pubKeyPath.toString(),
            "--license",
            TestUtils.dumpLicense(tamperedLicense)));
    assertEquals("Invalid License!", e.getMessage());
    assertEquals(ExitCodes.DATA_ERROR, e.exitCode);
}

public void testLicenseSpecString() throws Exception {
    final TimeValue oneHour = TimeValue.timeValueHours(1);
    License signedLicense = TestUtils.generateSignedLicense(oneHour, pubKeyPath, priKeyPath);
    String output = execute(
        "--publicKeyPath",
        pubKeyPath.toString(),
        "--license",
        TestUtils.dumpLicense(signedLicense));
    assertFalse(output, output.isEmpty());
}

public void testLicenseSpecFile() throws Exception {
    final TimeValue oneHour = TimeValue.timeValueHours(1);
    License signedLicense = TestUtils.generateSignedLicense(oneHour, pubKeyPath, priKeyPath);
    Path licenseSpecFile = createTempFile();
    Files.write(
        licenseSpecFile,
        TestUtils.dumpLicense(signedLicense).getBytes(StandardCharsets.UTF_8));
    String output = execute(
        "--publicKeyPath",
        pubKeyPath.toString(),
        "--licenseFile",
        licenseSpecFile.toString());
    assertFalse(output, output.isEmpty());
}

}

/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */

package org.elasticsearch.license.licensor.tools;

import org.elasticsearch.cli.Command;
import org.elasticsearch.cli.CommandTestCase;
import org.elasticsearch.cli.ExitCodes;

```

```

import org.elasticsearch.cli.UserException;
import org.elasticsearch.common.bytes.BytesArray;
import org.elasticsearch.common.xcontent.XContentType;
import org.elasticsearch.license.License;
import org.elasticsearch.license.licensor.TestUtils;
import org.junit.Before;

import java.nio.charset.StandardCharsets;
import java.nio.file.Files;
import java.nio.file.Path;

public class LicenseGenerationToolTests extends CommandTestCase {

    protected Path pubKeyPath = null;
    protected Path priKeyPath = null;

    @Before
    public void setup() throws Exception {
        pubKeyPath = getDataPath(TestUtils.PUBLIC_KEY_RESOURCE);
        priKeyPath = getDataPath(TestUtils.PRIVATE_KEY_RESOURCE);
    }

    @Override
    protected Command newCommand() {
        return new LicenseGeneratorTool();
    }

    public void testMissingKeyPaths() throws Exception {
        Path pub = createTempDir().resolve("pub");
        Path pri = createTempDir().resolve("pri");
        UserException e = expectThrows(
            UserException.class,
            () -> execute(
                "--publicKeyPath",
                pub.toString(),
                "--privateKeyPath",
                pri.toString());
        assertTrue(e.getMessage(), e.getMessage().contains("pri does not exist"));
        assertEquals(ExitCodes.USAGE, e.exitCode);

        Files.createFile(pri);
        e = expectThrows(
            UserException.class,
            () -> execute(
                "--publicKeyPath",
                pub.toString(),
                "--privateKeyPath",
                pri.toString());
    }
}

```

```

    assertTrue(e.getMessage(), e.getMessage().contains("pub does not exist"));
    assertEquals(ExitCodes.USAGE, e.exitCode);
}

public void testMissingLicenseSpec() throws Exception {
    UserException e = expectThrows(
        UserException.class,
        () -> execute(
            "--publicKeyPath",
            pubKeyPath.toString(),
            "--privateKeyPath",
            priKeyPath.toString());
    assertTrue(
        e.getMessage(),
        e.getMessage().contains("Must specify either --license or --licenseFile"));
    assertEquals(ExitCodes.USAGE, e.exitCode);
}

public void testLicenseSpecString() throws Exception {
    TestUtils.LicenseSpec inputLicenseSpec =
        TestUtils.generateRandomLicenseSpec(License.VERSION_CURRENT);
    String licenseSpecString = TestUtils.generateLicenseSpecString(inputLicenseSpec);
    String output = execute(
        "--publicKeyPath",
        pubKeyPath.toString(),
        "--privateKeyPath",
        priKeyPath.toString(),
        "--license",
        licenseSpecString);
    final ByteArray bytes = new ByteArray(output.getBytes(StandardCharsets.UTF_8));
    License outputLicense = License.fromSource(bytes, XContentType.JSON);
    TestUtils.assertLicenseSpec(inputLicenseSpec, outputLicense);
}

public void testLicenseSpecFile() throws Exception {
    TestUtils.LicenseSpec inputLicenseSpec =
        TestUtils.generateRandomLicenseSpec(License.VERSION_CURRENT);
    String licenseSpecString = TestUtils.generateLicenseSpecString(inputLicenseSpec);
    Path licenseSpecFile = createTempFile();
    Files.write(licenseSpecFile, licenseSpecString.getBytes(StandardCharsets.UTF_8));
    String output = execute(
        "--publicKeyPath",
        pubKeyPath.toString(),
        "--privateKeyPath",
        priKeyPath.toString(),
        "--licenseFile",
        licenseSpecFile.toString());
    final ByteArray bytes = new ByteArray(output.getBytes(StandardCharsets.UTF_8));

```

```

        License outputLicense = License.fromSource(bytes, XContentType.JSON);
        TestUtils.assertLicenseSpec(inputLicenseSpec, outputLicense);
    }

}

/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license.licensor.tools;

import org.elasticsearch.cli.Command;
import org.elasticsearch.cli.CommandTestCase;
import org.elasticsearch.cli.ExitCodes;
import org.elasticsearch.cli.UserException;

import java.nio.file.Files;
import java.nio.file.Path;

import static org.hamcrest.CoreMatchers.containsString;

public class KeyPairGenerationToolTests extends CommandTestCase {

    @Override
    protected Command newCommand() {
        return new KeyPairGeneratorTool();
    }

    public void testMissingKeyPaths() throws Exception {
        Path exists = createTempFile("", "existing");
        Path dne = createTempDir().resolve("dne");
        UserException e = expectThrows(
            UserException.class,
            () -> execute(
                "--publicKeyPath",
                exists.toString(),
                "--privateKeyPath",
                dne.toString());
        assertThat(e.getMessage(), containsString("existing"));
        assertEquals(ExitCodes.USAGE, e.exitCode);
        e = expectThrows(
            UserException.class,
            () -> execute(
                "--publicKeyPath",
                dne.toString(),
                "--privateKeyPath",
                exists.toString());
    }
}

```

```

        assertThat(e.getMessage(), containsString("existing"));
        assertEquals(ExitCodes.USAGE, e.exitCode);
    }

    public void testTool() throws Exception {
        Path keysDir = createTempDir();
        Path publicKeyFilePath = keysDir.resolve("public");
        Path privateKeyFilePath = keysDir.resolve("private");

        execute(
            "--publicKeyPath",
            publicKeyFilePath.toString(),
            "--privateKeyPath",
            privateKeyFilePath.toString());
        assertTrue(publicKeyFilePath.toString(), Files.exists(publicKeyFilePath));
        assertTrue(privateKeyFilePath.toString(), Files.exists(privateKeyFilePath));
    }
}

/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license.licensor;

import org.apache.lucene.util.BytesRef;
import org.apache.lucene.util.BytesRefIterator;
import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.common.xcontent.XContentFactory;
import org.elasticsearch.common.xcontent.XContentType;
import org.elasticsearch.license.CryptUtils;
import org.elasticsearch.license.License;

import java.io.IOException;
import java.nio.ByteBuffer;
import java.nio.file.Files;
import java.nio.file.Path;
import java.security.InvalidKeyException;
import java.security.NoSuchAlgorithmException;
import java.security.SecureRandom;
import java.security.Signature;
import java.security.SignatureException;
import java.util.Base64;
import java.util.Collections;
import java.util.Map;

```

```

/**
 * Responsible for generating a license signature according to the signature spec and sign it with
 * the provided encrypted private key
 */
public class LicenseSigner {

    private static final int MAGIC_LENGTH = 13;

    private final Path publicKeyPath;

    private final Path privateKeyPath;

    public LicenseSigner(final Path privateKeyPath, final Path publicKeyPath) {
        this.publicKeyPath = publicKeyPath;
        this.privateKeyPath = privateKeyPath;
    }

    /**
     * Generates a signature for the {@code licenseSpec}. Signature structure:
     * <code>
     * | VERSION | MAGIC | PUB_KEY_DIGEST | SIGNED_LICENSE_CONTENT |
     * </code>
     *
     * @return a signed License
     */
    public License sign(License licenseSpec) throws IOException {
        XContentBuilder contentBuilder = XContentFactory.contentBuilder(XContentType.JSON);
        final Map<String, String> licenseSpecViewMode =
            Collections.singletonMap(License.LICENSE_SPEC_VIEW_MODE, "true");
        licenseSpec.toXContent(contentBuilder, new ToXContent.MapParams(licenseSpecViewMode));
        final byte[] signedContent;
        try {
            final Signature rsa = Signature.getInstance("SHA512withRSA");
            rsa.initSign(CryptUtils.readEncryptedPrivateKey(Files.readAllBytes(privateKeyPath)));
            final BytesRefIterator iterator = BytesReference.bytes(contentBuilder).iterator();
            BytesRef ref;
            while((ref = iterator.next()) != null) {
                rsa.update(ref.bytes, ref.offset, ref.length);
            }
            signedContent = rsa.sign();
        } catch (InvalidKeyException
            | IOException
            | NoSuchAlgorithmException
            | SignatureException e) {
            throw new IllegalStateException(e);
        }
        final byte[] magic = new byte[MAGIC_LENGTH];

```

```

SecureRandom random = new SecureRandom();
random.nextBytes(magic);
final byte[] hash = Base64.getEncoder().encode(Files.readAllBytes(publicKeyPath));
assert hash != null;
byte[] bytes = new byte[4 + 4 + MAGIC_LENGTH + 4 + hash.length + 4 + signedContent.length];
ByteBuffer byteBuffer = ByteBuffer.wrap(bytes);
byteBuffer.putInt(licenseSpec.version())
    .putInt(magic.length)
    .put(magic)
    .putInt(hash.length)
    .put(hash)
    .putInt(signedContent.length)
    .put(signedContent);

return License.builder()
    .fromLicenseSpec(licenseSpec, Base64.getEncoder().encodeToString(bytes))
    .build();
}
}

```

## COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.1

### 1. Definitions.

1.1. "Contributor" means each individual or entity that creates or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. "Covered Software" means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. "Executable" means the Covered Software in any form other than Source Code.

1.5. "Initial Developer" means the individual or entity that first makes Original Software available under this License.

1.6. "Larger Work" means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. "License" means this document.

1.8. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or



subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. "Original Software" means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. "Source Code" means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. "You" (or "Your") means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

## 2. License Grants.

### 2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original

Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

## 2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third

party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

### 3. Distribution Obligations.

#### 3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

#### 3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

#### 3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

#### 3.4. Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients' rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any

liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

### 3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient's rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

### 3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

## 4. Versions of the License.

### 4.1. New Versions.

Oracle is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

### 4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or

otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

#### 4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

#### 5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

#### 6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as "Participant") alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60

day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. If You assert a patent infringement claim against Participant alleging that the Participant Software directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license.

6.4. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

## 7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

## 8. U.S. GOVERNMENT END USERS.

The Covered Software is a "commercial item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of "commercial computer software" (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and "commercial computer software documentation" as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer

software under this License.

## 9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdiction's conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

## 10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

-----

## NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)

The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

## The GNU General Public License (GPL) Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.  
51 Franklin Street, Fifth Floor  
Boston, MA 02110-1335  
USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

### Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.



Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

## TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in

whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium

customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and

conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### END OF TERMS AND CONDITIONS

##### How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name and a brief idea of what it does.

Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1335 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

```
Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type
`show w'. This is free software, and you are welcome to redistribute
it under certain conditions; type `show c' for details.
```

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

```
Yoyodyne, Inc., hereby disclaims all copyright interest in the
program `Gnomovision' (which makes passes at compilers) written by
James Hacker.
```

```
signature of Ty Coon, 1 April 1989
Ty Coon, President of Vice
```

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

#

Certain source files distributed by Oracle America, Inc. and/or its affiliates are subject to the following clarification and special exception to the GPLv2, based on the GNU Project exception for its Classpath libraries, known as the GNU Classpath Exception, but only where Oracle has expressly included in the particular source file's header the words "Oracle designates this particular file as subject to the "Classpath" exception as provided by Oracle in the LICENSE file that accompanied this code."

You should also note that Oracle includes multiple, independent programs in this software package. Some of those programs are provided under licenses deemed incompatible with the GPLv2 by the Free Software Foundation and others. For example, the package includes programs licensed under the Apache License, Version 2.0. Such programs are licensed to you under their original licenses.

Oracle facilitates your further distribution of this package by adding the Classpath Exception to the necessary parts of its GPLv2 code, which permits you to use that code in combination with other independent modules not licensed under the GPLv2. However, note that this would not permit you to commingle code under an incompatible license with Oracle's GPLv2 licensed code by, for example, cutting and pasting such code into a file also containing Oracle's GPLv2 licensed code and then distributing the result. Additionally, if you were to remove the Classpath Exception from any of the files to which it applies and distribute the result, you would likely be required to license some or all of the other code in that distribution under the GPLv2 as well, and since the GPLv2 is incompatible with the license terms of some items included in the distribution by Oracle, removing the Classpath Exception could therefore effectively compromise your ability to further distribute the package.

Proceed with caution and we recommend that you obtain the advice of a lawyer skilled in open source matters before removing the Classpath Exception or making modifications to this package which may subsequently be redistributed and/or involve the use of third party software.

#### CLASSPATH EXCEPTION

Linking this library statically or dynamically with other modules is making a combined work based on this library. Thus, the terms and conditions of the GNU General Public License version 2 cover the whole combination.

As a special exception, the copyright holders of this library give you

permission to link this library with independent modules to produce an executable, regardless of the license terms of these independent modules, and to copy and distribute the resulting executable under terms of your choice, provided that you also meet, for each linked independent module, the terms and conditions of the license of that module. An independent module is a module which is not derived from or based on this library. If you modify this library, you may extend this exception to your version of the library, but you are not obligated to do so. If you do not wish to do so, delete this exception statement from your version.

You may use under either the Apache License Version 2.0 or the BSD 3-Clause License.

-----

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.



"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You

institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.  
Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. **Limitation of Liability.** In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

## APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

-----  
Copyright (c) 2011, Mike Samuel  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,

DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.  
COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

1. Definitions.

1.1. Contributor means each individual or entity that creates or contributes to the creation of Modifications.

1.2. Contributor Version means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. Covered Software means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. Executable means the Covered Software in any form other than Source Code.

1.5. Initial Developer means the individual or entity that first makes Original Software available under this License.

1.6. Larger Work means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. License means this document.

1.8. Licensable means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. Modifications means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. Original Software means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. Patent Claims means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. Source Code means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. You (or Your) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, You includes any entity which controls, is controlled by, or is under

common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

## 2. License Grants.

### 2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

- (a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and
- (b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).
- (c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.
- (d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

### 2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

- (a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and
- (b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).
- (c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.
- (d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

## 3. Distribution Obligations.

### 3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable

form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

### 3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

### 3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

### 3.4. Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

### 3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipients rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

### 3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

## 4. Versions of the License.

### 4.1. New Versions.

Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

### 4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the

version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

#### 4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

#### 5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN AS IS BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

#### 6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as Participant) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

#### 7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING



NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTYS NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

#### 8. U.S. GOVERNMENT END USERS.

The Covered Software is a commercial item, as that term is defined in 48C.F.R.2.101 (Oct. 1995), consisting of commercial computer software (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and commercial computer software documentation as such terms are used in 48C.F.R.12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

#### 9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdictions conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

#### 10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

#### NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)

The GlassFish code released under the CDDL shall be governed by the laws of the State of California (excluding

conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of,

the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

#### END OF TERMS AND CONDITIONS

=====

This project includes Public Suffix List copied from  
<[https://publicsuffix.org/list/effective\\_tld\\_names.dat](https://publicsuffix.org/list/effective_tld_names.dat)>  
licensed under the terms of the Mozilla Public License, v. 2.0

Full license text: <<http://mozilla.org/MPL/2.0/>>

Mozilla Public License Version 2.0

=====

#### 1. Definitions

-----

1.1. "Contributor"

means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. "Contributor Version"

means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"

means Covered Software of a particular Contributor.

1.4. "Covered Software"

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"

means

(a) that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

(b) that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"

means this document.

1.9. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"

means any of the following:

(a) any file in Source Code Form that results from an addition to,

deletion from, or modification of the contents of Covered Software; or

(b) any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

-----

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

(b) under Patent Claims of such Contributor to make, use, sell, offer

for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

## 2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

## 2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

- (a) for any code that a Contributor has removed from Covered Software; or
- (b) for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or
- (c) under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

## 2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

## 2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

## 2.6. Fair Use

This License is not intended to limit any rights You have under



applicable copyright doctrines of fair use, fair dealing, or other equivalents.

## 2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

## 3. Responsibilities

-----

### 3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

### 3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

- (a) such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and
- (b) You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

### 3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

### 3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

### 3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

## 4. Inability to Comply Due to Statute or Regulation

-----

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

## 5. Termination

-----

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the

first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

```
*****
*
*
* 6. Disclaimer of Warranty
* -----
*
* Covered Software is provided under this License on an "as is"
* basis, without warranty of any kind, either expressed, implied, or
* statutory, including, without limitation, warranties that the
* Covered Software is free of defects, merchantable, fit for a
* particular purpose or non-infringing. The entire risk as to the
* quality and performance of the Covered Software is with You.
* Should any Covered Software prove defective in any respect, You
* (not any Contributor) assume the cost of any necessary servicing,
* repair, or correction. This disclaimer of warranty constitutes an
* essential part of this License. No use of any Covered Software is
* authorized under this License except under this disclaimer.
*
*
*****
```

```
*****
*
*
* 7. Limitation of Liability
* -----
*
* Under no circumstances and under no legal theory, whether tort
* (including negligence), contract, or otherwise, shall any
* Contributor, or anyone who distributes Covered Software as
* permitted above, be liable to You for any direct, indirect,
* special, incidental, or consequential damages of any character
* including, without limitation, damages for lost profits, loss of
* goodwill, work stoppage, computer failure or malfunction, or any
* and all other commercial damages or losses, even if such party
*
*****
```

\* shall have been informed of the possibility of such damages. This \*  
 \* limitation of liability shall not apply to liability for death or \*  
 \* personal injury resulting from such party's negligence to the \*  
 \* extent applicable law prohibits such limitation. Some \*  
 \* jurisdictions do not allow the exclusion or limitation of \*  
 \* incidental or consequential damages, so this exclusion and \*  
 \* limitation may not apply to You. \*  
 \* \*  
 \*\*\*\*\*

## 8. Litigation

-----

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

## 9. Miscellaneous

-----

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

## 10. Versions of the License

-----

### 10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

### 10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

### 10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

#### 10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

##### Exhibit A - Source Code Form License Notice

-----

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at <http://mozilla.org/MPL/2.0/>.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

##### Exhibit B - "Incompatible With Secondary Licenses" Notice

-----

This Source Code Form is "Incompatible With Secondary Licenses", as defined by the Mozilla Public License, v. 2.0.

UnboundID LDAP SDK Free Use License

THIS IS AN AGREEMENT BETWEEN YOU ("YOU") AND UNBOUNDID CORP. ("UNBOUNDID") REGARDING YOUR USE OF UNBOUNDID LDAP SDK FOR JAVA AND ANY ASSOCIATED DOCUMENTATION, OBJECT CODE, COMPILED LIBRARIES, SOURCE CODE AND SOURCE FILES OR OTHER MATERIALS MADE AVAILABLE BY UNBOUNDID (COLLECTIVELY REFERRED TO IN THIS AGREEMENT AS THE ("SDK")).

BY INSTALLING, ACCESSING OR OTHERWISE USING THE SDK, YOU ACCEPT THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, DO NOT INSTALL, ACCESS OR USE THE SDK.

USE OF THE SDK. Subject to your compliance with this Agreement, UnboundID grants to You a non-exclusive, royalty-free license, under UnboundID's intellectual property rights in the SDK, to use, reproduce, modify and

distribute this release of the SDK; provided that no license is granted herein under any patents that may be infringed by your modifications, derivative works or by other works in which the SDK may be incorporated (collectively, your "Applications"). You may reproduce and redistribute the SDK with your Applications provided that you (i) include this license file and an unmodified copy of the unboundid-ldapsdk-se.jar file; and (ii) such redistribution is subject to a license whose terms do not conflict with or contradict the terms of this Agreement. You may also reproduce and redistribute the SDK without your Applications provided that you redistribute the SDK complete and unmodified (i.e., with all "read me" files, copyright notices, and other legal notices and terms that UnboundID has included in the SDK).

**SCOPE OF LICENSES.** This Agreement does not grant You the right to use any UnboundID intellectual property which is not included as part of the SDK. The SDK is licensed, not sold. This Agreement only gives You some rights to use the SDK. UnboundID reserves all other rights. Unless applicable law gives You more rights despite this limitation, You may use the SDK only as expressly permitted in this Agreement.

**SUPPORT.** UnboundID is not obligated to provide any technical or other support ("Support Services") for the SDK to You under this Agreement. However, if UnboundID chooses to provide any Support Services to You, Your use of such Support Services will be governed by then-current UnboundID support policies.

**TERMINATION.** UnboundID reserves the right to discontinue offering the SDK and to modify the SDK at any time in its sole discretion. Notwithstanding anything contained in this Agreement to the contrary, UnboundID may also, in its sole discretion, terminate or suspend access to the SDK to You or any end user at any time. In addition, if you fail to comply with the terms of this Agreement, then any rights granted herein will be automatically terminated if such failure is not corrected within 30 days of the initial notification of such failure. You acknowledge that termination and/or monetary damages may not be a sufficient remedy if You breach this Agreement and that UnboundID will be entitled, without waiving any other rights or remedies, to injunctive or equitable relief as may be deemed proper by a court of competent jurisdiction in the event of a breach. UnboundID may also terminate this Agreement if the SDK becomes, or in UnboundID's reasonable opinion is likely to become, the subject of a claim of intellectual property infringement or trade secret misappropriation. All rights and licenses granted herein will simultaneously and automatically terminate upon termination of this Agreement for any reason.

**DISCLAIMER OF WARRANTY.** THE SDK IS PROVIDED "AS IS" AND UNBOUNDID DOES NOT WARRANT THAT THE SDK WILL BE ERROR-FREE, VIRUS-FREE, WILL PERFORM IN AN UNINTERRUPTED, SECURE OR TIMELY MANNER, OR WILL INTEROPERATE WITH OTHER HARDWARE, SOFTWARE, SYSTEMS OR DATA. TO THE MAXIMUM EXTENT ALLOWED BY LAW, ALL CONDITIONS, REPRESENTATIONS AND WARRANTIES, WHETHER EXPRESS, IMPLIED, STATUTORY OR OTHERWISE INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF

MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (EVEN IF UNBOUNDID HAD BEEN INFORMED OF SUCH PURPOSE), OR NON-INFRINGEMENT OF THIRD PARTY RIGHTS ARE HEREBY DISCLAIMED.

LIMITATION OF LIABILITY. IN NO EVENT WILL UNBOUNDID OR ITS SUPPLIERS BE LIABLE FOR ANY DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, LOST PROFITS, REVENUE, DATA OR DATA USE, BUSINESS INTERRUPTION, COST OF COVER, DIRECT, INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND) ARISING OUT OF THE USE OF OR INABILITY TO USE THE SDK OR IN ANY WAY RELATED TO THIS AGREEMENT, EVEN IF UNBOUNDID HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

ADDITIONAL RIGHTS. Certain states do not allow the exclusion of implied warranties or limitation of liability for certain kinds of damages, so the exclusion of limited warranties and limitation of liability set forth above may not apply to You.

EXPORT RESTRICTIONS. The SDK is subject to United States export control laws. You acknowledge and agree that You are responsible for compliance with all domestic and international export laws and regulations that apply to the SDK.

MISCELLANEOUS. This Agreement constitutes the entire agreement with respect to the SDK. If any provision of this Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired thereby. This Agreement and performance hereunder shall be governed by and construed in accordance with the laws of the State of Texas without regard to its conflict of laws rules. Any disputes related to this Agreement shall be exclusively litigated in the state or federal courts located in Travis County, Texas.

Apache Commons Codec  
Copyright 2002-2014 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

src/test/org/apache/commons/codec/language/DoubleMetaphoneTest.java  
contains test data from <http://aspell.net/test/orig/batch0.tab>.  
Copyright (C) 2002 Kevin Atkinson ([kevina@gnu.org](mailto:kevina@gnu.org))

=====

The content of package org.apache.commons.codec.language.bm has been translated from the original php source code available at <http://stevemorse.org/phoneticinfo.htm> with permission from the original authors.

Original source copyright:

Copyright (c) 2008 Alexander Beider & Stephen P. Morse.

Copyright (c) 2000-2015 The Legion of the Bouncy Castle Inc. (<http://www.bouncycastle.org>)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache HttpComponents Client

Copyright 1999-2016 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

/\*

\* Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one

\* or more contributor license agreements. Licensed under the Elastic License;

\* you may not use this file except in compliance with the Elastic License.

\*/

```
package org.elasticsearch.xpack.core.security.authz.permission;
```

```
import org.elasticsearch.common.settings.Settings;
```

```
import org.elasticsearch.test.ESTestCase;
```

```
import java.util.ArrayList;
```

```
import java.util.Arrays;
```

```
import java.util.Collections;
```

```
import java.util.List;
```

```
public class FieldPermissionsCacheTests extends ESTestCase {
```

```
    public void testFieldPermissionsCaching() {  
        FieldPermissionsCache fieldPermissionsCache = new FieldPermissionsCache(Settings.EMPTY);  
        String[] allowed = new String[]{randomAlphaOfLength(5) + "*", randomAlphaOfLength(5) + "*",  
randomAlphaOfLength(5) + "*"};  
        String[] denied = new String[]{allowed[0] + randomAlphaOfLength(5), allowed[1] +  
randomAlphaOfLength(5),  
        allowed[2] + randomAlphaOfLength(5)};
```



```

FieldPermissions fieldPermissions = fieldPermissionsCache.getFieldPermissions(allowed, denied);
assertNotNull(fieldPermissions);
final String[] allowed2 = randomBoolean() ? allowed : Arrays.copyOf(allowed, allowed.length);
final String[] denied2 = randomBoolean() ? denied : Arrays.copyOf(denied, denied.length);
assertSame(fieldPermissions, fieldPermissionsCache.getFieldPermissions(allowed2, denied2));
}

public void testMergeFieldPermissions() {
    FieldPermissionsCache fieldPermissionsCache = new FieldPermissionsCache(Settings.EMPTY);
    String allowedPrefix1 = randomAlphaOfLength(5);
    String allowedPrefix2 = randomAlphaOfLength(5);
    String[] allowed1 = new String[]{allowedPrefix1 + "*"};
    String[] allowed2 = new String[]{allowedPrefix2 + "*"};
    String[] denied1 = new String[]{allowedPrefix1 + "a"};
    String[] denied2 = new String[]{allowedPrefix2 + "a"};
    FieldPermissions fieldPermissions1 = randomBoolean() ?
fieldPermissionsCache.getFieldPermissions(allowed1, denied1) :
        new FieldPermissions(fieldPermissionDef(allowed1, denied1));
    FieldPermissions fieldPermissions2 = randomBoolean() ?
fieldPermissionsCache.getFieldPermissions(allowed2, denied2) :
        new FieldPermissions(fieldPermissionDef(allowed2, denied2));
    FieldPermissions mergedFieldPermissions =
        fieldPermissionsCache.getFieldPermissions(Arrays.asList(fieldPermissions1, fieldPermissions2));
    assertTrue(mergedFieldPermissions.grantsAccessTo(allowedPrefix1 + "b"));
    assertTrue(mergedFieldPermissions.grantsAccessTo(allowedPrefix2 + "b"));
    assertFalse(mergedFieldPermissions.grantsAccessTo(denied1[0]));
    assertFalse(mergedFieldPermissions.grantsAccessTo(denied2[0]));

    allowed1 = new String[]{randomAlphaOfLength(5) + "*", randomAlphaOfLength(5) + "*"};
    allowed2 = null;
    denied1 = new String[]{allowed1[0] + "a", allowed1[1] + "a"};
    denied2 = null;
    fieldPermissions1 = randomBoolean() ? fieldPermissionsCache.getFieldPermissions(allowed1, denied1) :
        new FieldPermissions(fieldPermissionDef(allowed1, denied1));
    fieldPermissions2 = randomBoolean() ? fieldPermissionsCache.getFieldPermissions(allowed2, denied2) :
        new FieldPermissions(fieldPermissionDef(allowed2, denied2));
    mergedFieldPermissions =
        fieldPermissionsCache.getFieldPermissions(Arrays.asList(fieldPermissions1, fieldPermissions2));
    assertFalse(mergedFieldPermissions.hasFieldLevelSecurity());

    allowed1 = new String[]{};
    allowed2 = new String[]{randomAlphaOfLength(5) + "*", randomAlphaOfLength(5) + "*"};
    denied1 = new String[]{};
    denied2 = new String[]{allowed2[0] + "a", allowed2[1] + "a"};
    fieldPermissions1 = randomBoolean() ? fieldPermissionsCache.getFieldPermissions(allowed1, denied1) :
        new FieldPermissions(fieldPermissionDef(allowed1, denied1));
    fieldPermissions2 = randomBoolean() ? fieldPermissionsCache.getFieldPermissions(allowed2, denied2) :
        new FieldPermissions(fieldPermissionDef(allowed2, denied2));
}

```

```

mergedFieldPermissions =
    fieldPermissionsCache.getFieldPermissions(Arrays.asList(fieldPermissions1, fieldPermissions2));
for (String field : allowed2) {
    assertTrue(mergedFieldPermissions.grantsAccessTo(field));
}
for (String field : denied2) {
    assertFalse(mergedFieldPermissions.grantsAccessTo(field));
}

allowed1 = randomBoolean() ? null : new String[]{"*"};
allowed2 = randomBoolean() ? null : new String[]{"*"};
denied1 = new String[]{"a"};
denied2 = new String[]{"b"};
fieldPermissions1 = randomBoolean() ? fieldPermissionsCache.getFieldPermissions(allowed1, denied1) :
    new FieldPermissions(fieldPermissionDef(allowed1, denied1));
fieldPermissions2 = randomBoolean() ? fieldPermissionsCache.getFieldPermissions(allowed2, denied2) :
    new FieldPermissions(fieldPermissionDef(allowed2, denied2));
mergedFieldPermissions =
    fieldPermissionsCache.getFieldPermissions(Arrays.asList(fieldPermissions1, fieldPermissions2));
assertTrue(mergedFieldPermissions.grantsAccessTo("a"));
assertTrue(mergedFieldPermissions.grantsAccessTo("b"));

// test merge does not remove _all
allowed1 = new String[]{"_all"};
allowed2 = new String[]{};
denied1 = null;
denied2 = null;
fieldPermissions1 = randomBoolean() ? fieldPermissionsCache.getFieldPermissions(allowed1, denied1) :
    new FieldPermissions(fieldPermissionDef(allowed1, denied1));
fieldPermissions2 = randomBoolean() ? fieldPermissionsCache.getFieldPermissions(allowed2, denied2) :
    new FieldPermissions(fieldPermissionDef(allowed2, denied2));
mergedFieldPermissions =
    fieldPermissionsCache.getFieldPermissions(Arrays.asList(fieldPermissions1, fieldPermissions2));
assertTrue(fieldPermissions1.grantsAccessTo("_all"));
assertFalse(fieldPermissions2.grantsAccessTo("_all"));
assertTrue(mergedFieldPermissions.grantsAccessTo("_all"));

allowed1 = new String[] { "a*" };
allowed2 = new String[] { "b*" };
denied1 = new String[] { "aa*" };
denied2 = null;
fieldPermissions1 = randomBoolean() ? fieldPermissionsCache.getFieldPermissions(allowed1, denied1) :
    new FieldPermissions(fieldPermissionDef(allowed1, denied1));
fieldPermissions2 = randomBoolean() ? fieldPermissionsCache.getFieldPermissions(allowed2, denied2) :
    new FieldPermissions(fieldPermissionDef(allowed2, denied2));
mergedFieldPermissions =
    fieldPermissionsCache.getFieldPermissions(Arrays.asList(fieldPermissions1, fieldPermissions2));
assertTrue(mergedFieldPermissions.grantsAccessTo("a"));

```

```

    assertTrue(mergedFieldPermissions.grantsAccessTo("b"));
    assertFalse(mergedFieldPermissions.grantsAccessTo("aa"));
    assertFalse(mergedFieldPermissions.grantsAccessTo("aa1"));
    assertTrue(mergedFieldPermissions.grantsAccessTo("a1"));
}

public void testNonFlsAndFlsMerging() {
    List<FieldPermissions> permissionsList = new ArrayList<>();
    permissionsList.add(new FieldPermissions(fieldPermissionDef(new String[] {"field1"}, null)));
    permissionsList.add(new FieldPermissions(fieldPermissionDef(new String[] {"field2", "query*"}, null)));
    permissionsList.add(new FieldPermissions(fieldPermissionDef(new String[] {"field1", "field2"}, null)));
    permissionsList.add(new FieldPermissions(fieldPermissionDef(new String[] {}, null)));
    permissionsList.add(new FieldPermissions(fieldPermissionDef(null, null)));

    FieldPermissionsCache cache = new FieldPermissionsCache(Settings.EMPTY);
    for (int i = 0; i < scaledRandomIntBetween(1, 12); i++) {
        Collections.shuffle(permissionsList, random());
        FieldPermissions result = cache.getFieldPermissions(permissionsList);
        assertFalse(result.hasFieldLevelSecurity());
    }
}

private static FieldPermissionsDefinition fieldPermissionDef(String[] granted, String[] denied) {
    return new FieldPermissionsDefinition(granted, denied);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.analysis.common.CommonAnalysisPlugin;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.ClusterStateUpdateTask;
import org.elasticsearch.cluster.metadata.Metadata;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.common.Nullable;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.plugins.Plugin;
import org.elasticsearch.test.ESIntegTestCase;
import org.elasticsearch.xpack.core.LocalStateCompositeXPackPlugin;
import org.elasticsearch.xpack.core.XPackClientPlugin;
import org.elasticsearch.xpack.core.XPackSettings;

import java.util.Arrays;
import java.util.Collection;

```

```

import java.util.concurrent.CountDownLatch;

public abstract class AbstractLicensesIntegrationTestCase extends ESIntegTestCase {

    @Override
    protected Settings nodeSettings(int nodeOrdinal) {
        return Settings.builder().put(XPackSettings.SECURITY_ENABLED.getKey(), false).build();
    }

    @Override
    protected Collection<Class<? extends Plugin>> nodePlugins() {
        return Arrays.asList(LocalStateCompositeXPackPlugin.class, CommonAnalysisPlugin.class);
    }

    @Override
    protected Collection<Class<? extends Plugin>> transportClientPlugins() {
        return Arrays.asList(XPackClientPlugin.class, CommonAnalysisPlugin.class);
    }

    @Override
    protected Settings transportClientSettings() {
        // Plugin should be loaded on the transport client as well
        return nodeSettings(0);
    }

    protected void putLicense(final License license) throws InterruptedException {
        final CountDownLatch latch = new CountDownLatch(1);
        ClusterService clusterService = internalCluster().getInstance(ClusterService.class,
internalCluster().getMasterName());
        clusterService.submitStateUpdateTask("putting license", new ClusterStateUpdateTask() {
            @Override
            public void clusterStateProcessed(String source, ClusterState oldState, ClusterState newState) {
                latch.countDown();
            }
        });

        @Override
        public ClusterState execute(ClusterState currentState) throws Exception {
            Metadata.Builder mdBuilder = Metadata.builder(currentState.metadata());
            mdBuilder.putCustom(LicensesMetaData.TYPE, new LicensesMetaData(license, null));
            return ClusterState.builder(currentState).metadata(mdBuilder).build();
        }

        @Override
        public void onFailure(String source, @Nullable Exception e) {
            logger.error("error on metaData cleanup after test", e);
        }
    });
    latch.await();
}

```

```

    }

    protected void putLicenseTombstone() throws InterruptedException {
        putLicense(LicensesMetaData.LICENSE_TOMBSTONE);
    }

    protected void wipeAllLicenses() throws InterruptedException {
        final CountdownLatch latch = new CountdownLatch(1);
        ClusterService clusterService = internalCluster().getInstance(ClusterService.class,
internalCluster().getMasterName());
        clusterService.submitStateUpdateTask("delete licensing metadata", new ClusterStateUpdateTask() {
            @Override
            public void clusterStateProcessed(String source, ClusterState oldState, ClusterState newState) {
                latch.countDown();
            }

            @Override
            public ClusterState execute(ClusterState currentState) throws Exception {
                MetaData.Builder mdBuilder = MetaData.builder(currentState.metaData());
                mdBuilder.removeCustom(LicensesMetaData.TYPE);
                return ClusterState.builder(currentState).metaData(mdBuilder).build();
            }

            @Override
            public void onFailure(String source, @Nullable Exception e) {
                logger.error("error on metaData cleanup after test", e);
            }
        });
        latch.await();
    }

    protected void assertLicenseActive(boolean active) throws InterruptedException {
        boolean success = awaitBusy() -> {
            for (XPackLicenseState licenseState : internalCluster().getDataNodeInstances(XPackLicenseState.class)) {
                if (licenseState.isActive() == active) {
                    return true;
                }
            }
            return false;
        };
        assertTrue(success);
    }
}

/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.

```

```

*/
package org.elasticsearch.license;

import org.elasticsearch.Version;
import org.elasticsearch.cluster.ClusterChangedEvent;
import org.elasticsearch.cluster.ClusterName;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.ClusterStateUpdateTask;
import org.elasticsearch.cluster.metadata.Metadata;
import org.elasticsearch.cluster.node.DiscoveryNode;
import org.elasticsearch.cluster.node.DiscoveryNodes;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.unit.TimeValue;
import org.junit.After;
import org.junit.Before;
import org.mockito.ArgumentCaptor;

import static java.util.Collections.emptyMap;
import static java.util.Collections.emptySet;
import static org.hamcrest.Matchers.equalTo;
import static org.mockito.Matchers.any;
import static org.mockito.Mockito.times;
import static org.mockito.Mockito.verify;
import static org.mockito.Mockito.when;

public class LicenseClusterChangeTests extends AbstractLicenseServiceTestCase {

    private TestUtils.AssertingLicenseState licenseState;

    @Before
    public void setup() {
        licenseState = new TestUtils.AssertingLicenseState();
        setInitialState(null, licenseState, Settings.EMPTY);
        licenseService.start();
    }

    @After
    public void teardown() {
        licenseService.stop();
    }

    public void testNotificationOnNewLicense() throws Exception {
        ClusterState oldState = ClusterState.builder(new ClusterName("a")).build();
        final License license = TestUtils.generateSignedLicense(TimeValue.timeValueHours(24));
        Metadata metaData = Metadata.builder().putCustom(LicensesMetaData.TYPE, new
LicensesMetaData(license, null)).build();
        ClusterState newState = ClusterState.builder(new ClusterName("a")).metaData(metaData).build();

```

```

licenseService.clusterChanged(new ClusterChangedEvent("simulated", newState, oldState));
assertThat(licenseState.activeUpdates.size(), equalTo(1));
assertTrue(licenseState.activeUpdates.get(0));
}

public void testNoNotificationOnExistingLicense() throws Exception {
    final License license = TestUtils.generateSignedLicense(TimeValue.timeValueHours(24));
    Metadata metaData = Metadata.builder().putCustom(LicensesMetaData.TYPE, new
LicensesMetaData(license, null)).build();
    ClusterState newState = ClusterState.builder(new ClusterName("a")).metaData(metaData).build();
    ClusterState oldState = ClusterState.builder(newState).build();
    licenseService.clusterChanged(new ClusterChangedEvent("simulated", newState, oldState));
    assertThat(licenseState.activeUpdates.size(), equalTo(0));
}

public void testSelfGeneratedLicenseGeneration() throws Exception {
    DiscoveryNode master = new DiscoveryNode("b", buildNewFakeTransportAddress(), emptyMap(), emptySet(),
Version.CURRENT);
    ClusterState oldState = ClusterState.builder(new ClusterName("a"))
        .nodes(DiscoveryNodes.builder().masterNodeId(master.getId()).add(master)).build();
    when(discoveryNodes.isLocalNodeElectedMaster()).thenReturn(true);
    ClusterState newState = ClusterState.builder(oldState).nodes(discoveryNodes).build();

    licenseService.clusterChanged(new ClusterChangedEvent("simulated", newState, oldState));
    ArgumentCaptor<ClusterStateUpdateTask> stateUpdater =
ArgumentCaptor.forClass(ClusterStateUpdateTask.class);
    verify(clusterService, times(1)).submitStateUpdateTask(any(), stateUpdater.capture());
    ClusterState stateWithLicense = stateUpdater.getValue().execute(newState);
    LicensesMetaData licenseMetaData = stateWithLicense.metaData().custom(LicensesMetaData.TYPE);
    assertNotNull(licenseMetaData);
    assertNotNull(licenseMetaData.getLicense());
    assertEquals(licenseType, licenseMetaData.getLicense().type());
    long expiration;
    if (licenseType.equals("basic")) {
        expiration = LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS;
    } else {
        expiration = LicenseService.NON_BASIC_SELF_GENERATED_LICENSE_DURATION.millis() +
clock.millis();
    }
    assertEquals(expiration, licenseMetaData.getLicense().expiryDate());
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

```

```

import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.license.License.OperationMode;
import org.elasticsearch.test.ESTestCase;
import org.elasticsearch.xpack.core.XPackField;
import org.elasticsearch.xpack.core.XPackSettings;

import java.util.Arrays;
import java.util.function.Predicate;
import java.util.stream.Collectors;

import static org.elasticsearch.license.License.OperationMode.BASIC;
import static org.elasticsearch.license.License.OperationMode.GOLD;
import static org.elasticsearch.license.License.OperationMode.MISSING;
import static org.elasticsearch.license.License.OperationMode.PLATINUM;
import static org.elasticsearch.license.License.OperationMode.STANDARD;
import static org.elasticsearch.license.License.OperationMode.TRIAL;
import static org.hamcrest.Matchers.is;

/**
 * Unit tests for the {@link XPackLicenseState}
 */
public class XPackLicenseStateTests extends ESTestCase {

    /** Creates a license state with the given license type and active state, and checks the given method returns
    expected. */
    void assertAllowed(OperationMode mode, boolean active, Predicate<XPackLicenseState> predicate, boolean
    expected) {
        XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
        licenseState.update(mode, active);
        assertEquals(expected, predicate.test(licenseState));
    }

    /**
     * Checks the ack message going from the {@code from} license type to {@code to} license type.
     * TODO: check the actual messages, not just the number of them! This was copied from previous license tests...
     */
    void assertAckMesssages(String feature, OperationMode from, OperationMode to, int expectedMessages) {
        String[] gotMessages = XPackLicenseState.ACKNOWLEDGMENT_MESSAGES.get(feature).apply(from, to);
        assertEquals(expectedMessages, gotMessages.length);
    }

    static <T> T randomFrom(T[] values, Predicate<T> filter) {
        return randomFrom(Arrays.stream(values).filter(filter).collect(Collectors.toList()));
    }

    static OperationMode randomMode() {
        return randomFrom(OperationMode.values());
    }

```



```

}

public static OperationMode randomTrialStandardGoldOrPlatinumMode() {
    return randomFrom(TRIAL, STANDARD, GOLD, PLATINUM);
}

public static OperationMode randomTrialOrPlatinumMode() {
    return randomFrom(TRIAL, PLATINUM);
}

public static OperationMode randomTrialBasicStandardGoldOrPlatinumMode() {
    return randomFrom(TRIAL, BASIC, STANDARD, GOLD, PLATINUM);
}

public static OperationMode randomBasicStandardOrGold() {
    return randomFrom(BASIC, STANDARD, GOLD);
}

public void testSecurityDefaults() {
    XPackLicenseState licenseState =
        new XPackLicenseState(Settings.builder().put(XPackSettings.SECURITY_ENABLED.getKey(),
true).build());
    assertThat(licenseState.isAuthAllowed(), is(true));
    assertThat(licenseState.isIpFilteringAllowed(), is(true));
    assertThat(licenseState.isAuditingAllowed(), is(true));
    assertThat(licenseState.isStatsAndHealthAllowed(), is(true));
    assertThat(licenseState.isDocumentAndFieldLevelSecurityAllowed(), is(true));
    assertThat(licenseState.allowedRealmType(), is(XPackLicenseState.AllowedRealmType.ALL));
    assertThat(licenseState.isCustomRoleProvidersAllowed(), is(true));

    licenseState =
        new XPackLicenseState(Settings.builder().put(XPackSettings.TRANSPORT_SSL_ENABLED.getKey(),
true).build());
    assertThat(licenseState.isAuthAllowed(), is(true));
    assertThat(licenseState.isIpFilteringAllowed(), is(true));
    assertThat(licenseState.isAuditingAllowed(), is(true));
    assertThat(licenseState.isStatsAndHealthAllowed(), is(true));
    assertThat(licenseState.isDocumentAndFieldLevelSecurityAllowed(), is(true));
    assertThat(licenseState.allowedRealmType(), is(XPackLicenseState.AllowedRealmType.ALL));
    assertThat(licenseState.isCustomRoleProvidersAllowed(), is(true));

    licenseState = new XPackLicenseState(Settings.EMPTY);
    assertThat(licenseState.isAuthAllowed(), is(true));
    assertThat(licenseState.isIpFilteringAllowed(), is(true));
    assertThat(licenseState.isAuditingAllowed(), is(true));
    assertThat(licenseState.isStatsAndHealthAllowed(), is(true));
    assertThat(licenseState.isDocumentAndFieldLevelSecurityAllowed(), is(true));
    assertThat(licenseState.allowedRealmType(), is(XPackLicenseState.AllowedRealmType.ALL));
}

```

```

    assertThat(licenseState.isCustomRoleProvidersAllowed(), is(true));
}

public void testSecurityBasic() {
    XPackLicenseState licenseState = new XPackLicenseState(randomFrom(Settings.EMPTY,
        Settings.builder().put(XPackSettings.SECURITY_ENABLED.getKey(), true).build()));
    licenseState.update(BASIC, true);

    assertThat(licenseState.isAuthAllowed(), is(false));
    assertThat(licenseState.isIpFilteringAllowed(), is(false));
    assertThat(licenseState.isAuditingAllowed(), is(false));
    assertThat(licenseState.isStatsAndHealthAllowed(), is(true));
    assertThat(licenseState.isDocumentAndFieldLevelSecurityAllowed(), is(false));
    assertThat(licenseState.allowedRealmType(), is(XPackLicenseState.AllowedRealmType.NONE));
    assertThat(licenseState.isCustomRoleProvidersAllowed(), is(false));
}

public void testSecurityBasicExpired() {
    XPackLicenseState licenseState = new XPackLicenseState(randomFrom(Settings.EMPTY,
        Settings.builder().put(XPackSettings.SECURITY_ENABLED.getKey(), true).build()));
    licenseState.update(BASIC, false);

    assertThat(licenseState.isAuthAllowed(), is(false));
    assertThat(licenseState.isIpFilteringAllowed(), is(false));
    assertThat(licenseState.isAuditingAllowed(), is(false));
    assertThat(licenseState.isStatsAndHealthAllowed(), is(false));
    assertThat(licenseState.isDocumentAndFieldLevelSecurityAllowed(), is(false));
    assertThat(licenseState.allowedRealmType(), is(XPackLicenseState.AllowedRealmType.NONE));
    assertThat(licenseState.isCustomRoleProvidersAllowed(), is(false));
}

public void testSecurityStandard() {
    XPackLicenseState licenseState = new XPackLicenseState(randomFrom(Settings.EMPTY,
        Settings.builder().put(XPackSettings.SECURITY_ENABLED.getKey(), true).build()));
    licenseState.update(STANDARD, true);

    assertThat(licenseState.isAuthAllowed(), is(true));
    assertThat(licenseState.isIpFilteringAllowed(), is(false));
    assertThat(licenseState.isAuditingAllowed(), is(false));
    assertThat(licenseState.isStatsAndHealthAllowed(), is(true));
    assertThat(licenseState.isDocumentAndFieldLevelSecurityAllowed(), is(false));
    assertThat(licenseState.allowedRealmType(), is(XPackLicenseState.AllowedRealmType.NATIVE));
    assertThat(licenseState.isCustomRoleProvidersAllowed(), is(false));
}

public void testSecurityStandardExpired() {
    XPackLicenseState licenseState = new XPackLicenseState(randomFrom(Settings.EMPTY,
        Settings.builder().put(XPackSettings.SECURITY_ENABLED.getKey(), true).build()));

```

```

licenseState.update(STANDARD, false);

assertThat(licenseState.isAuthAllowed(), is(true));
assertThat(licenseState.isIpFilteringAllowed(), is(false));
assertThat(licenseState.isAuditingAllowed(), is(false));
assertThat(licenseState.isStatsAndHealthAllowed(), is(false));
assertThat(licenseState.isDocumentAndFieldLevelSecurityAllowed(), is(false));
assertThat(licenseState.allowedRealmType(), is(XPackLicenseState.AllowedRealmType.NATIVE));
assertThat(licenseState.isCustomRoleProvidersAllowed(), is(false));
}

public void testSecurityGold() {
    XPackLicenseState licenseState = new XPackLicenseState(randomFrom(Settings.EMPTY,
        Settings.builder().put(XPackSettings.SECURITY_ENABLED.getKey(), true).build()));
    licenseState.update(GOLD, true);

    assertThat(licenseState.isAuthAllowed(), is(true));
    assertThat(licenseState.isIpFilteringAllowed(), is(true));
    assertThat(licenseState.isAuditingAllowed(), is(true));
    assertThat(licenseState.isStatsAndHealthAllowed(), is(true));
    assertThat(licenseState.isDocumentAndFieldLevelSecurityAllowed(), is(false));
    assertThat(licenseState.allowedRealmType(), is(XPackLicenseState.AllowedRealmType.DEFAULT));
    assertThat(licenseState.isCustomRoleProvidersAllowed(), is(false));
}

public void testSecurityGoldExpired() {
    XPackLicenseState licenseState = new XPackLicenseState(randomFrom(Settings.EMPTY,
        Settings.builder().put(XPackSettings.SECURITY_ENABLED.getKey(), true).build()));
    licenseState.update(GOLD, false);

    assertThat(licenseState.isAuthAllowed(), is(true));
    assertThat(licenseState.isIpFilteringAllowed(), is(true));
    assertThat(licenseState.isAuditingAllowed(), is(true));
    assertThat(licenseState.isStatsAndHealthAllowed(), is(false));
    assertThat(licenseState.isDocumentAndFieldLevelSecurityAllowed(), is(false));
    assertThat(licenseState.allowedRealmType(), is(XPackLicenseState.AllowedRealmType.DEFAULT));
    assertThat(licenseState.isCustomRoleProvidersAllowed(), is(false));
}

public void testSecurityPlatinum() {
    XPackLicenseState licenseState = new XPackLicenseState(randomFrom(Settings.EMPTY,
        Settings.builder().put(XPackSettings.SECURITY_ENABLED.getKey(), true).build()));
    licenseState.update(PLATINUM, true);

    assertThat(licenseState.isAuthAllowed(), is(true));
    assertThat(licenseState.isIpFilteringAllowed(), is(true));
    assertThat(licenseState.isAuditingAllowed(), is(true));
    assertThat(licenseState.isStatsAndHealthAllowed(), is(true));
}

```

```

    assertThat(licenseState.isDocumentAndFieldLevelSecurityAllowed(), is(true));
    assertThat(licenseState.allowedRealmType(), is(XPackLicenseState.AllowedRealmType.ALL));
    assertThat(licenseState.isCustomRoleProvidersAllowed(), is(true));
}

public void testSecurityPlatinumExpired() {
    XPackLicenseState licenseState = new XPackLicenseState(randomFrom(Settings.EMPTY,
        Settings.builder().put(XPackSettings.SECURITY_ENABLED.getKey(), true).build()));
    licenseState.update(PLATINUM, false);

    assertThat(licenseState.isAuthAllowed(), is(true));
    assertThat(licenseState.isIpFilteringAllowed(), is(true));
    assertThat(licenseState.isAuditingAllowed(), is(true));
    assertThat(licenseState.isStatsAndHealthAllowed(), is(false));
    assertThat(licenseState.isDocumentAndFieldLevelSecurityAllowed(), is(true));
    assertThat(licenseState.allowedRealmType(), is(XPackLicenseState.AllowedRealmType.ALL));
    assertThat(licenseState.isCustomRoleProvidersAllowed(), is(false));
}

public void testSecurityAckBasicToNotGoldOrStandard() {
    OperationMode toMode = randomFrom(OperationMode.values(), mode -> mode != GOLD && mode !=
STANDARD);
    assertThatAckMessages(XPackField.SECURITY, BASIC, toMode, 0);
}

public void testSecurityAckAnyToTrialOrPlatinum() {
    assertThatAckMessages(XPackField.SECURITY, randomMode(), randomTrialOrPlatinumMode(), 0);
}

public void testSecurityAckTrialStandardGoldOrPlatinumToBasic() {
    assertThatAckMessages(XPackField.SECURITY, randomTrialStandardGoldOrPlatinumMode(), BASIC, 3);
}

public void testSecurityAckAnyToStandard() {
    OperationMode from = randomFrom(BASIC, GOLD, PLATINUM, TRIAL);
    assertThatAckMessages(XPackField.SECURITY, from, STANDARD, 4);
}

public void testSecurityAckBasicStandardTrialOrPlatinumToGold() {
    OperationMode from = randomFrom(BASIC, PLATINUM, TRIAL, STANDARD);
    assertThatAckMessages(XPackField.SECURITY, from, GOLD, 2);
}

public void testMonitoringAckBasicToAny() {
    assertThatAckMessages(XPackField.MONITORING, BASIC, randomMode(), 0);
}

public void testMonitoringAckAnyToTrialGoldOrPlatinum() {

```

```

        assertAckMessages(XPackField.MONITORING, randomMode(),
randomTrialStandardGoldOrPlatinumMode(), 0);
    }

    public void testMonitoringAckNotBasicToBasic() {
        OperationMode from = randomFrom(STANDARD, GOLD, PLATINUM, TRIAL);
        assertAckMessages(XPackField.MONITORING, from, BASIC, 2);
    }

    public void testMonitoringAllowed() {
        assertAllowed(randomMode(), true, XPackLicenseState::isMonitoringAllowed, true);
        assertAllowed(randomMode(), false, XPackLicenseState::isMonitoringAllowed, false);
    }

    public void testMonitoringUpdateRetention() {
        assertAllowed(STANDARD, true, XPackLicenseState::isUpdateRetentionAllowed, true);
        assertAllowed(GOLD, true, XPackLicenseState::isUpdateRetentionAllowed, true);
        assertAllowed(PLATINUM, true, XPackLicenseState::isUpdateRetentionAllowed, true);
        assertAllowed(TRIAL, true, XPackLicenseState::isUpdateRetentionAllowed, true);
        assertAllowed(BASIC, true, XPackLicenseState::isUpdateRetentionAllowed, false);
        assertAllowed(MISSING, false, XPackLicenseState::isUpdateRetentionAllowed, false);
    }

    public void testWatcherPlatinumGoldTrialStandard() throws Exception {
        assertAllowed(TRIAL, true, XPackLicenseState::isWatcherAllowed, true);
        assertAllowed(GOLD, true, XPackLicenseState::isWatcherAllowed, true);
        assertAllowed(PLATINUM, true, XPackLicenseState::isWatcherAllowed, true);
        assertAllowed(STANDARD, true, XPackLicenseState::isWatcherAllowed, true);
    }

    public void testWatcherBasicLicense() throws Exception {
        assertAllowed(BASIC, true, XPackLicenseState::isWatcherAllowed, false);
    }

    public void testWatcherInactive() {
        assertAllowed(BASIC, false, XPackLicenseState::isWatcherAllowed, false);
    }

    public void testWatcherInactivePlatinumGoldTrial() throws Exception {
        assertAllowed(TRIAL, false, XPackLicenseState::isWatcherAllowed, false);
        assertAllowed(GOLD, false, XPackLicenseState::isWatcherAllowed, false);
        assertAllowed(PLATINUM, false, XPackLicenseState::isWatcherAllowed, false);
        assertAllowed(STANDARD, false, XPackLicenseState::isWatcherAllowed, false);
    }

    public void testGraphPlatinumTrial() throws Exception {
        assertAllowed(TRIAL, true, XPackLicenseState::isGraphAllowed, true);
        assertAllowed(PLATINUM, true, XPackLicenseState::isGraphAllowed, true);
    }

```

```

}

public void testGraphBasic() throws Exception {
    assertAllowed(BASIC, true, XPackLicenseState::isGraphAllowed, false);
}

public void testGraphStandard() throws Exception {
    assertAllowed(STANDARD, true, XPackLicenseState::isGraphAllowed, false);
}

public void testGraphInactiveBasic() {
    assertAllowed(BASIC, false, XPackLicenseState::isGraphAllowed, false);
}

public void testGraphInactivePlatinumTrial() throws Exception {
    assertAllowed(TRIAL, false, XPackLicenseState::isMachineLearningAllowed, false);
    assertAllowed(PLATINUM, false, XPackLicenseState::isMachineLearningAllowed, false);
}

public void testMachineLearningPlatinumTrial() throws Exception {
    assertAllowed(TRIAL, true, XPackLicenseState::isMachineLearningAllowed, true);
    assertAllowed(PLATINUM, true, XPackLicenseState::isMachineLearningAllowed, true);
}

public void testMachineLearningBasic() throws Exception {
    assertAllowed(BASIC, true, XPackLicenseState::isMachineLearningAllowed, false);
}

public void testMachineLearningStandard() throws Exception {
    assertAllowed(STANDARD, true, XPackLicenseState::isMachineLearningAllowed, false);
}

public void testMachineLearningInactiveBasic() {
    assertAllowed(BASIC, false, XPackLicenseState::isMachineLearningAllowed, false);
}

public void testMachineLearningInactivePlatinumTrial() throws Exception {
    assertAllowed(TRIAL, false, XPackLicenseState::isMachineLearningAllowed, false);
    assertAllowed(PLATINUM, false, XPackLicenseState::isMachineLearningAllowed, false);
}

public void testLogstashPlatinumGoldTrialStandard() throws Exception {
    assertAllowed(TRIAL, true, XPackLicenseState::isLogstashAllowed, true);
    assertAllowed(GOLD, true, XPackLicenseState::isLogstashAllowed, true);
    assertAllowed(PLATINUM, true, XPackLicenseState::isLogstashAllowed, true);
    assertAllowed(STANDARD, true, XPackLicenseState::isLogstashAllowed, true);
}

```

```

public void testLogstashBasicLicense() throws Exception {
    assertAllowed(BASIC, true, XPackLicenseState::isLogstashAllowed, false);
}

public void testLogstashInactive() {
    assertAllowed(BASIC, false, XPackLicenseState::isLogstashAllowed, false);
    assertAllowed(TRIAL, false, XPackLicenseState::isLogstashAllowed, false);
    assertAllowed(GOLD, false, XPackLicenseState::isLogstashAllowed, false);
    assertAllowed(PLATINUM, false, XPackLicenseState::isLogstashAllowed, false);
    assertAllowed(STANDARD, false, XPackLicenseState::isLogstashAllowed, false);
}

public void testSqlDefaults() {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    assertThat(licenseState.isSqlAllowed(), is(true));
    assertThat(licenseState.isJdbcAllowed(), is(true));
}

public void testSqlBasic() {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    licenseState.update(BASIC, true);

    assertThat(licenseState.isSqlAllowed(), is(true));
    assertThat(licenseState.isJdbcAllowed(), is(false));
}

public void testSqlBasicExpired() {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    licenseState.update(BASIC, false);

    assertThat(licenseState.isSqlAllowed(), is(false));
    assertThat(licenseState.isJdbcAllowed(), is(false));
}

public void testSqlStandard() {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    licenseState.update(STANDARD, true);

    assertThat(licenseState.isSqlAllowed(), is(true));
    assertThat(licenseState.isJdbcAllowed(), is(false));
}

public void testSqlStandardExpired() {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    licenseState.update(STANDARD, false);

    assertThat(licenseState.isSqlAllowed(), is(false));
    assertThat(licenseState.isJdbcAllowed(), is(false));
}

```

```

}

public void testSqlGold() {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    licenseState.update(GOLD, true);

    assertThat(licenseState.isSqlAllowed(), is(true));
    assertThat(licenseState.isJdbcAllowed(), is(false));
}

public void testSqlGoldExpired() {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    licenseState.update(GOLD, false);

    assertThat(licenseState.isSqlAllowed(), is(false));
    assertThat(licenseState.isJdbcAllowed(), is(false));
}

public void testSqlPlatinum() {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    licenseState.update(PLATINUM, true);

    assertThat(licenseState.isSqlAllowed(), is(true));
    assertThat(licenseState.isJdbcAllowed(), is(true));
}

public void testSqlPlatinumExpired() {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    licenseState.update(PLATINUM, false);

    assertThat(licenseState.isSqlAllowed(), is(false));
    assertThat(licenseState.isJdbcAllowed(), is(false));
}

public void testSqlAckAnyToTrialOrPlatinum() {
    assertAckMessages(XPackField.SQL, randomMode(), randomTrialOrPlatinumMode(), 0);
}

public void testSqlAckTrialOrPlatinumToNotTrialOrPlatinum() {
    assertAckMessages(XPackField.SQL, randomTrialOrPlatinumMode(), randomBasicStandardOrGold(), 1);
}

}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */

```



```

package org.elasticsearch.license;

import org.elasticsearch.client.Response;
import org.elasticsearch.client.ResponseException;
import org.elasticsearch.client.RestClient;
import org.elasticsearch.common.io.Streams;
import org.elasticsearch.common.network.NetworkModule;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.plugins.Plugin;
import org.elasticsearch.test.ESIntegTestCase;
import org.elasticsearch.transport.Netty4Plugin;
import org.elasticsearch.xpack.core.LocalStateCompositeXPackPlugin;
import org.elasticsearch.xpack.core.XPackClientPlugin;

import java.io.InputStreamReader;
import java.nio.charset.StandardCharsets;
import java.util.Arrays;
import java.util.Collection;

import static org.elasticsearch.test.ESIntegTestCase.Scope.SUITE;

@ESIntegTestCase.ClusterScope(scope = SUITE)
public class StartTrialLicenseTests extends AbstractLicensesIntegrationTestCase {

    @Override
    protected Settings nodeSettings(int nodeOrdinal) {
        return Settings.builder()
            .put(super.nodeSettings(nodeOrdinal))
            .put("node.data", true)
            .put(LicenseService.SELF_GENERATED_LICENSE_TYPE.getKey(), "basic")
            .put(NetworkModule.HTTP_ENABLED.getKey(), true).build();
    }

    @Override
    protected Collection<Class<? extends Plugin>> nodePlugins() {
        return Arrays.asList(LocalStateCompositeXPackPlugin.class, Netty4Plugin.class);
    }

    @Override
    protected Collection<Class<? extends Plugin>> transportClientPlugins() {
        return Arrays.asList(XPackClientPlugin.class, Netty4Plugin.class);
    }

    public void testStartTrial() throws Exception {
        LicensingClient licensingClient = new LicensingClient(client());
        ensureStartingWithBasic();

        RestClient restClient = getRestClient();

```

```

Response response = restClient.performRequest("GET", "/_xpack/license/trial_status");
String body = Streams.copyToString(new InputStreamReader(response.getEntity().getContent(),
StandardCharsets.UTF_8));
assertEquals(200, response.getStatusLine().getStatusCode());
assertEquals("{\"eligible_to_start_trial\":true}", body);

// Test that starting will fail without acknowledgement
Response response2 = restClient.performRequest("POST", "/_xpack/license/start_trial");
String body2 = Streams.copyToString(new InputStreamReader(response2.getEntity().getContent(),
StandardCharsets.UTF_8));
assertEquals(200, response2.getStatusLine().getStatusCode());
assertTrue(body2.contains("\"trial_was_started\":false"));
assertTrue(body2.contains("\"error_message\":\"Operation failed: Needs acknowledgement.\""));
assertTrue(body2.contains("\"acknowledged\":false"));

assertBusy(() -> {
    GetLicenseResponse getLicenseResponse = licensingClient.prepareGetLicense().get();
    assertEquals("basic", getLicenseResponse.license().type());
});

String type = randomFrom(LicenseService.VALID_TRIAL_TYPES);

Response response3 = restClient.performRequest("POST",
"/_xpack/license/start_trial?acknowledge=true&type=" + type);
String body3 = Streams.copyToString(new InputStreamReader(response3.getEntity().getContent(),
StandardCharsets.UTF_8));
assertEquals(200, response3.getStatusLine().getStatusCode());
assertTrue(body3.contains("\"trial_was_started\":true"));
assertTrue(body3.contains("\"type\":\"" + type + "\""));
assertTrue(body3.contains("\"acknowledged\":true"));

assertBusy(() -> {
    GetLicenseResponse postTrialLicenseResponse = licensingClient.prepareGetLicense().get();
    assertEquals(type, postTrialLicenseResponse.license().type());
});

Response response4 = restClient.performRequest("GET", "/_xpack/license/trial_status");
String body4 = Streams.copyToString(new InputStreamReader(response4.getEntity().getContent(),
StandardCharsets.UTF_8));
assertEquals(200, response4.getStatusLine().getStatusCode());
assertEquals("{\"eligible_to_start_trial\":false}", body4);

String secondAttemptType = randomFrom(LicenseService.VALID_TRIAL_TYPES);

ResponseException ex = expectThrows(ResponseException.class,
() -> restClient.performRequest("POST", "/_xpack/license/start_trial?acknowledge=true&type=" +
secondAttemptType));
Response response5 = ex.getResponse();

```

```

String body5 = Streams.copyToString(new InputStreamReader(response5.getEntity().getContent(),
StandardCharsets.UTF_8));
assertEquals(403, response5.getStatusLine().getStatusCode());
assertTrue(body5.contains("\"trial_was_started\":false"));
assertTrue(body5.contains("\"error_message\": \"Operation failed: Trial was already activated.\""));
}

public void testInvalidType() throws Exception {
    ensureStartingWithBasic();

    ResponseException ex = expectThrows(ResponseException.class, () ->
        getRestClient().performRequest("POST", "/_xpack/license/start_trial?type=basic"));
    Response response = ex.getResponse();
    String body = Streams.copyToString(new InputStreamReader(response.getEntity().getContent(),
StandardCharsets.UTF_8));
    assertEquals(400, response.getStatusLine().getStatusCode());
    assertTrue(body.contains("\"type\": \"illegal_argument_exception\""));
    assertTrue(body.contains("\"reason\": \"Cannot start trial of type [basic]. Valid trial types are [\"]"));
}

private void ensureStartingWithBasic() throws Exception {
    LicensingClient licensingClient = new LicensingClient(client());
    GetLicenseResponse getLicenseResponse = licensingClient.prepareGetLicense().get();

    if ("basic".equals(getLicenseResponse.license().type()) == false) {
        licensingClient.preparePostStartBasic().setAcknowledge(true).get();
    }

    assertBusy(() -> {
        GetLicenseResponse postTrialLicenseResponse = licensingClient.prepareGetLicense().get();
        assertEquals("basic", postTrialLicenseResponse.license().type());
    });
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.analysis.common.CommonAnalysisPlugin;
import org.elasticsearch.common.network.NetworkModule;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.env.Environment;
import org.elasticsearch.plugins.Plugin;
import org.elasticsearch.test.ESIntegTestCase.ClusterScope;

```

```

import org.elasticsearch.transport.Netty4Plugin;
import org.elasticsearch.xpack.core.LocalStateCompositeXPackPlugin;
import org.elasticsearch.xpack.core.XPackPlugin;

import java.nio.charset.StandardCharsets;
import java.nio.file.Files;
import java.nio.file.Path;
import java.util.Arrays;
import java.util.Collection;

import static org.elasticsearch.test.ESIntegTestCase.Scope.TEST;
import static org.hamcrest.CoreMatchers.equalTo;
import static org.hamcrest.CoreMatchers.nullValue;

@ClusterScope(scope = TEST, numDataNodes = 0, numClientNodes = 0, maxNumDataNodes = 0,
transportClientRatio = 0)
public class LicenseServiceClusterTests extends AbstractLicensesIntegrationTestCase {

    @Override
    protected Settings nodeSettings(int nodeOrdinal) {
        return nodeSettingsBuilder(nodeOrdinal).build();
    }

    private Settings.Builder nodeSettingsBuilder(int nodeOrdinal) {
        return Settings.builder()
            .put(super.nodeSettings(nodeOrdinal))
            .put("node.data", true)
            .put("resource.reload.interval.high", "500ms") // for license mode file watcher
            .put(NetworkModule.HTTP_ENABLED.getKey(), true);
    }

    @Override
    protected Collection<Class<? extends Plugin>> nodePlugins() {
        return Arrays.asList(LocalStateCompositeXPackPlugin.class, CommonAnalysisPlugin.class,
Netty4Plugin.class);
    }

    @Override
    protected Collection<Class<? extends Plugin>> transportClientPlugins() {
        return nodePlugins();
    }

    public void testClusterRestartWithLicense() throws Exception {
        wipeAllLicenses();

        int numNodes = randomIntBetween(1, 5);
        logger.info("--> starting { } node(s)", numNodes);
        internalCluster().startNodes(numNodes);
    }
}

```

```

ensureGreen();

logger.info("--> put signed license");
LicensingClient licensingClient = new LicensingClient(client());
License license = TestUtils.generateSignedLicense(TimeValue.timeValueMinutes(1));
putLicense(license);
assertThat(licensingClient.prepareGetLicense().get().license(), equalTo(license));
assertOperationMode(license.operationMode());

logger.info("--> restart all nodes");
internalCluster().fullRestart();
ensureYellow();
licensingClient = new LicensingClient(client());
logger.info("--> get and check signed license");
assertThat(licensingClient.prepareGetLicense().get().license(), equalTo(license));
logger.info("--> remove licenses");
licensingClient.prepareDeleteLicense().get();
assertOperationMode(License.OperationMode.MISSING);

logger.info("--> restart all nodes");
internalCluster().fullRestart();
licensingClient = new LicensingClient(client());
ensureYellow();
assertThat(licensingClient.prepareGetLicense().get().license(), nullValue());
assertOperationMode(License.OperationMode.MISSING);

wipeAllLicenses();
}

public void testCloudInternalLicense() throws Exception {
    wipeAllLicenses();

    int numNodes = randomIntBetween(1, 5);
    logger.info("--> starting { } node(s)", numNodes);
    internalCluster().startNodes(numNodes);
    ensureGreen();

    logger.info("--> put signed license");
    LicensingClient licensingClient = new LicensingClient(client());
    License license = TestUtils.generateSignedLicense("cloud_internal", License.VERSION_CURRENT,
System.currentTimeMillis(),
        TimeValue.timeValueMinutes(1));
    putLicense(license);
    assertThat(licensingClient.prepareGetLicense().get().license(), equalTo(license));
    assertOperationMode(License.OperationMode.PLATINUM);
    writeCloudInternalMode("gold");
    assertOperationMode(License.OperationMode.GOLD);
}

```

```

writeCloudInternalMode("basic");
assertOperationMode(License.OperationMode.BASIC);
}

public void testClusterRestartWhileEnabled() throws Exception {
    wipeAllLicenses();
    internalCluster().startNode();
    ensureGreen();
    assertLicenseActive(true);
    logger.info("--> restart node");
    internalCluster().fullRestart();
    ensureYellow();
    logger.info("--> await node for enabled");
    assertLicenseActive(true);
}

public void testClusterRestartWhileGrace() throws Exception {
    wipeAllLicenses();
    internalCluster().startNode();
    assertLicenseActive(true);
    putLicense(TestUtils.generateSignedLicense(TimeValue.timeValueMillis(0)));
    ensureGreen();
    assertLicenseActive(true);
    logger.info("--> restart node");
    internalCluster().fullRestart();
    ensureYellow();
    logger.info("--> await node for grace_period");
    assertLicenseActive(true);
}

public void testClusterRestartWhileExpired() throws Exception {
    wipeAllLicenses();
    internalCluster().startNode();
    ensureGreen();
    assertLicenseActive(true);
    putLicense(TestUtils.generateExpiredNonBasicLicense(System.currentTimeMillis() -
LicenseService.GRACE_PERIOD_DURATION.getMillis()));
    assertLicenseActive(false);
    logger.info("--> restart node");
    internalCluster().fullRestart();
    ensureYellow();
    logger.info("--> await node for disabled");
    assertLicenseActive(false);
}

private void assertOperationMode(License.OperationMode operationMode) throws InterruptedException {
    boolean success = awaitBusy() -> {
        for (XPackLicenseState licenseState : internalCluster().getDataNodeInstances(XPackLicenseState.class)) {

```

```

        if (licenseState.getOperationMode() == operationMode) {
            return true;
        }
    }
    return false;
});
assertTrue(success);
}

private void writeCloudInternalMode(String mode) throws Exception {
    for (Environment environment : internalCluster().getDataOrMasterNodeInstances(Environment.class)) {
        Path licenseModePath = XPackPlugin.resolveConfigFile(environment, "license_mode");
        Files.createDirectories(licenseModePath.getParent());
        Files.write(licenseModePath, mode.getBytes(StandardCharsets.UTF_8));
    }
}

}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.ElasticsearchSecurityException;
import org.elasticsearch.test.ESTestCase;

import java.util.Arrays;

import static org.hamcrest.Matchers.contains;
import static org.hamcrest.Matchers.equalTo;
import static org.hamcrest.Matchers.hasSize;

public class LicenseUtilsTests extends ESTestCase {

    public void testNewExpirationException() {
        for (String feature : Arrays.asList("feature", randomAlphaOfLength(5), null, "")) {
            ElasticsearchSecurityException exception = LicenseUtils.newComplianceException(feature);
            assertNotNull(exception);
            assertThat(exception.getMetadataKeys(), contains(LicenseUtils.EXPIRED_FEATURE_METADATA));
            assertThat(exception.getMetadata(LicenseUtils.EXPIRED_FEATURE_METADATA), hasSize(1));
            assertThat(exception.getMetadata(LicenseUtils.EXPIRED_FEATURE_METADATA).iterator().next(),
                equalTo(feature));
        }
    }

    public void testIsLicenseExpiredException() {

```

```

ElasticsearchSecurityException exception = LicenseUtils.newComplianceException("feature");
assertTrue(LicenseUtils.isLicenseExpiredException(exception));

exception = new ElasticsearchSecurityException("msg");
assertFalse(LicenseUtils.isLicenseExpiredException(exception));
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.test.ESTestCase;
import org.elasticsearch.watcher.FileWatcher;
import org.elasticsearch.watcher.ResourceWatcherService;
import org.junit.Before;

import java.nio.file.Path;

import static org.hamcrest.Matchers.equalTo;
import static org.mockito.Matchers.any;
import static org.mockito.Matchers.eq;
import static org.mockito.Mockito.mock;
import static org.mockito.Mockito.times;
import static org.mockito.Mockito.verify;
import static org.mockito.Mockito.verifyZeroInteractions;

public class LicenseOperationModeUpdateTests extends ESTestCase {

    private OperationModeFileWatcher operationModeFileWatcher;
    private Path licenseModeFile;
    private ResourceWatcherService resourceWatcherService;

    @Before
    public void init() throws Exception {
        licenseModeFile = createTempFile();
        resourceWatcherService = mock(ResourceWatcherService.class);
        operationModeFileWatcher = new OperationModeFileWatcher(resourceWatcherService, licenseModeFile,
logger, () -> {});
    }

    public void testLicenseOperationModeUpdate() throws Exception {
        String type = randomFrom("trial", "basic", "standard", "gold", "platinum");
        License license = License.builder()
            .uid("id")
            .expiryDate(0)

```



```

        .issueDate(0)
        .issuedTo("elasticsearch")
        .issuer("issuer")
        .type(type)
        .maxNodes(1)
        .build();

    assertThat(license.operationMode(), equalTo(License.OperationMode.resolve(type)));
    OperationModeFileWatcherTests.writeMode("gold", licenseModeFile);
    license.setOperationModeFileWatcher(operationModeFileWatcher);
    verifyZeroInteractions(resourceWatcherService);
    assertThat(license.operationMode(), equalTo(License.OperationMode.resolve(type)));
}

public void testCloudInternalLicenseOperationModeUpdate() throws Exception {
    License license = License.builder()
        .uid("id")
        .expiryDate(0)
        .issueDate(0)
        .issuedTo("elasticsearch")
        .issuer("issuer")
        .type("cloud_internal")
        .maxNodes(1)
        .build();

    assertThat(license.operationMode(), equalTo(License.OperationMode.PLATINUM));
    OperationModeFileWatcherTests.writeMode("gold", licenseModeFile);
    license.setOperationModeFileWatcher(operationModeFileWatcher);
    verify(resourceWatcherService, times(1)).add(any(FileWatcher.class),
    eq(ResourceWatcherService.Frequency.HIGH));
    assertThat(license.operationMode(), equalTo(License.OperationMode.GOLD));
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.test.ESTestCase;
import org.elasticsearch.xpack.core.scheduler.SchedulerEngine;
import org.junit.Before;

import static org.hamcrest.Matchers.equalTo;

public class LicenseScheduleTests extends ESTestCase {

```

```

private License license;
private SchedulerEngine.Schedule schedule;

@Before
public void setuo() throws Exception {
    license = TestUtils.generateSignedLicense(TimeValue.timeValueHours(12));
    schedule = LicenseService.nextLicenseCheck(license);
}

public void testEnabledLicenseSchedule() throws Exception {
    int expiryDuration = (int) (license.expiryDate() - license.issueDate());
    long triggeredTime = license.issueDate() + between(0, expiryDuration);
    assertThat(schedule.nextScheduledTimeAfter(license.issueDate(), triggeredTime),
equalTo(license.expiryDate()));
}

public void testGraceLicenseSchedule() throws Exception {
    long triggeredTime = license.expiryDate() + between(1,
        ((int) LicenseService.GRACE_PERIOD_DURATION.getMillis()));
    assertThat(schedule.nextScheduledTimeAfter(license.issueDate(), triggeredTime),
        equalTo(license.expiryDate() + LicenseService.GRACE_PERIOD_DURATION.getMillis()));
}

public void testExpiredLicenseSchedule() throws Exception {
    long triggeredTime = license.expiryDate() + LicenseService.GRACE_PERIOD_DURATION.getMillis() +
        randomIntBetween(1, 1000);
    assertThat(schedule.nextScheduledTimeAfter(license.issueDate(), triggeredTime),
        equalTo(-1L));
}

public void testInvalidLicenseSchedule() throws Exception {
    long triggeredTime = license.issueDate() - randomIntBetween(1, 1000);
    assertThat(schedule.nextScheduledTimeAfter(triggeredTime, triggeredTime),
        equalTo(license.issueDate()));
}
}
}
/*
* Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
* or more contributor license agreements. Licensed under the Elastic License;
* you may not use this file except in compliance with the Elastic License.
*/
package org.elasticsearch.license;

import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.test.ESTestCase;

import static org.elasticsearch.common.unit.TimeValue.timeValueMillis;

```

```

import static org.hamcrest.Matchers.equalTo;
import static org.hamcrest.Matchers.nullValue;

public class ExpirationCallbackTests extends ESTestCase {

    public void testPostExpirationDelay() throws Exception {
        TimeValue expiryDuration = TimeValue.timeValueSeconds(randomIntBetween(5, 10));
        TimeValue min = TimeValue.timeValueSeconds(1);
        TimeValue max = TimeValue.timeValueSeconds(4);
        TimeValue frequency = TimeValue.timeValueSeconds(1);
        NoopPostExpirationCallback post = new NoopPostExpirationCallback(min, max, frequency);
        long now = System.currentTimeMillis();
        long expiryDate = now + expiryDuration.getMillis();
        assertThat(post.delay(expiryDate, now),
            equalTo(TimeValue.timeValueMillis(expiryDuration.getMillis() + min.getMillis()))); // before license
        expiry
        assertThat(post.delay(expiryDate, expiryDate), equalTo(min)); // on license expiry
        int latestValidTriggerDelay = (int) (expiryDuration.getMillis() + max.getMillis());
        int earliestValidTriggerDelay = (int) (expiryDuration.getMillis() + min.getMillis());
        assertExpirationCallbackDelay(post, expiryDuration.millis(), latestValidTriggerDelay,
            earliestValidTriggerDelay);
    }

    public void testPreExpirationDelay() throws Exception {
        TimeValue expiryDuration = TimeValue.timeValueSeconds(randomIntBetween(5, 10));
        TimeValue min = TimeValue.timeValueSeconds(1);
        TimeValue max = TimeValue.timeValueSeconds(4);
        TimeValue frequency = TimeValue.timeValueSeconds(1);
        NoopPreExpirationCallback pre = new NoopPreExpirationCallback(min, max, frequency);
        long now = System.currentTimeMillis();
        long expiryDate = now + expiryDuration.getMillis();
        assertThat(pre.delay(expiryDate, expiryDate), nullValue()); // on license expiry
        int latestValidTriggerDelay = (int) (expiryDuration.getMillis() - min.getMillis());
        int earliestValidTriggerDelay = (int) (expiryDuration.getMillis() - max.getMillis());
        assertExpirationCallbackDelay(pre, expiryDuration.millis(), latestValidTriggerDelay,
            earliestValidTriggerDelay);
    }

    public void testPostExpirationWithNullMax() throws Exception {
        int postExpirySeconds = randomIntBetween(5, 10);
        TimeValue postExpiryDuration = TimeValue.timeValueSeconds(postExpirySeconds);
        TimeValue min = TimeValue.timeValueSeconds(postExpirySeconds - randomIntBetween(1, 3));

        final ExpirationCallback.Post post = new NoopPostExpirationCallback(min, null, timeValueMillis(10));
        long now = System.currentTimeMillis();
        assertThat(post.delay(now - postExpiryDuration.millis(), now), equalTo(TimeValue.timeValueMillis(0)));
    }
}

```

```

public void testPreExpirationWithNullMin() throws Exception {
    int expirySeconds = randomIntBetween(5, 10);
    TimeValue expiryDuration = TimeValue.timeValueSeconds(expirySeconds);
    TimeValue max = TimeValue.timeValueSeconds(expirySeconds + randomIntBetween(1, 10));

    final ExpirationCallback.Pre pre = new NoopPreExpirationCallback(null, max, timeValueMillis(10));
    long now = System.currentTimeMillis();
    assertThat(pre.delay(expiryDuration.millis() + now, now), equalTo(TimeValue.timeValueMillis(0)));
}

public void testPreExpirationScheduleTime() throws Exception {
    TimeValue expiryDuration = TimeValue.timeValueSeconds(randomIntBetween(5, 10));
    TimeValue min = TimeValue.timeValueSeconds(1);
    TimeValue max = TimeValue.timeValueSeconds(4);
    TimeValue frequency = TimeValue.timeValueSeconds(1);
    NoopPreExpirationCallback pre = new NoopPreExpirationCallback(min, max, frequency);
    int latestValidTriggerDelay = (int) (expiryDuration.getMillis() - min.getMillis());
    int earliestValidTriggerDelay = (int) (expiryDuration.getMillis() - max.getMillis());
    assertExpirationCallbackScheduleTime(pre, expiryDuration.millis(), latestValidTriggerDelay,
earliestValidTriggerDelay);
}

public void testPostExpirationScheduleTime() throws Exception {
    TimeValue expiryDuration = TimeValue.timeValueSeconds(randomIntBetween(5, 10));
    TimeValue min = TimeValue.timeValueSeconds(1);
    TimeValue max = TimeValue.timeValueSeconds(4);
    TimeValue frequency = TimeValue.timeValueSeconds(1);
    NoopPostExpirationCallback pre = new NoopPostExpirationCallback(min, max, frequency);
    int latestValidTriggerDelay = (int) (expiryDuration.getMillis() + max.getMillis());
    int earliestValidTriggerDelay = (int) (expiryDuration.getMillis() + min.getMillis());
    assertExpirationCallbackScheduleTime(pre, expiryDuration.millis(), latestValidTriggerDelay,
earliestValidTriggerDelay);
}

private void assertExpirationCallbackDelay(ExpirationCallback expirationCallback, long expiryDuration,
int latestValidTriggerDelay, int earliestValidTriggerDelay) {
    long now = System.currentTimeMillis();
    long expiryDate = now + expiryDuration;
    // bounds
    assertThat(expirationCallback.delay(expiryDate, now + earliestValidTriggerDelay),
equalTo(TimeValue.timeValueMillis(0)));
    assertThat(expirationCallback.delay(expiryDate, now + latestValidTriggerDelay),
equalTo(TimeValue.timeValueMillis(0)));
    // in match
    assertThat(expirationCallback.delay(expiryDate,
now + randomIntBetween(earliestValidTriggerDelay, latestValidTriggerDelay)),
equalTo(TimeValue.timeValueMillis(0)));
    // out of bounds

```

```

int deltaBeforeEarliestMatch = between(1, earliestValidTriggerDelay);
assertThat(expirationCallback.delay(expiryDate, now + deltaBeforeEarliestMatch),
    equalTo(TimeValue.timeValueMillis(earliestValidTriggerDelay - deltaBeforeEarliestMatch)));
int deltaAfterLatestMatch = between(latestValidTriggerDelay + 1, Integer.MAX_VALUE); // after expiry and
after max
assertThat(expirationCallback.delay(expiryDate, expiryDate + deltaAfterLatestMatch), nullValue());
}

public void assertExpirationCallbackScheduleTime(ExpirationCallback expirationCallback, long expiryDuration,
    int latestValidTriggerDelay, int earliestValidTriggerDelay) {
    long now = System.currentTimeMillis();
    long expiryDate = now + expiryDuration;
    int validTriggerInterval = between(earliestValidTriggerDelay, latestValidTriggerDelay);
    assertThat(expirationCallback.nextScheduledTimeForExpiry(expiryDate,
        now + validTriggerInterval, now + validTriggerInterval),
        equalTo(now + validTriggerInterval));
    assertThat(expirationCallback.nextScheduledTimeForExpiry(expiryDate, now, now + validTriggerInterval),
        equalTo(now + validTriggerInterval + expirationCallback.getFrequency()));

    int deltaBeforeEarliestMatch = between(1, earliestValidTriggerDelay - 1);
    assertThat(expirationCallback.nextScheduledTimeForExpiry(expiryDate, now, now +
deltaBeforeEarliestMatch),
        equalTo(now + deltaBeforeEarliestMatch +
            expirationCallback.delay(expiryDate, now + deltaBeforeEarliestMatch).getMillis()));
    assertThat(expirationCallback.nextScheduledTimeForExpiry(expiryDate,
        now + deltaBeforeEarliestMatch, now + deltaBeforeEarliestMatch),
        equalTo(now + deltaBeforeEarliestMatch +
            expirationCallback.delay(expiryDate, now + deltaBeforeEarliestMatch).getMillis()));

    int deltaAfterLatestMatch = between(latestValidTriggerDelay + 1, Integer.MAX_VALUE); // after expiry and
after max
    assertThat(expirationCallback.nextScheduledTimeForExpiry(expiryDate, now, now + deltaAfterLatestMatch),
equalTo(-1L));
    assertThat(expirationCallback.nextScheduledTimeForExpiry(expiryDate,
        now + deltaAfterLatestMatch, now + deltaAfterLatestMatch),
        equalTo(-1L));
}

private static class NoopPostExpirationCallback extends ExpirationCallback.Post {

    NoopPostExpirationCallback(TimeValue min, TimeValue max, TimeValue frequency) {
        super(min, max, frequency);
    }

    @Override
    public void on(License license) {}
}

```

```

private static class NoopPreExpirationCallback extends ExpirationCallback.Pre {

    NoopPreExpirationCallback(TimeValue min, TimeValue max, TimeValue frequency) {
        super(min, max, frequency);
    }

    @Override
    public void on(License license) {}
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import com.carrotsearch.randomizedtesting.RandomizedTest;
import org.elasticsearch.action.ActionListener;
import org.elasticsearch.cluster.metadata.Metadata;
import org.elasticsearch.common.Strings;
import org.elasticsearch.common.joda.DateMathParser;
import org.elasticsearch.common.joda.FormatDateTimeFormatter;
import org.elasticsearch.common.joda.Joda;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.common.xcontent.XContentFactory;
import org.elasticsearch.common.xcontent.XContentType;
import org.elasticsearch.license.licensor.LicenseSigner;
import org.hamcrest.MatcherAssert;
import org.joda.time.format.DateTimeFormatter;
import org.junit.Assert;

import java.io.IOException;
import java.io.InputStream;
import java.nio.file.Files;
import java.nio.file.Path;
import java.nio.file.StandardCopyOption;
import java.util.ArrayList;
import java.util.List;
import java.util.UUID;
import java.util.concurrent.CountDownLatch;
import java.util.concurrent.atomic.AtomicReference;

import static com.carrotsearch.randomizedtesting.RandomizedTest.randomBoolean;
import static com.carrotsearch.randomizedtesting.RandomizedTest.randomInt;

```

```

import static org.apache.lucene.util.LuceneTestCase.createTempFile;
import static org.elasticsearch.common.xcontent.XContentFactory.jsonBuilder;
import static org.elasticsearch.test.ESTestCase.randomAlphaOfLength;
import static org.elasticsearch.test.ESTestCase.randomFrom;
import static org.elasticsearch.test.ESTestCase.randomIntBetween;
import static org.hamcrest.core.IsEqual.equalTo;
import static org.junit.Assert.assertThat;

public class TestUtils {

    private static final FormatDateTimeFormatter formatDateTimeFormatter = Joda.forPattern("yyyy-MM-dd");
    private static final DateMathParser dateMathParser = new DateMathParser(formatDateTimeFormatter);
    private static final DateTimeFormatter dateTimeFormatter = formatDateTimeFormatter.printer();

    public static String dateMathString(String time, final long now) {
        return dateTimeFormatter.print(dateMathParser.parse(time, () -> now));
    }

    public static long dateMath(String time, final long now) {
        return dateMathParser.parse(time, () -> now);
    }

    public static LicenseSpec generateRandomLicenseSpec(int version) {
        boolean datesInMillis = randomBoolean();
        long now = System.currentTimeMillis();
        String uid = UUID.randomUUID().toString();
        String feature = "feature__" + randomInt();
        String issuer = "issuer__" + randomInt();
        String issuedTo = "issuedTo__" + randomInt();
        final String type;
        final String subscriptionType;
        if (version < License.VERSION_NO_FEATURE_TYPE) {
            subscriptionType = randomFrom("gold", "silver", "platinum");
            type = "subscription";//randomFrom("subscription", "internal", "development");
        } else {
            subscriptionType = null;
            type = randomFrom("basic", "dev", "gold", "silver", "platinum");
        }
        int maxNodes = RandomizedTest.randomIntBetween(5, 100);
        if (datesInMillis) {
            long issueDateInMillis = dateMath("now", now);
            long expiryDateInMillis = dateMath("now+10d/d", now);
            return new LicenseSpec(version, uid, feature, issueDateInMillis, expiryDateInMillis, type, subscriptionType,
issuedTo, issuer,
                maxNodes);
        } else {
            String issueDate = dateMathString("now", now);
            String expiryDate = dateMathString("now+10d/d", now);

```

```

        return new LicenseSpec(version, uid, feature, issueDate, expiryDate, type, subscriptionType, issuedTo,
            issuer, maxNodes);
    }
}

```

```

public static String generateLicenseSpecString(LicenseSpec licenseSpec) throws IOException {
    XContentBuilder licenses = jsonBuilder();
    licenses.startObject();
    licenses.startArray("licenses");
    licenses.startObject()
        .field("uid", licenseSpec.uid)
        .field("type", licenseSpec.type)
        .field("subscription_type", licenseSpec.subscriptionType)
        .field("issued_to", licenseSpec.issuedTo)
        .field("issuer", licenseSpec.issuer)
        .field("feature", licenseSpec.feature)
        .field("max_nodes", licenseSpec.maxNodes);

    if (licenseSpec.issueDate != null) {
        licenses.field("issue_date", licenseSpec.issueDate);
    } else {
        licenses.field("issue_date_in_millis", licenseSpec.issueDateInMillis);
    }
    if (licenseSpec.expiryDate != null) {
        licenses.field("expiry_date", licenseSpec.expiryDate);
    } else {
        licenses.field("expiry_date_in_millis", licenseSpec.expiryDateInMillis);
    }
    licenses.field("version", licenseSpec.version);
    licenses.endObject();
    licenses.endArray();
    licenses.endObject();
    return Strings.toString(licenses);
}

```

```

public static License generateLicenses(LicenseSpec spec) {
    License.Builder builder = License.builder()
        .uid(spec.uid)
        .feature(spec.feature)
        .type(spec.type)
        .subscriptionType(spec.subscriptionType)
        .issuedTo(spec.issuedTo)
        .issuer(spec.issuer)
        .maxNodes(spec.maxNodes);

    if (spec.expiryDate != null) {
        builder.expiryDate(DateUtils.endOfDay(spec.expiryDate));
    } else {

```



```

        builder.expiryDate(spec.expiryDateInMillis);
    }
    if (spec.issueDate != null) {
        builder.issueDate(DateUtils.beginningOfDay(spec.issueDate));
    } else {
        builder.issueDate(spec.issueDateInMillis);
    }
    return builder.build();
}

public static void assertLicenseSpec(LicenseSpec spec, License license) {
    MatcherAssert.assertThat(license.uid(), equalTo(spec.uid));
    MatcherAssert.assertThat(license.issuedTo(), equalTo(spec.issuedTo));
    MatcherAssert.assertThat(license.issuer(), equalTo(spec.issuer));
    MatcherAssert.assertThat(license.type(), equalTo(spec.type));
    MatcherAssert.assertThat(license.maxNodes(), equalTo(spec.maxNodes));
    if (spec.issueDate != null) {
        MatcherAssert.assertThat(license.issueDate(), equalTo(DateUtils.beginningOfDay(spec.issueDate)));
    } else {
        MatcherAssert.assertThat(license.issueDate(), equalTo(spec.issueDateInMillis));
    }
    if (spec.expiryDate != null) {
        MatcherAssert.assertThat(license.expiryDate(), equalTo(DateUtils.endOfDay(spec.expiryDate)));
    } else {
        MatcherAssert.assertThat(license.expiryDate(), equalTo(spec.expiryDateInMillis));
    }
}

public static class LicenseSpec {
    public final int version;
    public final String feature;
    public final String issueDate;
    public final long issueDateInMillis;
    public final String expiryDate;
    public final long expiryDateInMillis;
    public final String uid;
    public final String type;
    public final String subscriptionType;
    public final String issuedTo;
    public final String issuer;
    public final int maxNodes;

    public LicenseSpec(String issueDate, String expiryDate) {
        this(License.VERSION_CURRENT, UUID.randomUUID().toString(), "feature", issueDate, expiryDate,
            "trial", "none", "customer",
            "elasticsearch", 5);
    }
}

```

```

public LicenseSpec(int version, String uid, String feature, long issueDateInMillis, long expiryDateInMillis,
String type,
        String subscriptionType, String issuedTo, String issuer, int maxNodes) {
    this.version = version;
    this.feature = feature;
    this.issueDateInMillis = issueDateInMillis;
    this.issueDate = null;
    this.expiryDateInMillis = expiryDateInMillis;
    this.expiryDate = null;
    this.uid = uid;
    this.type = type;
    this.subscriptionType = subscriptionType;
    this.issuedTo = issuedTo;
    this.issuer = issuer;
    this.maxNodes = maxNodes;
}

```

```

public LicenseSpec(int version, String uid, String feature, String issueDate, String expiryDate, String type,
        String subscriptionType, String issuedTo, String issuer, int maxNodes) {
    this.version = version;
    this.feature = feature;
    this.issueDate = issueDate;
    this.issueDateInMillis = -1;
    this.expiryDate = expiryDate;
    this.expiryDateInMillis = -1;
    this.uid = uid;
    this.type = type;
    this.subscriptionType = subscriptionType;
    this.issuedTo = issuedTo;
    this.issuer = issuer;
    this.maxNodes = maxNodes;
}
}

```

```

public static Path getTestPriKeyPath() throws Exception {
    return getResourcePath("/private.key");
}

```

```

public static Path getTestPubKeyPath() throws Exception {
    return getResourcePath("/public.key");
}

```

```

public static String dumpLicense(License license) throws Exception {
    XContentBuilder builder = XContentFactory.contentBuilder(XContentType.JSON);
    builder.startObject();
    builder.startObject("license");
    license.toInnerXContent(builder, ToXContent.EMPTY_PARAMS);
    builder.endObject();
}

```

```

        builder.endObject();
        return Strings.toString(builder);
    }

    public static License generateSignedLicense(TimeValue expiryDuration) throws Exception {
        return generateSignedLicense(null, -1, expiryDuration);
    }

    public static License generateSignedLicense(String type, TimeValue expiryDuration) throws Exception {
        return generateSignedLicense(type, -1, expiryDuration);
    }

    public static License generateSignedLicense(long issueDate, TimeValue expiryDuration) throws Exception {
        return generateSignedLicense(null, issueDate, expiryDuration);
    }

    public static License generateSignedLicense(String type, long issueDate, TimeValue expiryDuration) throws
    Exception {
        return generateSignedLicense(type, randomIntBetween(License.VERSION_START,
    License.VERSION_CURRENT), issueDate, expiryDuration);
    }

    /**
     * This method which chooses the license type randomly if the type is null. However, it will not randomly
     * choose trial or basic types as those types can only be self-generated.
     */
    public static License generateSignedLicense(String type, int version, long issueDate, TimeValue expiryDuration)
    throws Exception {
        long issue = (issueDate != -1L) ? issueDate : System.currentTimeMillis() -
    TimeValue.timeValueHours(2).getMillis();
        final String licenseType;
        if (version < License.VERSION_NO_FEATURE_TYPE) {
            licenseType = randomFrom("subscription", "internal", "development");
        } else {
            licenseType = (type != null) ? type : randomFrom("silver", "dev", "gold", "platinum");
        }
        final License.Builder builder = License.builder()
            .uid(UUID.randomUUID().toString())
            .version(version)
            .expiryDate(System.currentTimeMillis() + expiryDuration.getMillis())
            .issueDate(issue)
            .type(licenseType)
            .issuedTo("customer")
            .issuer("elasticsearch")
            .maxNodes(5);
        if (version == License.VERSION_START) {
            builder.subscriptionType((type != null) ? type : randomFrom("dev", "gold", "platinum", "silver"));
            builder.feature(randomAlphaOfLength(10));
        }
    }

```

```

    }
    LicenseSigner signer = new LicenseSigner(getTestPriKeyPath(), getTestPubKeyPath());
    return signer.sign(builder.build());
}

public static License generateSignedLicense(License.Builder builder) throws Exception {
    LicenseSigner signer = new LicenseSigner(getTestPriKeyPath(), getTestPubKeyPath());
    return signer.sign(builder.build());
}

public static License generateExpiredNonBasicLicense(long expiryDate) throws Exception {
    return generateExpiredNonBasicLicense(randomFrom("silver", "dev", "gold", "platinum"), expiryDate);
}

public static License generateExpiredNonBasicLicense() throws Exception {
    return generateExpiredNonBasicLicense(randomFrom("silver", "dev", "gold", "platinum"));
}

public static License generateExpiredNonBasicLicense(String type) throws Exception {
    return generateExpiredNonBasicLicense(type,
        System.currentTimeMillis() - TimeUnit.timeValueHours(randomIntBetween(1, 10)).getMillis());
}

public static License generateExpiredNonBasicLicense(String type, long expiryDate) throws Exception {
    final License.Builder builder = License.builder()
        .uid(UUID.randomUUID().toString())
        .version(License.VERSION_CURRENT)
        .expiryDate(expiryDate)
        .issueDate(expiryDate - TimeUnit.timeValueMinutes(10).getMillis())
        .type(type)
        .issuedTo("customer")
        .issuer("elasticsearch")
        .maxNodes(5);
    LicenseSigner signer = new LicenseSigner(getTestPriKeyPath(), getTestPubKeyPath());
    return signer.sign(builder.build());
}

private static Path getResourcePath(String resource) throws Exception {
    Path resourceFile = createTempFile();
    try (InputStream resourceInput = TestUtils.class.getResourceAsStream(resource)) {
        Files.copy(resourceInput, resourceFile, StandardCopyOption.REPLACE_EXISTING);
    }
    return resourceFile;
}

public static void registerAndAckSignedLicenses(final LicenseService licenseService, License license,
        final LicensesStatus expectedStatus) {
    PutLicenseRequest putLicenseRequest = new PutLicenseRequest().license(license).acknowledge(true);
}

```

```

final CountdownLatch latch = new CountdownLatch(1);
final AtomicReference<LicensesStatus> status = new AtomicReference<>();
licenseService.registerLicense(putLicenseRequest, new ActionListener<PutLicenseResponse>() {
    @Override
    public void onResponse(PutLicenseResponse licensesUpdateResponse) {
        status.set(licensesUpdateResponse.status());
        latch.countDown();
    }

    @Override
    public void onFailure(Exception e) {
        latch.countDown();
    }
});
try {
    latch.await();
} catch (InterruptedException e) {
    Assert.fail(e.getMessage());
}
assertThat(status.get(), equalTo(expectedStatus));
}

public static class AssertingLicenseState extends XPackLicenseState {
    public final List<License.OperationMode> modeUpdates = new ArrayList<>();
    public final List<Boolean> activeUpdates = new ArrayList<>();

    public AssertingLicenseState() {
        super(Settings.EMPTY);
    }

    @Override
    void update(License.OperationMode mode, boolean active) {
        modeUpdates.add(mode);
        activeUpdates.add(active);
    }
}

/**
 * A license state that makes the {@link #update(License.OperationMode, boolean)}
 * method public for use in tests.
 */
public static class UpdatableLicenseState extends XPackLicenseState {
    public UpdatableLicenseState() {
        this(Settings.EMPTY);
    }

    public UpdatableLicenseState(Settings settings) {
        super(settings);
    }
}

```

```

    }

    @Override
    public void update(License.OperationMode mode, boolean active) {
        super.update(mode, active);
    }
}

public static void putLicense(MetaData.Builder builder, License license) {
    builder.putCustom(LicensesMetaData.TYPE, new LicensesMetaData(license, null));
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionListener;
import org.elasticsearch.cluster.ClusterStateUpdateTask;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.unit.TimeValue;

import static org.elasticsearch.common.unit.TimeValue.timeValueHours;
import static org.hamcrest.Matchers.equalTo;
import static org.hamcrest.Matchers.not;
import static org.mockito.Matchers.any;
import static org.mockito.Mockito.times;
import static org.mockito.Mockito.verify;

public class LicensesAcknowledgementTests extends AbstractLicenseServiceTestCase {

    public void testAcknowledgment() throws Exception {
        XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
        setInitialState(TestUtils.generateSignedLicense("gold", timeValueHours(2)), licenseState, Settings.EMPTY);
        licenseService.start();
        // try installing a signed license
        long issueDate = System.currentTimeMillis() - TimeValue.timeValueHours(24 * 2).getMillis();
        License signedLicense = TestUtils.generateSignedLicense("trial", License.VERSION_CURRENT, issueDate,
            timeValueHours(10));
        PutLicenseRequest putLicenseRequest = new PutLicenseRequest().license(signedLicense);
        // ensure acknowledgement message was part of the response
        licenseService.registerLicense(putLicenseRequest, new AssertingLicensesUpdateResponse(false,
            LicensesStatus.VALID, true));
        assertThat(licenseService.getLicense(), not(signedLicense));
        verify(clusterService, times(0)).submitStateUpdateTask(any(String.class), any(ClusterStateUpdateTask.class));
    }
}

```

```

// try installing a signed license with acknowledgement
putLicenseRequest = new PutLicenseRequest().license(signedLicense).acknowledge(true);
// ensure license was installed and no acknowledgment message was returned
licenseService.registerLicense(putLicenseRequest, new AssertingLicensesUpdateResponse(true,
LicensesStatus.VALID, false));
verify(clusterService, times(1)).submitStateUpdateTask(any(String.class), any(ClusterStateUpdateTask.class));
}

public void testRejectUpgradeToProductionWithoutTLS() throws Exception {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    setInitialState(TestUtils.generateSignedLicense("trial", timeValueHours(2)), licenseState, Settings.EMPTY);
    licenseService.start();
    // try installing a signed license
    License signedLicense = TestUtils.generateSignedLicense("platinum", timeValueHours(10));
    PutLicenseRequest putLicenseRequest = new PutLicenseRequest().license(signedLicense);
    // ensure acknowledgement message was part of the response
    IllegalStateException ise = expectThrows(IllegalStateException.class, () ->
        licenseService.registerLicense(putLicenseRequest, new AssertingLicensesUpdateResponse(false,
LicensesStatus.VALID, true)));
    assertEquals("Cannot install a [PLATINUM] license unless TLS is configured or security is disabled",
ise.getMessage());
}

public void testUpgradeToProductionWithoutTLSAndSecurityDisabled() throws Exception {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    setInitialState(TestUtils.generateSignedLicense("trial", timeValueHours(2)), licenseState, Settings.builder()
        .put("xpack.security.enabled", false).build());
    licenseService.start();
    // try installing a signed license
    License signedLicense = TestUtils.generateSignedLicense("platinum", timeValueHours(10));
    PutLicenseRequest putLicenseRequest = new PutLicenseRequest().license(signedLicense);
    licenseService.registerLicense(putLicenseRequest, new AssertingLicensesUpdateResponse(false,
LicensesStatus.VALID, true));
    assertThat(licenseService.getLicense(), not(signedLicense));
    verify(clusterService, times(1)).submitStateUpdateTask(any(String.class), any(ClusterStateUpdateTask.class));

    // try installing a signed license with acknowledgement
    putLicenseRequest = new PutLicenseRequest().license(signedLicense).acknowledge(true);
    // ensure license was installed and no acknowledgment message was returned
    licenseService.registerLicense(putLicenseRequest, new AssertingLicensesUpdateResponse(true,
LicensesStatus.VALID, false));
    verify(clusterService, times(2)).submitStateUpdateTask(any(String.class), any(ClusterStateUpdateTask.class));
}

public void testUpgradeToProductionWithTLSAndSecurity() throws Exception {
    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    setInitialState(TestUtils.generateSignedLicense("trial", timeValueHours(2)), licenseState, Settings.builder()
        .put("xpack.security.enabled", true)

```

```

        .put("xpack.security.transport.ssl.enabled", true).build());
licenseService.start();
// try installing a signed license
License signedLicense = TestUtils.generateSignedLicense("platinum", timeValueHours(10));
PutLicenseRequest putLicenseRequest = new PutLicenseRequest().license(signedLicense);
licenseService.registerLicense(putLicenseRequest, new AssertingLicensesUpdateResponse(false,
LicensesStatus.VALID, true));
    assertThat(licenseService.getLicense(), not(signedLicense));
    verify(clusterService, times(1)).submitStateUpdateTask(any(String.class), any(ClusterStateUpdateTask.class));

// try installing a signed license with acknowledgement
putLicenseRequest = new PutLicenseRequest().license(signedLicense).acknowledge(true);
// ensure license was installed and no acknowledgment message was returned
licenseService.registerLicense(putLicenseRequest, new AssertingLicensesUpdateResponse(true,
LicensesStatus.VALID, false));
    verify(clusterService, times(2)).submitStateUpdateTask(any(String.class), any(ClusterStateUpdateTask.class));
}

private static class AssertingLicensesUpdateResponse implements ActionListener<PutLicenseResponse> {
    private final boolean expectedAcknowledgement;
    private final LicensesStatus expectedStatus;
    private final boolean expectAckMessages;

    AssertingLicensesUpdateResponse(boolean expectedAcknowledgement, LicensesStatus expectedStatus,
        boolean expectAckMessages) {
        this.expectedAcknowledgement = expectedAcknowledgement;
        this.expectedStatus = expectedStatus;
        this.expectAckMessages = expectAckMessages;
    }

    @Override
    public void onResponse(PutLicenseResponse licensesUpdateResponse) {
        assertThat(licensesUpdateResponse.isAcknowledged(), equalTo(expectedAcknowledgement));
        assertThat(licensesUpdateResponse.status(), equalTo(expectedStatus));
        assertEquals(licensesUpdateResponse.acknowledgeMessages().isEmpty(), expectAckMessages == false);
    }

    @Override
    public void onFailure(Exception throwable) {
        throw new RuntimeException(throwable);
    }
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */

```



```

package org.elasticsearch.license;

import org.elasticsearch.action.ActionListener;
import org.elasticsearch.cluster.ack.ClusterStateUpdateResponse;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.plugins.Plugin;
import org.elasticsearch.test.ESSingleNodeTestCase;
import org.elasticsearch.xpack.core.LocalStateCompositeXPackPlugin;
import org.elasticsearch.xpack.core.XPackSettings;
import org.junit.Before;

import java.util.Collection;
import java.util.Collections;
import java.util.concurrent.CountDownLatch;
import java.util.concurrent.atomic.AtomicBoolean;

import static org.hamcrest.Matchers.equalTo;
import static org.hamcrest.Matchers.not;

public class LicensesManagerServiceTests extends ESSingleNodeTestCase {

    @Override
    protected Collection<Class<? extends Plugin>> getPlugins() {
        return Collections.singletonList(LocalStateCompositeXPackPlugin.class);
    }

    @Override
    protected Settings nodeSettings() {
        return Settings.builder()
            .put(super.nodeSettings())
            .put(XPackSettings.SECURITY_ENABLED.getKey(), false)
            .put(XPackSettings.MONITORING_ENABLED.getKey(), false)
            .put(XPackSettings.WATCHER_ENABLED.getKey(), false)
            .put(XPackSettings.GRAPH_ENABLED.getKey(), false)
            .put(XPackSettings.MACHINE_LEARNING_ENABLED.getKey(), false)
            .build();
    }

    @Override
    protected boolean resetNodeAfterTest() {
        return true;
    }

    @Before
    public void waitForTrialLicenseToBeGenerated() throws Exception {
        assertBusy(() ->

```

```

assertNotNull(getInstanceFromNode(ClusterService.class).state().metaData().custom(LicensesMetaData.TYPE));
}

public void testStoreAndGetLicenses() throws Exception {
    LicenseService licenseService = getInstanceFromNode(LicenseService.class);
    ClusterService clusterService = getInstanceFromNode(ClusterService.class);
    License goldLicense = TestUtils.generateSignedLicense("gold", TimeValue.timeValueHours(1));
    TestUtils.registerAndAckSignedLicenses(licenseService, goldLicense, LicensesStatus.VALID);
    License silverLicense = TestUtils.generateSignedLicense("silver", TimeValue.timeValueHours(2));
    TestUtils.registerAndAckSignedLicenses(licenseService, silverLicense, LicensesStatus.VALID);
    License platinumLicense = TestUtils.generateSignedLicense("platinum", TimeValue.timeValueHours(1));
    TestUtils.registerAndAckSignedLicenses(licenseService, platinumLicense, LicensesStatus.VALID);
    LicensesMetaData licensesMetaData = clusterService.state().metaData().custom(LicensesMetaData.TYPE);
    assertThat(licensesMetaData.getLicense(), equalTo(platinumLicense));
    final License getLicenses = licenseService.getLicense();
    assertThat(getLicenses, equalTo(platinumLicense));
}

// TODO: Add test/feature blocking the registration of basic license

public void testEffectiveLicenses() throws Exception {
    final LicenseService licenseService = getInstanceFromNode(LicenseService.class);
    final ClusterService clusterService = getInstanceFromNode(ClusterService.class);
    License goldLicense = TestUtils.generateSignedLicense("gold", TimeValue.timeValueSeconds(5));
    // put gold license
    TestUtils.registerAndAckSignedLicenses(licenseService, goldLicense, LicensesStatus.VALID);
    LicensesMetaData licensesMetaData = clusterService.state().metaData().custom(LicensesMetaData.TYPE);
    assertThat(LicenseService.getLicense(licensesMetaData), equalTo(goldLicense));

    License platinumLicense = TestUtils.generateSignedLicense("platinum", TimeValue.timeValueSeconds(3));
    // put platinum license
    TestUtils.registerAndAckSignedLicenses(licenseService, platinumLicense, LicensesStatus.VALID);
    licensesMetaData = clusterService.state().metaData().custom(LicensesMetaData.TYPE);
    assertThat(LicenseService.getLicense(licensesMetaData), equalTo(platinumLicense));
}

public void testInvalidLicenseStorage() throws Exception {
    LicenseService licenseService = getInstanceFromNode(LicenseService.class);
    ClusterService clusterService = getInstanceFromNode(ClusterService.class);
    License signedLicense = TestUtils.generateSignedLicense(TimeValue.timeValueMinutes(2));

    // modify content of signed license
    License tamperedLicense = License.builder()
        .fromLicenseSpec(signedLicense, signedLicense.signature())
        .expiryDate(signedLicense.expiryDate() + 10 * 24 * 60 * 60 * 1000L)
        .validate()
        .build();

```

```

TestUtils.registerAndAckSignedLicenses(licenseService, tamperedLicense, LicensesStatus.INVALID);

// ensure that the invalid license never made it to cluster state
LicensesMetaData licensesMetaData = clusterService.state().metaData().custom(LicensesMetaData.TYPE);
assertThat(licensesMetaData.getLicense(), not(equalTo(tamperedLicense)));
}

public void testRemoveLicenses() throws Exception {
    LicenseService licenseService = getInstanceFromNode(LicenseService.class);
    ClusterService clusterService = getInstanceFromNode(ClusterService.class);

    // generate signed licenses
    License license = TestUtils.generateSignedLicense(TimeValue.timeValueHours(1));
    TestUtils.registerAndAckSignedLicenses(licenseService, license, LicensesStatus.VALID);
    LicensesMetaData licensesMetaData = clusterService.state().metaData().custom(LicensesMetaData.TYPE);
    assertThat(licensesMetaData.getLicense(), not(LicensesMetaData.LICENSE_TOMBSTONE));

    // remove signed licenses
    removeAndAckSignedLicenses(licenseService);
    licensesMetaData = clusterService.state().metaData().custom(LicensesMetaData.TYPE);
    assertThat(licensesMetaData.getLicense(), equalTo(LicensesMetaData.LICENSE_TOMBSTONE));
}

private void removeAndAckSignedLicenses(final LicenseService licenseService) {
    final CountdownLatch latch = new CountdownLatch(1);
    final AtomicBoolean success = new AtomicBoolean(false);
    licenseService.removeLicense(new DeleteLicenseRequest(), new
ActionListener<ClusterStateUpdateResponse>() {
        @Override
        public void onResponse(ClusterStateUpdateResponse clusterStateUpdateResponse) {
            if (clusterStateUpdateResponse.isAcknowledged()) {
                success.set(true);
            }
            latch.countDown();
        }

        @Override
        public void onFailure(Exception throwable) {
            latch.countDown();
        }
    });
    try {
        latch.await();
    } catch (InterruptedException e) {
        fail(e.getMessage());
    }
    assertThat("remove license(s) failed", success.get(), equalTo(true));
}

```

```

}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.test.ESTestCase;
import org.elasticsearch.threadpool.TestThreadPool;
import org.elasticsearch.watcher.ResourceWatcherService;
import org.junit.After;
import org.junit.Before;

import java.io.IOException;
import java.nio.charset.StandardCharsets;
import java.nio.file.Files;
import java.nio.file.Path;
import java.nio.file.StandardOpenOption;
import java.util.concurrent.CountDownLatch;
import java.util.concurrent.TimeUnit;
import java.util.concurrent.atomic.AtomicReference;

import static org.hamcrest.Matchers.equalTo;

public class OperationModeFileWatcherTests extends ESTestCase {
    private ResourceWatcherService watcherService;
    private TestThreadPool threadPool;
    private Path licenseModePath;
    private OperationModeFileWatcher operationModeFileWatcher;
    private AtomicReference<CountDownLatch> onChangeCounter;

    @Before
    public void setup() throws Exception {
        threadPool = new TestThreadPool("license mode file watcher tests");
        Settings settings = Settings.builder()
            .put("resource.reload.interval.high", "10ms")
            .build();
        watcherService = new ResourceWatcherService(settings,
            threadPool);
        watcherService.start();
        licenseModePath = createTempFile();
        onChangeCounter = new AtomicReference<>(new CountDownLatch(1));
        operationModeFileWatcher = new OperationModeFileWatcher(watcherService, licenseModePath, logger,
            () -> onChangeCounter.get().countDown());
    }
}

```

```

@After
public void shutdown() throws InterruptedException {
    terminate(threadPool);
    watcherService.stop();
}

public void testInit() throws Exception {
    onChangeCounter.set(new CountdownLatch(2));
    writeMode("gold");
    assertThat(operationModeFileWatcher.getCurrentOperationMode(),
equalTo(License.OperationMode.PLATINUM));
    operationModeFileWatcher.init();
    assertTrue(onChangeCounter.get().await(5, TimeUnit.SECONDS));
    assertThat(operationModeFileWatcher.getCurrentOperationMode(), equalTo(License.OperationMode.GOLD));
}

public void testUpdateModeFromFile() throws Exception {
    Files.delete(licenseModePath);
    operationModeFileWatcher.init();
    assertThat(operationModeFileWatcher.getCurrentOperationMode(),
equalTo(License.OperationMode.PLATINUM));
    writeMode("gold");
    assertTrue(onChangeCounter.get().await(5, TimeUnit.SECONDS));
    assertThat(operationModeFileWatcher.getCurrentOperationMode(), equalTo(License.OperationMode.GOLD));
    onChangeCounter.set(new CountdownLatch(1));
    writeMode("basic");
    assertTrue(onChangeCounter.get().await(5, TimeUnit.SECONDS));
    assertThat(operationModeFileWatcher.getCurrentOperationMode(), equalTo(License.OperationMode.BASIC));
}

public void testDeleteModeFromFile() throws Exception {
    Files.delete(licenseModePath);
    operationModeFileWatcher.init();
    writeMode("gold");
    assertTrue(onChangeCounter.get().await(5, TimeUnit.SECONDS));
    assertThat(operationModeFileWatcher.getCurrentOperationMode(), equalTo(License.OperationMode.GOLD));
    onChangeCounter.set(new CountdownLatch(1));

    Files.delete(licenseModePath);
    assertTrue(onChangeCounter.get().await(5, TimeUnit.SECONDS));
    assertThat(operationModeFileWatcher.getCurrentOperationMode(),
equalTo(License.OperationMode.PLATINUM));
}

public void testInvalidModeFromFile() throws Exception {
    writeMode("invalid");
    operationModeFileWatcher.init();
    assertThat(operationModeFileWatcher.getCurrentOperationMode(),

```

```

equalTo(License.OperationMode.PLATINUM));
    operationModeFileWatcher.onFileChanged(licenseModePath);
    assertThat(operationModeFileWatcher.getCurrentOperationMode(),
equalTo(License.OperationMode.PLATINUM));
    }

    public void testLicenseModeFileIsDirectory() throws Exception {
        licenseModePath = createTempDir();
        operationModeFileWatcher.init();
        assertThat(operationModeFileWatcher.getCurrentOperationMode(),
equalTo(License.OperationMode.PLATINUM));
        operationModeFileWatcher.onFileChanged(licenseModePath);
        assertThat(operationModeFileWatcher.getCurrentOperationMode(),
equalTo(License.OperationMode.PLATINUM));
    }

    public void testLicenseModeFileCreatedAfterInit() throws Exception {
        Files.delete(licenseModePath);
        operationModeFileWatcher.init();
        assertThat(operationModeFileWatcher.getCurrentOperationMode(),
equalTo(License.OperationMode.PLATINUM));
        onChangeCounter.set(new CountdownLatch(1));
        Path tempFile = createTempFile();
        writeMode("gold", tempFile);
        licenseModePath = tempFile;
        assertTrue(onChangeCounter.get().await(5, TimeUnit.SECONDS));
        assertThat(operationModeFileWatcher.getCurrentOperationMode(), equalTo(License.OperationMode.GOLD));
    }

    private void writeMode(String mode) throws IOException {
        writeMode(mode, licenseModePath);
    }

    static void writeMode(String mode, Path file) throws IOException {
        Files.write(file, mode.getBytes(StandardCharsets.UTF_8), StandardOpenOption.CREATE);
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.test.ESTestCase;

import java.util.Locale;

```

```

import static org.elasticsearch.license.License.OperationMode;
import static org.hamcrest.Matchers.equalTo;

/**
 * Tests {@link License.OperationMode} for correctness.
 * <p>
 * If you change the behavior of these tests, then it means that licensing changes across the products!
 */
public class LicenseOperationModeTests extends ESTestCase {
    public void testResolveTrial() {
        // assert 1.x BWC
        assertResolve(OperationMode.TRIAL, "nONE", "DEv", "deveLopment");
        // assert expected (2.x+) variant
        assertResolve(OperationMode.TRIAL, "tRiAl", "trial");
    }

    public void testResolveBasic() {
        // assert expected (2.x+) variant (note: no 1.x variant of BASIC)
        assertResolve(OperationMode.BASIC, "bAsIc", "basic");
    }

    public void testResolveStandard() {
        // assert expected (2.x+) variant (note: no 1.x variant of STANDARD)
        assertResolve(OperationMode.STANDARD, "StAnDARD", "standard");
    }

    public void testResolveGold() {
        // assert expected (2.x+) variant (note: no different 1.x variant of GOLD)
        assertResolve(OperationMode.GOLD, "SiLvEr", "gOID", "silver", "gold");
    }

    public void testResolvePlatinum() {
        // assert 1.x BWC
        assertResolve(OperationMode.PLATINUM, "iNtErNaL");
        // assert expected (2.x+) variant
        assertResolve(OperationMode.PLATINUM, "PlAtINum", "platinum");
    }

    public void testResolveUnknown() {
        // 'enterprise' is a type that exists in cloud but should be rejected under normal operation
        // See https://github.com/elastic/x-plugins/issues/3371
        String[] types = { "unknown", "fake", "enterprise" };

        for (String type : types) {
            try {
                OperationMode.resolve(type);

                fail(String.format(Locale.ROOT, "[%s] should not be recognized as an operation mode", type));
            }
        }
    }
}

```

```

    }
    catch (IllegalArgumentException e) {
        assertThat(e.getMessage(), equalTo("unknown type [" + type + "]"));
    }
}

private static void assertResolve(OperationMode expected, String... types) {
    for (String type : types) {
        assertThat(OperationMode.resolve(type), equalTo(expected));
    }
}
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.analysis.common.CommonAnalysisPlugin;
import org.elasticsearch.common.network.NetworkModule;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.plugins.Plugin;
import org.elasticsearch.test.ESIntegTestCase;
import org.elasticsearch.transport.Netty4Plugin;
import org.elasticsearch.xpack.core.LocalStateCompositeXPackPlugin;

import java.util.Arrays;
import java.util.Collection;

import static org.elasticsearch.test.ESIntegTestCase.Scope.TEST;

@ESIntegTestCase.ClusterScope(scope = TEST, numDataNodes = 0, numClientNodes = 0, maxNumDataNodes =
0, transportClientRatio = 0,
    autoMinMasterNodes = false)
public class LicenseServiceClusterNotRecoveredTests extends AbstractLicensesIntegrationTestCase {

    @Override
    protected Settings nodeSettings(int nodeOrdinal) {
        return nodeSettingsBuilder(nodeOrdinal).build();
    }

    private Settings.Builder nodeSettingsBuilder(int nodeOrdinal) {
        return Settings.builder()
            .put(super.nodeSettings(nodeOrdinal))
            .put("node.data", true)
            .put("resource.reload.interval.high", "500ms") // for license mode file watcher

```



```

        .put(NetworkModule.HTTP_ENABLED.getKey(), true);
    }

    @Override
    protected Collection<Class<? extends Plugin>> nodePlugins() {
        return Arrays.asList(LocalStateCompositeXPackPlugin.class, CommonAnalysisPlugin.class,
Netty4Plugin.class);
    }

    @Override
    protected Collection<Class<? extends Plugin>> transportClientPlugins() {
        return nodePlugins();
    }

    public void testClusterNotRecovered() throws Exception {
        logger.info("--> start one master out of two [recovery state]");
        internalCluster().startNode(nodeSettingsBuilder(0).put("discovery.zen.minimum_master_nodes",
2).put("node.master", true));
        logger.info("--> start second master out of two [recovered state]");
        internalCluster().startNode(nodeSettingsBuilder(1).put("discovery.zen.minimum_master_nodes",
2).put("node.master", true));
        assertLicenseActive(true);
    }
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.Version;
import org.elasticsearch.cluster.ClusterModule;
import org.elasticsearch.cluster.metadata.MetaData;
import org.elasticsearch.cluster.metadata.RepositoriesMetaData;
import org.elasticsearch.cluster.metadata.RepositoryMetaData;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.common.xcontent.NamedXContentRegistry;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.ToXContent.Params;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.common.xcontent.XContentFactory;
import org.elasticsearch.common.xcontent.XContentParser;
import org.elasticsearch.test.ESTestCase;

import java.util.Collections;
import java.util.UUID;

```

```

import java.util.stream.Collectors;
import java.util.stream.Stream;

import static org.hamcrest.Matchers.equalTo;
import static org.hamcrest.Matchers.notNullValue;
import static org.hamcrest.Matchers.nullValue;

public class LicensesMetaDataSerializationTests extends ESTestCase {

    public void testXContentSerializationOneSignedLicense() throws Exception {
        License license = TestUtils.generateSignedLicense(TimeValue.timeValueHours(2));
        LicensesMetaData licensesMetaData = new LicensesMetaData(license, null);
        XContentBuilder builder = XContentFactory.jsonBuilder();
        builder.startObject();
        builder.startObject("licenses");
        licensesMetaData.toXContent(builder, ToXContent.EMPTY_PARAMS);
        builder.endObject();
        builder.endObject();
        LicensesMetaData licensesMetaDataFromXContent =
getLicensesMetaDataFromXContent(createParser(builder));
        assertThat(licensesMetaDataFromXContent.getLicense(), equalTo(license));
        assertNull(licensesMetaDataFromXContent.getMostRecentTrialVersion());
    }

    public void testXContentSerializationOneSignedLicenseWithUsedTrial() throws Exception {
        License license = TestUtils.generateSignedLicense(TimeValue.timeValueHours(2));
        LicensesMetaData licensesMetaData = new LicensesMetaData(license, Version.CURRENT);
        XContentBuilder builder = XContentFactory.jsonBuilder();
        builder.startObject();
        builder.startObject("licenses");
        licensesMetaData.toXContent(builder, ToXContent.EMPTY_PARAMS);
        builder.endObject();
        builder.endObject();
        LicensesMetaData licensesMetaDataFromXContent =
getLicensesMetaDataFromXContent(createParser(builder));
        assertThat(licensesMetaDataFromXContent.getLicense(), equalTo(license));
        assertEquals(licensesMetaDataFromXContent.getMostRecentTrialVersion(), Version.CURRENT);
    }

    public void testLicenseMetadataParsingDoesNotSwallowOtherMetadata() throws Exception {
        new Licensing(Settings.EMPTY); // makes sure LicensePlugin is registered in Custom Metadata
        License license = TestUtils.generateSignedLicense(TimeValue.timeValueHours(2));
        LicensesMetaData licensesMetaData = new LicensesMetaData(license, Version.CURRENT);
        RepositoryMetaData repositoryMetaData = new RepositoryMetaData("repo", "fs", Settings.EMPTY);
        RepositoriesMetaData repositoriesMetaData = new RepositoriesMetaData(repositoryMetaData);
        final Metadata.Builder metaDataBuilder = Metadata.builder();
        if (randomBoolean()) { // random order of insertion
            metaDataBuilder.putCustom(licensesMetaData.getWriteableName(), licensesMetaData);

```

```

        metaDataBuilder.putCustom(repositoriesMetaData.getWriteableName(), repositoriesMetaData);
    } else {
        metaDataBuilder.putCustom(repositoriesMetaData.getWriteableName(), repositoriesMetaData);
        metaDataBuilder.putCustom(licensesMetaData.getWriteableName(), licensesMetaData);
    }
    // serialize metadata
    XContentBuilder builder = XContentFactory.jsonBuilder();
    Params params = new
ToXContent.MapParams(Collections.singletonMap(MetaData.CONTEXT_MODE_PARAM,
MetaData.CONTEXT_MODE_GATEWAY));
    builder.startObject();
    builder = metaDataBuilder.build().toXContent(builder, params);
    builder.endObject();
    // deserialize metadata again
    MetaData metaData = MetaData.Builder.fromXContent(createParser(builder));
    // check that custom metadata still present
    assertThat(metaData.custom(licensesMetaData.getWriteableName()), notNullValue());
    assertThat(metaData.custom(repositoriesMetaData.getWriteableName()), notNullValue());
}

```

```

public void testXContentSerializationOneTrial() throws Exception {
    long issueDate = System.currentTimeMillis();
    License.Builder specBuilder = License.builder()
        .uid(UUID.randomUUID().toString())
        .issuedTo("customer")
        .maxNodes(5)
        .issueDate(issueDate)
        .type(randomBoolean() ? "trial" : "basic")
        .expiryDate(issueDate + TimeValue.timeValueHours(2).getMillis());
    final License trialLicense = SelfGeneratedLicense.create(specBuilder);
    LicensesMetaData licensesMetaData = new LicensesMetaData(trialLicense, Version.CURRENT);
    XContentBuilder builder = XContentFactory.jsonBuilder();
    builder.startObject();
    builder.startObject("licenses");
    licensesMetaData.toXContent(builder, ToXContent.EMPTY_PARAMS);
    builder.endObject();
    builder.endObject();
    LicensesMetaData licensesMetaDataFromXContent =
getLicensesMetaDataFromXContent(createParser(builder));
    assertThat(licensesMetaDataFromXContent.getLicense(), equalTo(trialLicense));
    assertEquals(licensesMetaDataFromXContent.getMostRecentTrialVersion(), Version.CURRENT);
}

```

```

public void testLicenseTombstoneFromXContext() throws Exception {
    final XContentBuilder builder = XContentFactory.jsonBuilder();
    builder.startObject();
    builder.startObject("licenses");
    builder.nullField("license");
}

```

```

        builder.endObject();
        builder.endObject();
        LicensesMetaData metaDataFromXContent = getLicensesMetaDataFromXContent(createParser(builder));
        assertEquals(metaDataFromXContent.getLicense(), equalTo(LicensesMetaData.LICENSE_TOMBSTONE));
    }

    public void testLicenseTombstoneWithUsedTrialFromXContext() throws Exception {
        final XContentBuilder builder = XContentFactory.jsonBuilder();
        builder.startObject();
        builder.startObject("licenses");
        builder.nullField("license");
        builder.field("trial_license", Version.CURRENT.toString());
        builder.endObject();
        builder.endObject();
        LicensesMetaData metaDataFromXContent = getLicensesMetaDataFromXContent(createParser(builder));
        assertEquals(metaDataFromXContent.getLicense(), equalTo(LicensesMetaData.LICENSE_TOMBSTONE));
        assertEquals(metaDataFromXContent.getMostRecentTrialVersion(), Version.CURRENT);
    }

    private static LicensesMetaData getLicensesMetaDataFromXContent(XContentParser parser) throws Exception {
        parser.nextToken(); // consume null
        parser.nextToken(); // consume "licenses"
        LicensesMetaData licensesMetaDataFromXContent = LicensesMetaData.fromXContent(parser);
        parser.nextToken(); // consume endObject
        assertEquals(parser.nextToken(), nullValue());
        return licensesMetaDataFromXContent;
    }

    @Override
    protected NamedXContentRegistry xContentRegistry() {
        return new NamedXContentRegistry(Stream.concat(
            new Licensing(Settings.EMPTY).getNamedXContent().stream(),
            ClusterModule.getNamedXWriteables().stream()
        ).collect(Collectors.toList()));
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.cluster.ClusterName;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.ClusterStateUpdateTask;
import org.elasticsearch.cluster.metadata.Metadata;
import org.elasticsearch.common.settings.Settings;

```

```

import org.mockito.ArgumentCaptor;
import org.mockito.Mockito;

import java.util.UUID;

import static org.elasticsearch.license.TestUtils.dateMath;
import static org.mockito.Matchers.any;
import static org.mockito.Mockito.verify;
import static org.mockito.Mockito.when;

public class LicenseRegistrationTests extends AbstractLicenseServiceTestCase {

    public void testSelfGeneratedTrialLicense() throws Exception {
        XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
        setInitialState(null, licenseState, Settings.EMPTY, "trial");
        when(discoveryNodes.isLocalNodeElectedMaster()).thenReturn(true);
        licenseService.start();

        ClusterState state = ClusterState.builder(new ClusterName("a")).build();
        ArgumentCaptor<ClusterStateUpdateTask> stateUpdater =
ArgumentCaptor.forClass(ClusterStateUpdateTask.class);
        verify(clusterService, Mockito.times(1)).submitStateUpdateTask(any(), stateUpdater.capture());
        ClusterState stateWithLicense = stateUpdater.getValue().execute(state);
        LicensesMetaData licenseMetaData = stateWithLicense.metaData().custom(LicensesMetaData.TYPE);
        assertNotNull(licenseMetaData);
        assertNotNull(licenseMetaData.getLicense());
        assertFalse(licenseMetaData.isEligibleForTrial());
        assertEquals("trial", licenseMetaData.getLicense().type());
        assertEquals(clock.millis() +
LicenseService.NON_BASIC_SELF_GENERATED_LICENSE_DURATION.millis(),
            licenseMetaData.getLicense().expiryDate());
    }

    public void testSelfGeneratedBasicLicense() throws Exception {
        XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
        setInitialState(null, licenseState, Settings.EMPTY, "basic");
        when(discoveryNodes.isLocalNodeElectedMaster()).thenReturn(true);
        licenseService.start();

        ClusterState state = ClusterState.builder(new ClusterName("a")).build();
        ArgumentCaptor<ClusterStateUpdateTask> stateUpdater =
ArgumentCaptor.forClass(ClusterStateUpdateTask.class);
        verify(clusterService, Mockito.times(1)).submitStateUpdateTask(any(), stateUpdater.capture());
        ClusterState stateWithLicense = stateUpdater.getValue().execute(state);
        LicensesMetaData licenseMetaData = stateWithLicense.metaData().custom(LicensesMetaData.TYPE);
        assertNotNull(licenseMetaData);
        assertNotNull(licenseMetaData.getLicense());
        assertTrue(licenseMetaData.isEligibleForTrial());
    }
}

```

```

    assertEquals("basic", licenseMetaData.getLicense().type());
    assertEquals(LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS,
licenseMetaData.getLicense().expiryDate());
}

public void testNonSelfGeneratedBasicLicenseIsReplaced() throws Exception {
    long now = System.currentTimeMillis();
    String uid = UUID.randomUUID().toString();
    final License.Builder builder = License.builder()
        .uid(uid)
        .version(License.VERSION_CURRENT)
        .expiryDate(dateMath("now+2h", now))
        .startDate(now)
        .issueDate(now)
        .type("basic")
        .issuedTo("customer")
        .issuer("elasticsearch")
        .maxNodes(5);
    License license = TestUtils.generateSignedLicense(builder);

    XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
    setInitialState(license, licenseState, Settings.EMPTY);
    when(discoveryNodes.isLocalNodeElectedMaster()).thenReturn(true);
    licenseService.start();

    Metadata.Builder mdBuilder = Metadata.builder();
    mdBuilder.putCustom(LicensesMetaData.TYPE, new LicensesMetaData(license, null));
    ClusterState state = ClusterState.builder(new ClusterName("a")).metaData(mdBuilder.build()).build();
    ArgumentCaptor<ClusterStateUpdateTask> stateUpdater =
ArgumentCaptor.forClass(ClusterStateUpdateTask.class);
    verify(clusterService, Mockito.times(1)).submitStateUpdateTask(any(), stateUpdater.capture());
    ClusterState stateWithLicense = stateUpdater.getValue().execute(state);
    LicensesMetaData licenseMetaData = stateWithLicense.metaData().custom(LicensesMetaData.TYPE);
    assertNotNull(licenseMetaData);
    assertNotNull(licenseMetaData.getLicense());
    assertTrue(licenseMetaData.isEligibleForTrial());
    assertEquals("basic", licenseMetaData.getLicense().type());
    assertEquals(LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS,
licenseMetaData.getLicense().expiryDate());
    assertEquals(uid, licenseMetaData.getLicense().uid());
}

public void testExpiredSelfGeneratedBasicLicenseIsExtended() throws Exception {
    long now = System.currentTimeMillis();
    String uid = UUID.randomUUID().toString();
    License.Builder builder = License.builder()
        .uid(uid)
        .issuedTo("name")

```

```

        .maxNodes(1000)
        .issueDate(dateMath("now-10h", now))
        .type("basic")
        .expiryDate(dateMath("now-2h", now));
License license = SelfGeneratedLicense.create(builder);

XPackLicenseState licenseState = new XPackLicenseState(Settings.EMPTY);
setInitialState(license, licenseState, Settings.EMPTY);
when(discoveryNodes.isLocalNodeElectedMaster()).thenReturn(true);
licenseService.start();

MetaData.Builder mdBuilder = MetaData.builder();
mdBuilder.putCustom(LicensesMetaData.TYPE, new LicensesMetaData(license, null));
ClusterState state = ClusterState.builder(new ClusterName("a")).metaData(mdBuilder.build()).build();
ArgumentCaptor<ClusterStateUpdateTask> stateUpdater =
ArgumentCaptor.forClass(ClusterStateUpdateTask.class);
verify(clusterService, Mockito.times(1)).submitStateUpdateTask(any(), stateUpdater.capture());
ClusterState stateWithLicense = stateUpdater.getValue().execute(state);
LicensesMetaData licenseMetaData = stateWithLicense.metaData().custom(LicensesMetaData.TYPE);
assertNotNull(licenseMetaData);
assertNotNull(licenseMetaData.getLicense());
assertTrue(licenseMetaData.isEligibleForTrial());
assertEquals("basic", licenseMetaData.getLicense().type());
assertEquals(LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS,
licenseMetaData.getLicense().expiryDate());
assertEquals(uid, licenseMetaData.getLicense().uid());
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.common.xcontent.XContentFactory;
import org.elasticsearch.common.xcontent.XContentType;
import org.elasticsearch.test.ESTestCase;

import java.io.IOException;
import java.nio.ByteBuffer;
import java.util.Base64;
import java.util.Collections;
import java.util.UUID;

```

```

import static org.elasticsearch.license.CryptUtils.encrypt;
import static org.hamcrest.Matchers.equalTo;

public class SelfGeneratedLicenseTests extends ESTestCase {

    public void testBasic() throws Exception {
        long issueDate = System.currentTimeMillis();
        License.Builder specBuilder = License.builder()
            .uid(UUID.randomUUID().toString())
            .issuedTo("customer")
            .maxNodes(5)
            .type(randomBoolean() ? "trial" : "basic")
            .issueDate(issueDate)
            .expiryDate(issueDate + TimeValue.timeValueHours(2).getMillis());
        License trialLicense = SelfGeneratedLicense.create(specBuilder);
        assertThat(SelfGeneratedLicense.verify(trialLicense), equalTo(true));
    }

    public void testTampered() throws Exception {
        long issueDate = System.currentTimeMillis();
        License.Builder specBuilder = License.builder()
            .uid(UUID.randomUUID().toString())
            .issuedTo("customer")
            .type(randomBoolean() ? "trial" : "basic")
            .maxNodes(5)
            .issueDate(issueDate)
            .expiryDate(issueDate + TimeValue.timeValueHours(2).getMillis());
        License trialLicense = SelfGeneratedLicense.create(specBuilder);
        final String originalSignature = trialLicense.signature();
        License tamperedLicense = License.builder().fromLicenseSpec(trialLicense, originalSignature)
            .expiryDate(System.currentTimeMillis() + TimeValue.timeValueHours(5).getMillis())
            .build();
        assertThat(SelfGeneratedLicense.verify(trialLicense), equalTo(true));
        assertThat(SelfGeneratedLicense.verify(tamperedLicense), equalTo(false));
    }

    public void testFrom1x() throws Exception {
        long issueDate = System.currentTimeMillis();
        License.Builder specBuilder = License.builder()
            .uid(UUID.randomUUID().toString())
            .issuedTo("customer")
            .type("subscription")
            .subscriptionType("trial")
            .issuer("elasticsearch")
            .feature("")
            .version(License.VERSION_START)

```



```

        .maxNodes(5)
        .issueDate(issueDate)
        .expiryDate(issueDate + TimeValue.timeValueHours(2).getMillis());
License pre20TrialLicense = specBuilder.build();
License license =
SelfGeneratedLicense.create(License.builder().fromPre20LicenseSpec(pre20TrialLicense).type("trial"));
    assertThat(SelfGeneratedLicense.verify(license), equalTo(true));
}

public void testTrialLicenseVerifyWithOlderVersion() throws Exception {
    long issueDate = System.currentTimeMillis();
    License.Builder specBuilder = License.builder()
        .issuedTo("customer")
        .maxNodes(5)
        .issueDate(issueDate)
        .expiryDate(issueDate + TimeValue.timeValueHours(2).getMillis())
        .feature("")
        .subscriptionType("trial")
        .version(1);
    License trialLicenseV1 = createTrialLicense(specBuilder);
    assertThat(SelfGeneratedLicense.verify(trialLicenseV1), equalTo(true));
}

private static License createTrialLicense(License.Builder specBuilder) {
    License spec = specBuilder
        .type(randomBoolean() ? "trial" : "basic")
        .issuer("elasticsearch")
        .uid(UUID.randomUUID().toString())
        .build();
    final String signature;
    try {
        XContentBuilder contentBuilder = XContentFactory.contentBuilder(XContentType.JSON);
        spec.toXContent(contentBuilder, new
ToXContent.MapParams(Collections.singletonMap(License.LICENSE_SPEC_VIEW_MODE, "true")));
        byte[] encrypt = encrypt(BytesReference.toBytes(BytesReference.bytes(contentBuilder)));
        byte[] bytes = new byte[4 + 4 + encrypt.length];
        ByteBuffer byteBuffer = ByteBuffer.wrap(bytes);
        byteBuffer.putInt(-spec.version())
            .putInt(encrypt.length)
            .put(encrypt);
        signature = Base64.getEncoder().encodeToString(bytes);
    } catch (IOException e) {
        throw new IllegalStateException(e);
    }
    return License.builder().fromLicenseSpec(spec, signature).build();
}
}
}

```

```

/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionFuture;
import org.elasticsearch.common.bytes.ByteArray;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.common.xcontent.XContentType;
import org.elasticsearch.node.Node;
import org.elasticsearch.plugins.Plugin;
import org.elasticsearch.test.ESSingleNodeTestCase;
import org.elasticsearch.xpack.core.LocalStateCompositeXPackPlugin;
import org.elasticsearch.xpack.core.XPackSettings;

import java.nio.charset.StandardCharsets;
import java.util.Collection;
import java.util.Collections;
import java.util.UUID;

import static org.elasticsearch.license.TestUtils.dateMath;
import static org.elasticsearch.license.TestUtils.generateExpiredNonBasicLicense;
import static org.elasticsearch.license.TestUtils.generateSignedLicense;
import static org.hamcrest.CoreMatchers.equalTo;
import static org.hamcrest.CoreMatchers.not;

public class LicensesTransportTests extends ESSingleNodeTestCase {

    @Override
    protected boolean resetNodeAfterTest() {
        return true;
    }

    @Override
    protected Collection<Class<? extends Plugin>> getPlugins() {
        return Collections.singletonList(LocalStateCompositeXPackPlugin.class);
    }

    @Override
    protected Settings nodeSettings() {
        Settings.Builder newSettings = Settings.builder();
        newSettings.put(super.nodeSettings());
        newSettings.put(XPackSettings.SECURITY_ENABLED.getKey(), false);
        // newSettings.put(XPackSettings.MONITORING_ENABLED.getKey(), false);
        // newSettings.put(XPackSettings.WATCHER_ENABLED.getKey(), false);
    }

```

```

        newSettings.put(Node.NODE_DATA_SETTING.getKey(), true);
        return newSettings.build();
    }

    public void testEmptyGetLicense() throws Exception {
        // basic license is added async, we should wait for it
        assertBusy(() -> {
            try {
                final ActionFuture<GetLicenseResponse> getLicenseFuture =
                    new GetLicenseRequestBuilder(client().admin().cluster(), GetLicenseAction.INSTANCE).execute();
                final GetLicenseResponse getLicenseResponse;
                getLicenseResponse = getLicenseFuture.get();
                assertNotNull(getLicenseResponse.license());
                assertThat(getLicenseResponse.license().operationMode(), equalTo(License.OperationMode.BASIC));
            } catch (Exception e) {
                throw new RuntimeException("unexpected exception", e);
            }
        });
    }

    public void testPutLicense() throws Exception {
        License signedLicense = generateSignedLicense(TimeValue.timeValueMinutes(2));

        // put license
        PutLicenseRequestBuilder putLicenseRequestBuilder =
            new PutLicenseRequestBuilder(client().admin().cluster(),
            PutLicenseAction.INSTANCE).setLicense(signedLicense)
                .setAcknowledge(true);
        PutLicenseResponse putLicenseResponse = putLicenseRequestBuilder.get();
        assertThat(putLicenseResponse.isAcknowledged(), equalTo(true));
        assertThat(putLicenseResponse.status(), equalTo(LicensesStatus.VALID));

        // get and check license
        GetLicenseResponse getLicenseResponse = new GetLicenseRequestBuilder(client().admin().cluster(),
        GetLicenseAction.INSTANCE).get();
        assertThat(getLicenseResponse.license(), equalTo(signedLicense));
    }

    public void testPutLicenseFromString() throws Exception {
        License signedLicense = generateSignedLicense(TimeValue.timeValueMinutes(2));
        String licenseString = TestUtils.dumpLicense(signedLicense);

        // put license source
        PutLicenseRequestBuilder putLicenseRequestBuilder =
            new PutLicenseRequestBuilder(client().admin().cluster(), PutLicenseAction.INSTANCE)
                .setLicense(new ByteArray(licenseString.getBytes(StandardCharsets.UTF_8)),
                XContentType.JSON)
                .setAcknowledge(true);
    }

```

```

PutLicenseResponse putLicenseResponse = putLicenseRequestBuilder.get();
assertThat(putLicenseResponse.isAcknowledged(), equalTo(true));
assertThat(putLicenseResponse.status(), equalTo(LicensesStatus.VALID));

// get and check license
GetLicenseResponse getLicenseResponse = new GetLicenseRequestBuilder(client().admin().cluster(),
GetLicenseAction.INSTANCE).get();
assertThat(getLicenseResponse.license(), equalTo(signedLicense));
}

public void testPutInvalidLicense() throws Exception {
    License signedLicense = generateSignedLicense(TimeValue.timeValueMinutes(2));

    // modify content of signed license
    License tamperedLicense = License.builder()
        .fromLicenseSpec(signedLicense, signedLicense.signature())
        .expiryDate(signedLicense.expiryDate() + 10 * 24 * 60 * 60 * 1000L)
        .validate()
        .build();

    PutLicenseRequestBuilder builder = new PutLicenseRequestBuilder(client().admin().cluster(),
PutLicenseAction.INSTANCE);
    builder.setLicense(tamperedLicense);

    // try to put license (should be invalid)
    final PutLicenseResponse putLicenseResponse = builder.get();
    assertThat(putLicenseResponse.status(), equalTo(LicensesStatus.INVALID));

    // try to get invalid license
    GetLicenseResponse getLicenseResponse = new GetLicenseRequestBuilder(client().admin().cluster(),
GetLicenseAction.INSTANCE).get();
    assertThat(getLicenseResponse.license(), not(tamperedLicense));
}

public void testPutBasicLicenseIsInvalid() throws Exception {
    License signedLicense = generateSignedLicense("basic", License.VERSION_CURRENT, -1,
TimeValue.timeValueMinutes(2));

    PutLicenseRequestBuilder builder = new PutLicenseRequestBuilder(client().admin().cluster(),
PutLicenseAction.INSTANCE);
    builder.setLicense(signedLicense);

    // try to put license (should be invalid)
    IllegalArgumentException iae = expectThrows(IllegalArgumentException.class, builder::get);
    assertEquals(iae.getMessage(), "Registering basic licenses is not allowed.");

    // try to get invalid license
    GetLicenseResponse getLicenseResponse = new GetLicenseRequestBuilder(client().admin().cluster(),

```

```

GetLicenseAction.INSTANCE).get();
    assertThat(getLicenseResponse.license(), not(signedLicense));
}

public void testPutExpiredLicense() throws Exception {
    License expiredLicense = generateExpiredNonBasicLicense();
    PutLicenseRequestBuilder builder = new PutLicenseRequestBuilder(client().admin().cluster(),
PutLicenseAction.INSTANCE);
    builder.setLicense(expiredLicense);
    PutLicenseResponse putLicenseResponse = builder.get();
    assertThat(putLicenseResponse.status(), equalTo(LicensesStatus.EXPIRED));
    // get license should not return the expired license
    GetLicenseResponse getLicenseResponse = new GetLicenseRequestBuilder(client().admin().cluster(),
GetLicenseAction.INSTANCE).get();
    assertThat(getLicenseResponse.license(), not(expiredLicense));
}

public void testPutLicensesSimple() throws Exception {
    License goldSignedLicense = generateSignedLicense("gold", TimeValue.timeValueMinutes(5));
    PutLicenseRequestBuilder putLicenseRequestBuilder =
        new PutLicenseRequestBuilder(client().admin().cluster(),
PutLicenseAction.INSTANCE).setLicense(goldSignedLicense)
        .setAcknowledge(true);
    PutLicenseResponse putLicenseResponse = putLicenseRequestBuilder.get();
    assertThat(putLicenseResponse.status(), equalTo(LicensesStatus.VALID));
    GetLicenseResponse getLicenseResponse = new GetLicenseRequestBuilder(client().admin().cluster(),
GetLicenseAction.INSTANCE).get();
    assertThat(getLicenseResponse.license(), equalTo(goldSignedLicense));

    License platinumSignedLicense = generateSignedLicense("platinum", TimeValue.timeValueMinutes(2));
    putLicenseRequestBuilder.setLicense(platinumSignedLicense);
    putLicenseResponse = putLicenseRequestBuilder.get();
    assertThat(putLicenseResponse.isAcknowledged(), equalTo(true));
    assertThat(putLicenseResponse.status(), equalTo(LicensesStatus.VALID));
    getLicenseResponse = new GetLicenseRequestBuilder(client().admin().cluster(),
GetLicenseAction.INSTANCE).get();
    assertThat(getLicenseResponse.license(), equalTo(platinumSignedLicense));
}

public void testRemoveLicensesSimple() throws Exception {
    License goldLicense = generateSignedLicense("gold", TimeValue.timeValueMinutes(5));
    PutLicenseRequestBuilder putLicenseRequestBuilder =
        new PutLicenseRequestBuilder(client().admin().cluster(),
PutLicenseAction.INSTANCE).setLicense(goldLicense)
        .setAcknowledge(true);
    PutLicenseResponse putLicenseResponse = putLicenseRequestBuilder.get();
    assertThat(putLicenseResponse.isAcknowledged(), equalTo(true));
    assertThat(putLicenseResponse.status(), equalTo(LicensesStatus.VALID));
}

```

```

    GetLicenseResponse getLicenseResponse = new GetLicenseRequestBuilder(client().admin().cluster(),
GetLicenseAction.INSTANCE).get();
    assertThat(getLicenseResponse.license(), equalTo(goldLicense));
    // delete all licenses
    DeleteLicenseRequestBuilder deleteLicenseRequestBuilder =
        new DeleteLicenseRequestBuilder(client().admin().cluster(), DeleteLicenseAction.INSTANCE);
    DeleteLicenseResponse deleteLicenseResponse = deleteLicenseRequestBuilder.get();
    assertThat(deleteLicenseResponse.isAcknowledged(), equalTo(true));
    // get licenses (expected no licenses)
    getLicenseResponse = new GetLicenseRequestBuilder(client().admin().cluster(),
GetLicenseAction.INSTANCE).get();
    assertNull(getLicenseResponse.license());
}

```

```

public void testLicenseIsRejectWhenStartDateLaterThanNow() throws Exception {

```

```

    long now = System.currentTimeMillis();
    final License.Builder builder = License.builder()
        .uid(UUID.randomUUID().toString())
        .version(License.VERSION_CURRENT)
        .expiryDate(dateMath("now+2h", now))
        .startDate(dateMath("now+1h", now))
        .issueDate(now)
        .type(License.OperationMode.TRIAL.toString())
        .issuedTo("customer")
        .issuer("elasticsearch")
        .maxNodes(5);
    License license = TestUtils.generateSignedLicense(builder);

```

```

    PutLicenseRequestBuilder putLicenseRequestBuilder =
        new PutLicenseRequestBuilder(client().admin().cluster(),
PutLicenseAction.INSTANCE).setLicense(license)
        .setAcknowledged(true);
    PutLicenseResponse putLicenseResponse = putLicenseRequestBuilder.get();
    assertThat(putLicenseResponse.isAcknowledged(), equalTo(true));
    assertThat(putLicenseResponse.status(), equalTo(LicensesStatus.INVALID));
}

```

```

public void testLicenseIsAcceptedWhenStartDateBeforeThanNow() throws Exception {

```

```

    long now = System.currentTimeMillis();
    final License.Builder builder = License.builder()
        .uid(UUID.randomUUID().toString())
        .version(License.VERSION_CURRENT)
        .expiryDate(dateMath("now+2h", now))
        .startDate(now)
        .issueDate(now)
        .type(License.OperationMode.TRIAL.toString())
        .issuedTo("customer")
        .issuer("elasticsearch")

```

```

        .maxNodes(5);
        License license = TestUtils.generateSignedLicense(builder);

        PutLicenseRequestBuilder putLicenseRequestBuilder =
            new PutLicenseRequestBuilder(client().admin().cluster(),
            PutLicenseAction.INSTANCE).setLicense(license)
                .setAcknowledge(true);
        PutLicenseResponse putLicenseResponse = putLicenseRequestBuilder.get();
        assertThat(putLicenseResponse.isAcknowledged(), equalTo(true));
        assertThat(putLicenseResponse.status(), equalTo(LicensesStatus.VALID));
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.Version;
import org.elasticsearch.action.support.PlainActionFuture;
import org.elasticsearch.cluster.ClusterStateUpdateTask;
import org.elasticsearch.cluster.node.DiscoveryNode;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.transport.TransportAddress;
import org.elasticsearch.common.unit.TimeValue;

import java.net.InetAddress;

import static java.util.Collections.emptyMap;
import static java.util.Collections.emptySet;
import static org.hamcrest.Matchers.containsString;
import static org.mockito.Matchers.any;
import static org.mockito.Mockito.times;
import static org.mockito.Mockito.verify;

public class LicenseTLSTests extends AbstractLicenseServiceTestCase {

    private InetAddress inetAddress;

    public void testApplyLicenseInDevMode() throws Exception {
        License newLicense = TestUtils.generateSignedLicense(randomFrom("gold", "platinum"),
        TimeValue.timeValueHours(24L));
        PutLicenseRequest request = new PutLicenseRequest();
        request.acknowledge(true);
        request.license(newLicense);
        Settings settings = Settings.builder().put("xpack.security.enabled", true).build();
        XPackLicenseState licenseState = new XPackLicenseState(settings);
    }
}

```

```

inetAddress = InetAddress.getLoopbackAddress();

setInitialState(null, licenseState, settings);
licenseService.start();
PlainActionFuture<PutLicenseResponse> responseFuture = new PlainActionFuture<>();
licenseService.registerLicense(request, responseFuture);
verify(clusterService).submitStateUpdateTask(any(String.class), any(ClusterStateUpdateTask.class));

inetAddress = TransportAddress.META_ADDRESS;
settings = Settings.builder()
    .put("xpack.security.enabled", true)
    .put("discovery.type", "single-node")
    .build();
licenseService.stop();
licenseState = new XPackLicenseState(settings);
setInitialState(null, licenseState, settings);
licenseService.start();
licenseService.registerLicense(request, responseFuture);
verify(clusterService, times(2)).submitStateUpdateTask(any(String.class), any(ClusterStateUpdateTask.class));
}

public void testApplyLicenseInProdMode() throws Exception {
    final String licenseType = randomFrom("GOLD", "PLATINUM");
    License newLicense = TestUtils.generateSignedLicense(licenseType, TimeValue.timeValueHours(24L));
    PutLicenseRequest request = new PutLicenseRequest();
    request.acknowledge(true);
    request.license(newLicense);
    Settings settings = Settings.builder().put("xpack.security.enabled", true).build();
    XPackLicenseState licenseState = new XPackLicenseState(settings);
    inetAddress = TransportAddress.META_ADDRESS;

    setInitialState(null, licenseState, settings);
    licenseService.start();
    PlainActionFuture<PutLicenseResponse> responseFuture = new PlainActionFuture<>();
    IllegalStateException e = expectThrows(IllegalStateException.class, () ->
licenseService.registerLicense(request, responseFuture));
    assertThat(e.getMessage(),
        containsString("Cannot install a [" + licenseType + "] license unless TLS is configured or security is
disabled"));

    settings = Settings.builder().put("xpack.security.enabled", false).build();
    licenseService.stop();
    licenseState = new XPackLicenseState(settings);
    setInitialState(null, licenseState, settings);
    licenseService.start();
    licenseService.registerLicense(request, responseFuture);
    verify(clusterService).submitStateUpdateTask(any(String.class), any(ClusterStateUpdateTask.class));
}

```



```

settings = Settings.builder()
    .put("xpack.security.enabled", true)
    .put("xpack.security.transport.ssl.enabled", true)
    .build();
licenseService.stop();
licenseState = new XPackLicenseState(settings);
setInitialState(null, licenseState, settings);
licenseService.start();
licenseService.registerLicense(request, responseFuture);
verify(clusterService, times(2)).submitStateUpdateTask(any(String.class), any(ClusterStateUpdateTask.class));
}

@Override
protected DiscoveryNode getLocalNode() {
    return new DiscoveryNode("localnode", new TransportAddress(inetAddress, randomIntBetween(9300, 9399)),
        emptyMap(), emptySet(), Version.CURRENT);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.bytes.BytesArray;
import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.common.xcontent.XContentFactory;
import org.elasticsearch.common.xcontent.XContentHelper;
import org.elasticsearch.common.xcontent.XContentType;
import org.elasticsearch.test.ESTestCase;

import java.nio.charset.StandardCharsets;
import java.util.Collections;
import java.util.Map;
import java.util.UUID;

import static org.hamcrest.core.IsEqual.equalTo;
import static org.hamcrest.core.IsNull.notNullValue;
import static org.hamcrest.core.IsNull.nullValue;

public class LicenseSerializationTests extends ESTestCase {
    public void testSimpleIssueExpiryDate() throws Exception {
        long now = System.currentTimeMillis();
        String issueDate = TestUtils.dateMathString("now", now);
        String expiryDate = TestUtils.dateMathString("now+10d/d", now);
    }
}

```

```

String licenseSpecs = TestUtils.generateLicenseSpecString(new TestUtils.LicenseSpec(issueDate, expiryDate));
License generatedLicense = License.fromSource(new
ByteArray(licenseSpecs.getBytes(StandardCharsets.UTF_8)), XContentType.JSON);
assertThat(generatedLicense.issueDate(), equalTo(DateUtils.beginningOfDay(issueDate)));
assertThat(generatedLicense.expiryDate(), equalTo(DateUtils.endOfDay(expiryDate)));
}

public void testLicensesFields() throws Exception {
    TestUtils.LicenseSpec randomLicenseSpec =
TestUtils.generateRandomLicenseSpec(License.VERSION_START);
    String licenseSpecsSource = TestUtils.generateLicenseSpecString(randomLicenseSpec);
    final License fromSource =
        License.fromSource(new ByteArray(licenseSpecsSource.getBytes(StandardCharsets.UTF_8)),
XContentType.JSON);
    TestUtils.assertLicenseSpec(randomLicenseSpec, fromSource);
}

public void testLicenseRestView() throws Exception {
    long now = System.currentTimeMillis();
    String expiredLicenseExpiryDate = TestUtils.dateMathString("now-1d/d", now);
    String validLicenseIssueDate = TestUtils.dateMathString("now-10d/d", now);
    String invalidLicenseIssueDate = TestUtils.dateMathString("now+1d/d", now);
    String validLicenseExpiryDate = TestUtils.dateMathString("now+2d/d", now);

    License license = TestUtils.generateLicenses(new TestUtils.LicenseSpec(validLicenseIssueDate,
expiredLicenseExpiryDate));
    XContentBuilder builder = XContentFactory.contentBuilder(XContentType.JSON);
    license.toXContent(builder, new
ToXContent.MapParams(Collections.singletonMap(License.REST_VIEW_MODE, "true")));
    builder.flush();
    Map<String, Object> map = XContentHelper.convertToMap(BytesReference.bytes(builder), false,
builder.contentType()).v2();

    // should have an extra status field, human readable issue_data and expiry_date
    assertThat(map.get("status"), notNullValue());
    assertThat(map.get("issue_date"), notNullValue());
    assertThat(map.get("expiry_date"), notNullValue());
    assertThat(map.get("status"), equalTo("expired"));
    builder = XContentFactory.contentBuilder(XContentType.JSON);
    license.toXContent(builder, ToXContent.EMPTY_PARAMS);
    builder.flush();
    map = XContentHelper.convertToMap(BytesReference.bytes(builder), false, builder.contentType()).v2();
    assertThat(map.get("status"), nullValue());

    license = TestUtils.generateLicenses(new TestUtils.LicenseSpec(validLicenseIssueDate,
validLicenseExpiryDate));
    builder = XContentFactory.contentBuilder(XContentType.JSON);
    license.toXContent(builder, new

```

```

ToXContent.MapParams(Collections.singletonMap(License.REST_VIEW_MODE, "true")));
    builder.flush();
    map = XContentHelper.convertToMap(BytesReference.bytes(builder), false, builder.contentType().v2());

    // should have an extra status field, human readable issue_data and expiry_date
    assertThat(map.get("status"), notNullValue());
    assertThat(map.get("issue_date"), notNullValue());
    assertThat(map.get("expiry_date"), notNullValue());
    assertThat(map.get("status"), equalTo("active"));
    builder = XContentFactory.contentBuilder(XContentType.JSON);
    license.toXContent(builder, ToXContent.EMPTY_PARAMS);
    builder.flush();
    map = XContentHelper.convertToMap(BytesReference.bytes(builder), false, builder.contentType().v2());
    assertThat(map.get("status"), nullValue());

    license = TestUtils.generateLicenses(new TestUtils.LicenseSpec(invalidLicenseIssueDate,
validLicenseExpiryDate));
    builder = XContentFactory.contentBuilder(XContentType.JSON);
    license.toXContent(builder, new
ToXContent.MapParams(Collections.singletonMap(License.REST_VIEW_MODE, "true")));
    builder.flush();
    map = XContentHelper.convertToMap(BytesReference.bytes(builder), false, builder.contentType().v2());

    // should have an extra status field, human readable issue_data and expiry_date
    assertThat(map.get("status"), notNullValue());
    assertThat(map.get("issue_date"), notNullValue());
    assertThat(map.get("expiry_date"), notNullValue());
    assertThat(map.get("status"), equalTo("invalid"));
    builder = XContentFactory.contentBuilder(XContentType.JSON);
    license.toXContent(builder, ToXContent.EMPTY_PARAMS);
    builder.flush();
    map = XContentHelper.convertToMap(BytesReference.bytes(builder), false, builder.contentType().v2());
    assertThat(map.get("status"), nullValue());
}

public void testLicenseRestViewNonExpiringBasic() throws Exception {
    long now = System.currentTimeMillis();

    License.Builder specBuilder = License.builder()
        .uid(UUID.randomUUID().toString())
        .issuedTo("test")
        .maxNodes(1000)
        .issueDate(now)
        .type("basic")
        .expiryDate(LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS);
    License license = SelfGeneratedLicense.create(specBuilder);
    XContentBuilder builder = XContentFactory.contentBuilder(XContentType.JSON);
    license.toXContent(builder, new

```

```

ToXContent.MapParams(Collections.singletonMap(License.REST_VIEW_MODE, "true")));
    builder.flush();
    Map<String, Object> map = XContentHelper.convertToMap(BytesReference.bytes(builder), false,
builder.contentType().v2());

    // should have an extra status field, human readable issue_data and no expiry_date
    assertThat(map.get("status"), notNullValue());
    assertThat(map.get("type"), equalTo("basic"));
    assertThat(map.get("issue_date"), notNullValue());
    assertThat(map.get("expiry_date"), nullValue());
    assertThat(map.get("expiry_date_in_millis"), nullValue());
    assertThat(map.get("status"), equalTo("active"));
    builder = XContentFactory.contentBuilder(XContentType.JSON);
    license.toXContent(builder, ToXContent.EMPTY_PARAMS);
    builder.flush();
    map = XContentHelper.convertToMap(BytesReference.bytes(builder), false, builder.contentType().v2());
    assertThat(map.get("status"), nullValue());
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.client.Response;
import org.elasticsearch.client.ResponseException;
import org.elasticsearch.client.RestClient;
import org.elasticsearch.common.io.Streams;
import org.elasticsearch.common.network.NetworkModule;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.plugins.Plugin;
import org.elasticsearch.test.ESIntegTestCase;
import org.elasticsearch.transport.Netty4Plugin;
import org.elasticsearch.xpack.core.LocalStateCompositeXPackPlugin;
import org.elasticsearch.xpack.core.XPackClientPlugin;

import java.io.InputStreamReader;
import java.nio.charset.StandardCharsets;
import java.util.Arrays;
import java.util.Collection;

import static org.elasticsearch.test.ESIntegTestCase.Scope.SUITE;

@ESIntegTestCase.ClusterScope(scope = SUITE)
public class StartBasicLicenseTests extends AbstractLicensesIntegrationTestCase {

```

```

@Override
protected Settings nodeSettings(int nodeOrdinal) {
    return Settings.builder()
        .put(super.nodeSettings(nodeOrdinal))
        .put("node.data", true)
        .put(LicenseService.SELF_GENERATED_LICENSE_TYPE.getKey(), "basic")
        .put(NetworkModule.HTTP_ENABLED.getKey(), true).build();
}

@Override
protected Collection<Class<? extends Plugin>> nodePlugins() {
    return Arrays.asList(LocalStateCompositeXPackPlugin.class, Netty4Plugin.class);
}

@Override
protected Collection<Class<? extends Plugin>> transportClientPlugins() {
    return Arrays.asList(XPackClientPlugin.class, Netty4Plugin.class);
}

public void testStartBasicLicense() throws Exception {
    LicensingClient licensingClient = new LicensingClient(client());
    License license = TestUtils.generateSignedLicense("trial", License.VERSION_CURRENT, -1,
TimeValue.timeValueHours(24));
    licensingClient.preparePutLicense(license).get();

    assertBusy(() -> {
        GetLicenseResponse getLicenseResponse = licensingClient.prepareGetLicense().get();
        assertEquals("trial", getLicenseResponse.license().type());
    });

    // Testing that you can start a basic license when you have no license
    if (randomBoolean()) {
        licensingClient.prepareDeleteLicense().get();
        assertNull(licensingClient.prepareGetLicense().get().license());
    }

    RestClient restClient = getRestClient();
    Response response = restClient.performRequest("GET", "/_xpack/license/basic_status");
    String body = Streams.copyToString(new InputStreamReader(response.getEntity().getContent(),
StandardCharsets.UTF_8));
    assertEquals(200, response.getStatusLine().getStatusCode());
    assertEquals("{\"eligible_to_start_basic\":true}", body);

    Response response2 = restClient.performRequest("POST", "/_xpack/license/start_basic?acknowledge=true");
    String body2 = Streams.copyToString(new InputStreamReader(response2.getEntity().getContent(),
StandardCharsets.UTF_8));
    assertEquals(200, response2.getStatusLine().getStatusCode());
}

```

```

assertTrue(body2.contains("\"acknowledged\":true"));
assertTrue(body2.contains("\"basic_was_started\":true"));

assertBusy(() -> {
    GetLicenseResponse currentLicense = licensingClient.prepareGetLicense().get();
    assertEquals("basic", currentLicense.license().type());
});

long expirationMillis = licensingClient.prepareGetLicense().get().license().expiryDate();
assertEquals(LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS,
expirationMillis);

Response response3 = restClient.performRequest("GET", "/_xpack/license");
String body3 = Streams.copyToString(new InputStreamReader(response3.getEntity().getContent(),
StandardCharsets.UTF_8));
assertTrue(body3.contains("\"type\" : \"basic\""));
assertFalse(body3.contains("expiry_date"));
assertFalse(body3.contains("expiry_date_in_millis"));

Response response4 = restClient.performRequest("GET", "/_xpack/license/basic_status");
String body4 = Streams.copyToString(new InputStreamReader(response4.getEntity().getContent(),
StandardCharsets.UTF_8));
assertEquals(200, response3.getStatusLine().getStatusCode());
assertEquals("{\"eligible_to_start_basic\":false}", body4);

ResponseException ex = expectThrows(ResponseException.class,
    () -> restClient.performRequest("POST", "/_xpack/license/start_basic"));
Response response5 = ex.getResponse();
String body5 = Streams.copyToString(new InputStreamReader(response5.getEntity().getContent(),
StandardCharsets.UTF_8));
assertEquals(403, response5.getStatusLine().getStatusCode());
assertTrue(body5.contains("\"basic_was_started\":false"));
assertTrue(body5.contains("\"acknowledged\":true"));
assertTrue(body5.contains("\"error_message\": \"Operation failed: Current license is basic.\""));
}

public void testUnacknowledgedStartBasicLicense() throws Exception {
    LicensingClient licensingClient = new LicensingClient(client());
    License license = TestUtils.generateSignedLicense("trial", License.VERSION_CURRENT, -1,
TimeValue.timeValueHours(24));
    licensingClient.preparePutLicense(license).get();

    assertBusy(() -> {
        GetLicenseResponse getLicenseResponse = licensingClient.prepareGetLicense().get();
        assertEquals("trial", getLicenseResponse.license().type());
    });
}

```

```

    Response response2 = getRestClient().performRequest("POST", "/_xpack/license/start_basic");
    String body2 = Streams.copyToString(new InputStreamReader(response2.getEntity().getContent(),
StandardCharsets.UTF_8));
    assertEquals(200, response2.getStatusLine().getStatusCode());
    assertTrue(body2.contains("\"acknowledged\":false"));
    assertTrue(body2.contains("\"basic_was_started\":false"));
    assertTrue(body2.contains("\"error_message\": \"Operation failed: Needs acknowledgement.\""));
    assertTrue(body2.contains("\"message\": \"This license update requires acknowledgement. To acknowledge the
license, " +
        "please read the following messages and call /start_basic again, this time with the
\\\"acknowledge=true\\\""));
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.common.io.stream.BytesStreamOutput;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.common.xcontent.XContentFactory;
import org.elasticsearch.common.xcontent.XContentHelper;
import org.elasticsearch.test.ESTestCase;

import java.io.IOException;
import java.util.HashMap;
import java.util.List;
import java.util.Locale;
import java.util.Map;

import static org.hamcrest.Matchers.equalTo;
import static org.hamcrest.Matchers.not;
import static org.hamcrest.Matchers.sameInstance;

public class PutLicenseResponseTests extends ESTestCase {
    @SuppressWarnings("unchecked")
    public void testSerialization() throws Exception {
        boolean acknowledged = randomBoolean();
        LicensesStatus status = randomFrom(LicensesStatus.VALID, LicensesStatus.INVALID,
LicensesStatus.EXPIRED);
        Map<String, String[]> ackMessages = randomAckMessages();

        PutLicenseResponse response = new PutLicenseResponse(acknowledged, status, "", ackMessages);

```

```

XCContentBuilder contentBuilder = XCContentFactory.jsonBuilder();
response.toXCContent(contentBuilder, ToXCContent.EMPTY_PARAMS);

Map<String, Object> map = XCContentHelper.convertToMap(BytesReference.bytes(contentBuilder), false,
    contentBuilder.contentType().v2());
assertThat(map.containsKey("acknowledged"), equalTo(true));
boolean actualAcknowledged = (boolean) map.get("acknowledged");
assertThat(actualAcknowledged, equalTo(acknowledged));

assertThat(map.containsKey("license_status"), equalTo(true));
String actualStatus = (String) map.get("license_status");
assertThat(actualStatus, equalTo(status.name().toLowerCase(Locale.ROOT)));

assertThat(map.containsKey("acknowledge"), equalTo(true));
Map<String, List<String>> actualAckMessages = (Map<String, List<String>>) map.get("acknowledge");
assertTrue(actualAckMessages.containsKey("message"));
actualAckMessages.remove("message");
assertThat(actualAckMessages.keySet(), equalTo(ackMessages.keySet()));
for (Map.Entry<String, List<String>> entry : actualAckMessages.entrySet()) {
    assertArrayEquals(entry.getValue().toArray(), ackMessages.get(entry.getKey()));
}
}

public void testStreamSerialization() throws IOException {
    boolean acknowledged = randomBoolean();
    LicensesStatus status = randomFrom(LicensesStatus.VALID, LicensesStatus.INVALID,
LicensesStatus.EXPIRED);
    Map<String, String[]> ackMessages = randomAckMessages();

    // write the steam so that we can attempt to read it back
    ByteArrayOutputStream output = new ByteArrayOutputStream();

    PutLicenseResponse response = new PutLicenseResponse(acknowledged, status, "", ackMessages);
    // write it out
    response.writeTo(output);

    StreamInput input = output.bytes().streamInput();

    // read it back in
    response.readFrom(input);

    assertThat(response.isAcknowledged(), equalTo(acknowledged));
    assertThat(response.status(), equalTo(status));
    assertThat(response.acknowledgeMessages(), not(sameInstance(ackMessages)));
    assertThat(response.acknowledgeMessages().size(), equalTo(ackMessages.size()));

    for (String key : ackMessages.keySet()) {

```



```

        assertEquals(ackMessages.get(key), response.acknowledgeMessages().get(key));
    }
}

private static Map<String, String[]> randomAckMessages() {
    int nFeatures = randomIntBetween(1, 5);

    Map<String, String[]> ackMessages = new HashMap<>();

    for (int i = 0; i < nFeatures; i++) {
        String feature = randomAlphaOfLengthBetween(9, 15);
        int nMessages = randomIntBetween(1, 5);
        String[] messages = new String[nMessages];
        for (int j = 0; j < nMessages; j++) {
            messages[j] = randomAlphaOfLengthBetween(10, 30);
        }
        ackMessages.put(feature, messages);
    }

    return ackMessages;
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.Version;
import org.elasticsearch.cluster.ClusterName;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.block.ClusterBlocks;
import org.elasticsearch.cluster.metadata.MetaData;
import org.elasticsearch.cluster.node.DiscoveryNode;
import org.elasticsearch.cluster.node.DiscoveryNodes;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.common.component.Lifecycle;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.env.Environment;
import org.elasticsearch.test.ESTestCase;
import org.elasticsearch.watcher.ResourceWatcherService;
import org.elasticsearch.xpack.core.XPackPlugin;
import org.elasticsearch.xpack.core.watcher.watch.ClockMock;
import org.junit.After;
import org.junit.Before;

import java.nio.file.Path;

```

```

import java.util.Arrays;

import static java.util.Collections.emptySet;
import static java.util.Collections.singletonMap;
import static org.mockito.Mockito.mock;
import static org.mockito.Mockito.when;

public abstract class AbstractLicenseServiceTestCase extends ESTestCase {

    protected LicenseService licenseService;
    protected ClusterService clusterService;
    protected ResourceWatcherService resourceWatcherService;
    protected ClockMock clock;
    protected DiscoveryNodes discoveryNodes;
    protected Environment environment;
    protected String licenseType;

    @Before
    public void init() throws Exception {
        clusterService = mock(ClusterService.class);
        clock = ClockMock.frozen();
        discoveryNodes = mock(DiscoveryNodes.class);
        resourceWatcherService = mock(ResourceWatcherService.class);
        environment = mock(Environment.class);
    }

    protected void setInitialState(License license, XPackLicenseState licenseState, Settings settings) {
        setInitialState(license, licenseState, settings, randomBoolean() ? "trial" : "basic");
    }

    protected void setInitialState(License license, XPackLicenseState licenseState, Settings settings, String
selfGeneratedType) {
        Path tempDir = createTempDir();
        when(environment.configFile()).thenReturn(tempDir);
        licenseType = selfGeneratedType;
        settings =
Settings.builder().put(settings).put(LicenseService.SELF_GENERATED_LICENSE_TYPE.getKey(),
licenseType).build();
        licenseService = new LicenseService(settings, clusterService, clock, environment, resourceWatcherService,
licenseState);
        ClusterState state = mock(ClusterState.class);
        final ClusterBlocks noBlock = ClusterBlocks.builder().build();
        when(state.blocks()).thenReturn(noBlock);
        Metadata metaData = mock(Metadata.class);
        when(metaData.custom(LicensesMetaData.TYPE)).thenReturn(new LicensesMetaData(license, null));
        when(state.metaData()).thenReturn(metaData);
        final DiscoveryNode mockNode = getLocalNode();
        when(discoveryNodes.getMasterNode()).thenReturn(mockNode);

```

```

when(discoveryNodes.splitIterator()).thenReturn(Arrays.asList(mockNode).splitIterator());
when(discoveryNodes.isLocalNodeElectedMaster()).thenReturn(false);
when(state.nodes()).thenReturn(discoveryNodes);
when(state.getNodes()).thenReturn(discoveryNodes); // it is really ridiculous we have nodes() and getNodes()...
when(clusterService.state()).thenReturn(state);
when(clusterService.lifecycleState()).thenReturn(Lifecycle.State.STARTED);
when(clusterService.getClusterName()).thenReturn(new ClusterName("a"));
when(clusterService.localNode()).thenReturn(mockNode);
}

protected DiscoveryNode getLocalNode() {
    return new DiscoveryNode("b", buildNewFakeTransportAddress(),
singletonMap(XPackPlugin.XPACK_INSTALLED_NODE_ATTR, "true"),
    emptySet(), Version.CURRENT);
}

@After
public void tearDown() throws Exception {
    super.tearDown();
    licenseService.stop();
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.xpack.core.security.authz.permission;

import org.elasticsearch.xpack.core.security.authz.privilege.Privilege;

import java.util.function.Predicate;

/**
 * A permissions that is based on a general privilege that contains patterns of users that this
 * user can execute a request as
 */
public final class RunAsPermission {

    public static final RunAsPermission NONE = new RunAsPermission(Privilege.NONE);

    private final Predicate<String> predicate;

    RunAsPermission(Privilege privilege) {
        this.predicate = privilege.predicate();
    }

}

/**

```

```

    * Checks if this permission grants run as to the specified user
    */
    public boolean check(String username) {
        return predicate.test(username);
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.xpack.core.security.authz.permission;

import org.elasticsearch.cluster.metadata.Metadata;
import org.elasticsearch.common.Nullable;
import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.common.util.set.Sets;
import org.elasticsearch.xpack.core.security.authz.RoleDescriptor;
import org.elasticsearch.xpack.core.security.authz.accesscontrol.IndicesAccessControl;
import org.elasticsearch.xpack.core.security.authz.privilege.ClusterPrivilege;
import org.elasticsearch.xpack.core.security.authz.privilege.IndexPrivilege;
import org.elasticsearch.xpack.core.security.authz.privilege.Privilege;

import java.util.ArrayList;
import java.util.Collections;
import java.util.List;
import java.util.Map;
import java.util.Objects;
import java.util.Set;

public final class Role {

    public static final Role EMPTY = Role.builder("__empty").build();

    private final String[] names;
    private final ClusterPermission cluster;
    private final IndicesPermission indices;
    private final RunAsPermission runAs;

    Role(String[] names, ClusterPermission cluster, IndicesPermission indices, RunAsPermission runAs) {
        this.names = names;
        this.cluster = Objects.requireNonNull(cluster);
        this.indices = Objects.requireNonNull(indices);
        this.runAs = Objects.requireNonNull(runAs);
    }

    public String[] names() {
        return names;
    }

```

```

    }

    public ClusterPermission cluster() {
        return cluster;
    }

    public IndicesPermission indices() {
        return indices;
    }

    public RunAsPermission runAs() {
        return runAs;
    }

    public static Builder builder(String... names) {
        return new Builder(names, null);
    }

    public static Builder builder(String[] names, FieldPermissionsCache fieldPermissionsCache) {
        return new Builder(names, fieldPermissionsCache);
    }

    public static Builder builder(RoleDescriptor rd, FieldPermissionsCache fieldPermissionsCache) {
        return new Builder(rd, fieldPermissionsCache);
    }

    /**
     * Returns whether at least one group encapsulated by this indices permissions is authorized to execute the
     * specified action with the requested indices/aliases. At the same time if field and/or document level security
     * is configured for any group also the allowed fields and role queries are resolved.
     */
    public IndicesAccessControl authorize(String action, Set<String> requestedIndicesOrAliases, MetaData
metaData,
                                     FieldPermissionsCache fieldPermissionsCache) {
        Map<String, IndicesAccessControl.IndexAccessControl> indexPermissions = indices.authorize(
            action, requestedIndicesOrAliases, metaData, fieldPermissionsCache
        );

        // At least one role / indices permission set need to match with all the requested indices/aliases:
        boolean granted = true;
        for (Map.Entry<String, IndicesAccessControl.IndexAccessControl> entry : indexPermissions.entrySet()) {
            if (!entry.getValue().isGranted()) {
                granted = false;
                break;
            }
        }
        return new IndicesAccessControl(granted, indexPermissions);
    }
}

```

```

public static class Builder {

    private final String[] names;
    private ClusterPermission cluster = ClusterPermission.NONE;
    private RunAsPermission runAs = RunAsPermission.NONE;
    private List<IndicesPermission.Group> groups = new ArrayList<>();
    private FieldPermissionsCache fieldPermissionsCache = null;

    private Builder(String[] names, FieldPermissionsCache fieldPermissionsCache) {
        this.names = names;
        this.fieldPermissionsCache = fieldPermissionsCache;
    }

    private Builder(RoleDescriptor rd, @Nullable FieldPermissionsCache fieldPermissionsCache) {
        this.names = new String[] { rd.getName() };
        this.fieldPermissionsCache = fieldPermissionsCache;
        if (rd.getClusterPrivileges().length == 0) {
            cluster = ClusterPermission.NONE;
        } else {
            this.cluster(ClusterPrivilege.get(Sets.newHashSet(rd.getClusterPrivileges())));
        }
        groups.addAll(convertFromIndicesPrivileges(rd.getIndicesPrivileges(), fieldPermissionsCache));
        String[] rdRunAs = rd.getRunAs();
        if (rdRunAs != null && rdRunAs.length > 0) {
            this.runAs(new Privilege(Sets.newHashSet(rdRunAs), rdRunAs));
        }
    }

    public Builder cluster(ClusterPrivilege privilege) {
        cluster = new ClusterPermission(privilege);
        return this;
    }

    public Builder runAs(Privilege privilege) {
        runAs = new RunAsPermission(privilege);
        return this;
    }

    public Builder add(IndexPrivilege privilege, String... indices) {
        groups.add(new IndicesPermission.Group(privilege, FieldPermissions.DEFAULT, null, indices));
        return this;
    }

    public Builder add(FieldPermissions fieldPermissions, Set<BytesReference> query, IndexPrivilege privilege,
String... indices) {
        groups.add(new IndicesPermission.Group(privilege, fieldPermissions, query, indices));
        return this;
    }
}

```

```

    }

    public Role build() {
        IndicesPermission indices = groups.isEmpty() ? IndicesPermission.NONE :
            new IndicesPermission(groups.toArray(new IndicesPermission.Group[groups.size()]));
        return new Role(names, cluster, indices, runAs);
    }

    static List<IndicesPermission.Group> convertFromIndicesPrivileges(RoleDescriptor.IndicesPrivileges[]
indicesPrivileges,
                                @Nullable FieldPermissionsCache fieldPermissionsCache) {
        List<IndicesPermission.Group> list = new ArrayList<>(indicesPrivileges.length);
        for (RoleDescriptor.IndicesPrivileges privilege : indicesPrivileges) {
            final FieldPermissions fieldPermissions;
            if (fieldPermissionsCache != null) {
                fieldPermissions = fieldPermissionsCache.getFieldPermissions(privilege.getGrantedFields(),
privilege.getDeniedFields());
            } else {
                fieldPermissions = new FieldPermissions(
                    new FieldPermissionsDefinition(privilege.getGrantedFields(), privilege.getDeniedFields()));
            }
            final Set<BytesReference> query = privilege.getQuery() == null ? null :
Collections.singleton(privilege.getQuery());
            list.add(new IndicesPermission.Group(IndexPrivilege.get(Sets.newHashSet(privilege.getPrivileges())),
                fieldPermissions,
                query,
                privilege.getIndices()));

        }
        return list;
    }
}
}
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.xpack.core.security.authz.permission;

import org.apache.lucene.util.automaton.Automaton;
import org.elasticsearch.ElasticsearchException;
import org.elasticsearch.common.cache.Cache;
import org.elasticsearch.common.cache.CacheBuilder;
import org.elasticsearch.common.settings.Setting;
import org.elasticsearch.common.settings.Setting.Property;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.xpack.core.security.authz.permission.FieldPermissionsDefinition.FieldGrantExcludeGroup;

```

```

import org.elasticsearch.xpack.core.security.support.Automatons;

import java.util.Collection;
import java.util.List;
import java.util.Optional;
import java.util.Set;
import java.util.concurrent.ExecutionException;
import java.util.function.Predicate;
import java.util.stream.Collectors;

import static org.elasticsearch.xpack.core.security.SecurityField.setting;

/**
 * A service for managing the caching of {@link FieldPermissions} as these may often need to be combined or
 * created and internally they
 * use an {@link org.apache.lucene.util.automaton.Automaton}, which can be costly to create once you account for
 * minimization
 */
public final class FieldPermissionsCache {

    public static final Setting<Long> CACHE_SIZE_SETTING = Setting.longSetting(
        setting("authz.store.roles.field_permissions.cache.max_size_in_bytes"), 100 * 1024 * 1024, -1L,
        Property.NodeScope);
    private final Cache<FieldPermissionsDefinition, FieldPermissions> cache;

    public FieldPermissionsCache(Settings settings) {
        this.cache = CacheBuilder.<FieldPermissionsDefinition, FieldPermissions>builder()
            .setMaximumWeight(CACHE_SIZE_SETTING.get(settings))
            .weigher((key, fieldPermissions) -> fieldPermissions.ramBytesUsed())
            .build();
    }

    /**
     * Gets a {@link FieldPermissions} instance that corresponds to the granted and denied parameters. The instance
     * may come from the cache
     * or if it gets created, the instance will be cached
     */
    FieldPermissions getFieldPermissions(String[] granted, String[] denied) {
        return getFieldPermissions(new FieldPermissionsDefinition(granted, denied));
    }

    /**
     * Gets a {@link FieldPermissions} instance that corresponds to the granted and denied parameters. The instance
     * may come from the cache
     * or if it gets created, the instance will be cached
     */
    public FieldPermissions getFieldPermissions(FieldPermissionsDefinition fieldPermissionsDefinition) {
        try {

```



```

        return cache.computeIfAbsent(fieldPermissionsDefinition,
            (key) -> new FieldPermissions(key, FieldPermissions.initializePermittedFieldsAutomaton(key)));
    } catch (ExecutionException e) {
        throw new ElasticsearchException("unable to compute field permissions", e);
    }
}

/**
 * Returns a field permissions object that corresponds to the merging of the given field permissions and caches the
instance if one was
 * not found in the cache.
 */
FieldPermissions getFieldPermissions(Collection<FieldPermissions> fieldPermissionsCollection) {
    Optional<FieldPermissions> allowAllFieldPermissions = fieldPermissionsCollection.stream()
        .filter(((Predicate<FieldPermissions>) (FieldPermissions::hasFieldLevelSecurity)).negate())
        .findFirst();
    return allowAllFieldPermissions.orElseGet(() -> {
        final Set<FieldGrantExcludeGroup> fieldGrantExcludeGroups = fieldPermissionsCollection.stream()
            .flatMap(fieldPermission ->
fieldPermission.getFieldPermissionsDefinition().getFieldGrantExcludeGroups().stream())
            .collect(Collectors.toSet());
        final FieldPermissionsDefinition combined = new FieldPermissionsDefinition(fieldGrantExcludeGroups);
        try {
            return cache.computeIfAbsent(combined, (key) -> {
                List<Automaton> automatonList = fieldPermissionsCollection.stream()
                    .map(FieldPermissions::getIncludeAutomaton)
                    .collect(Collectors.toList());
                return new FieldPermissions(key, Automatons.unionAndMinimize(automatonList));
            });
        } catch (ExecutionException e) {
            throw new ElasticsearchException("unable to compute field permissions", e);
        }
    });
}

/**
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.xpack.core.security.authz.permission;

import org.apache.lucene.util.automaton.Automaton;
import org.apache.lucene.util.automaton.TooComplexToDeterminizeException;
import org.elasticsearch.ElasticsearchSecurityException;
import org.elasticsearch.cluster.metadata.AliasOrIndex;
import org.elasticsearch.cluster.metadata.IndexMetaData;
import org.elasticsearch.cluster.metadata.MetaData;

```

```

import org.elasticsearch.common.Nullable;
import org.elasticsearch.common.Strings;
import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.common.logging.Loggers;
import org.elasticsearch.xpack.core.security.authz.accesscontrol.IndicesAccessControl;
import org.elasticsearch.xpack.core.security.authz.privilege.IndexPrivilege;
import org.elasticsearch.xpack.core.security.support.Automatons;

import java.util.ArrayList;
import java.util.Arrays;
import java.util.HashMap;
import java.util.HashSet;
import java.util.Iterator;
import java.util.List;
import java.util.Map;
import java.util.Objects;
import java.util.Set;
import java.util.SortedMap;
import java.util.concurrent.ConcurrentHashMap;
import java.util.function.Function;
import java.util.function.Predicate;

import static java.util.Collections.unmodifiableMap;
import static java.util.Collections.unmodifiableSet;

/**
 * A permission that is based on privileges for index related actions executed
 * on specific indices
 */
public final class IndicesPermission implements Iterable<IndicesPermission.Group> {

    public static final IndicesPermission NONE = new IndicesPermission();

    private final Function<String, Predicate<String>> loadingFunction;

    private final ConcurrentHashMap<String, Predicate<String>> allowedIndicesMatchersForAction = new
    ConcurrentHashMap<>();

    private final Group[] groups;

    public IndicesPermission(Group... groups) {
        this.groups = groups;
        loadingFunction = (action) -> {
            List<String> indices = new ArrayList<>();
            for (Group group : groups) {
                if (group.actionMatcher.test(action)) {
                    indices.addAll(Arrays.asList(group.indices));
                }
            }
        }
    }

```

```

    }
    return indexMatcher(indices);
};
}

static Predicate<String> indexMatcher(List<String> indices) {
    try {
        return Automaton.predicate(indices);
    } catch (TooComplexToDeterminizeException e) {
        Loggers.getLogger(IndicesPermission.class).debug("Index pattern automaton [{}] is too complex", indices);
        String description = Strings.collectionToCommaDelimitedString(indices);
        if (description.length() > 80) {
            description = Strings.cleanTruncate(description, 80) + "...";
        }
        throw new ElasticsearchSecurityException("The set of permitted index patterns [{}] is too complex to
evaluate", e, description);
    }
}

@Override
public Iterator<Group> iterator() {
    return Arrays.asList(groups).iterator();
}

public Group[] groups() {
    return groups;
}

/**
 * @return A predicate that will match all the indices that this permission
 * has the privilege for executing the given action on.
 */
public Predicate<String> allowedIndicesMatcher(String action) {
    return allowedIndicesMatchersForAction.computeIfAbsent(action, loadingFunction);
}

/**
 * Checks if the permission matches the provided action, without looking at indices.
 * To be used in very specific cases where indices actions need to be authorized regardless of their indices.
 * The usecase for this is composite actions that are initially only authorized based on the action name (indices are
not
 * checked on the coordinating node), and properly authorized later at the shard level checking their indices as
well.
 */
public boolean check(String action) {
    for (Group group : groups) {
        if (group.check(action)) {
            return true;
        }
    }
}

```

```

    }
  }
  return false;
}

public Automaton allowedActionsMatcher(String index) {
  List<Automaton> automatonList = new ArrayList<>();
  for (Group group : groups) {
    if (group.indexNameMatcher.test(index)) {
      automatonList.add(group.privilege.getAutomaton());
    }
  }
  return automatonList.isEmpty() ? Automaton.EMPTY : Automaton.unionAndMinimize(automatonList);
}

/**
 * Authorizes the provided action against the provided indices, given the current cluster metadata
 */
public Map<String, IndicesAccessControl.IndexAccessControl> authorize(String action, Set<String>
requestedIndicesOrAliases,
                                Metadata metaData, FieldPermissionsCache fieldPermissionsCache) {
  // now... every index that is associated with the request, must be granted
  // by at least one indices permission group

  SortedMap<String, AliasOrIndex> allAliasesAndIndices = metaData.getAliasAndIndexLookup();
  Map<String, Set<FieldPermissions>> fieldPermissionsByIndex = new HashMap<>();
  Map<String, DocumentLevelPermissions> roleQueriesByIndex = new HashMap<>();
  Map<String, Boolean> grantedBuilder = new HashMap<>();

  for (String indexOrAlias : requestedIndicesOrAliases) {
    boolean granted = false;
    Set<String> concreteIndices = new HashSet<>();
    AliasOrIndex aliasOrIndex = allAliasesAndIndices.get(indexOrAlias);
    if (aliasOrIndex != null) {
      for (IndexMetaData indexMetaData : aliasOrIndex.getIndices()) {
        concreteIndices.add(indexMetaData.getIndex().getName());
      }
    }
  }

  for (Group group : groups) {
    if (group.check(action, indexOrAlias)) {
      granted = true;
      for (String index : concreteIndices) {
        Set<FieldPermissions> fieldPermissions = fieldPermissionsByIndex.computeIfAbsent(index, (k) ->
new HashSet<>());
        fieldPermissionsByIndex.put(indexOrAlias, fieldPermissions);
        fieldPermissions.add(group.getFieldPermissions());
        DocumentLevelPermissions permissions =

```

```

        roleQueriesByIndex.computeIfAbsent(index, (k) -> new DocumentLevelPermissions());
roleQueriesByIndex.putIfAbsent(indexOrAlias, permissions);
if (group.hasQuery()) {
    permissions.addAll(group.getQuery());
} else {
    // if more than one permission matches for a concrete index here and if
    // a single permission doesn't have a role query then DLS will not be
    // applied even when other permissions do have a role query
    permissions.setAllowAll(true);
}
}
}
}

if (concreteIndices.isEmpty()) {
    grantedBuilder.put(indexOrAlias, granted);
} else {
    grantedBuilder.put(indexOrAlias, granted);
    for (String concreteIndex : concreteIndices) {
        grantedBuilder.put(concreteIndex, granted);
    }
}
}

Map<String, IndicesAccessControl.IndexAccessControl> indexPermissions = new HashMap<>();
for (Map.Entry<String, Boolean> entry : grantedBuilder.entrySet()) {
    String index = entry.getKey();
    DocumentLevelPermissions permissions = roleQueriesByIndex.get(index);
    final Set<BytesReference> roleQueries;
    if (permissions != null && permissions.isAllowAll() == false) {
        roleQueries = unmodifiableSet(permissions.queries);
    } else {
        roleQueries = null;
    }

    final FieldPermissions fieldPermissions;
    final Set<FieldPermissions> indexFieldPermissions = fieldPermissionsByIndex.get(index);
    if (indexFieldPermissions != null && indexFieldPermissions.isEmpty() == false) {
        fieldPermissions = indexFieldPermissions.size() == 1 ? indexFieldPermissions.iterator().next() :
            fieldPermissionsCache.getFieldPermissions(indexFieldPermissions);
    } else {
        fieldPermissions = FieldPermissions.DEFAULT;
    }
    indexPermissions.put(index, new IndicesAccessControl.IndexAccessControl(entry.getValue(),
fieldPermissions, roleQueries));
}
return unmodifiableMap(indexPermissions);
}

```

```

public static class Group {
    private final IndexPrivilege privilege;
    private final Predicate<String> actionMatcher;
    private final String[] indices;
    private final Predicate<String> indexNameMatcher;

    public FieldPermissions getFieldPermissions() {
        return fieldPermissions;
    }

    private final FieldPermissions fieldPermissions;
    private final Set<BytesReference> query;

    public Group(IndexPrivilege privilege, FieldPermissions fieldPermissions, @Nullable Set<BytesReference>
query, String... indices) {
        assert indices.length != 0;
        this.privilege = privilege;
        this.actionMatcher = privilege.predicate();
        this.indices = indices;
        this.indexNameMatcher = indexMatcher(Arrays.asList(indices));
        this.fieldPermissions = Objects.requireNonNull(fieldPermissions);
        this.query = query;
    }

    public IndexPrivilege privilege() {
        return privilege;
    }

    public String[] indices() {
        return indices;
    }

    @Nullable
    public Set<BytesReference> getQuery() {
        return query;
    }

    private boolean check(String action) {
        return actionMatcher.test(action);
    }

    private boolean check(String action, String index) {
        assert index != null;
        return check(action) && indexNameMatcher.test(index);
    }

    boolean hasQuery() {

```

```

        return query != null;
    }
}

private static class DocumentLevelPermissions {

    private Set<BytesReference> queries = null;
    private boolean allowAll = false;

    private void addAll(Set<BytesReference> query) {
        if (allowAll == false) {
            if (queries == null) {
                queries = new HashSet<>();
            }
            queries.addAll(query);
        }
    }

    private boolean isAllowAll() {
        return allowAll;
    }

    private void setAllowAll(boolean allowAll) {
        this.allowAll = allowAll;
    }
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.xpack.core.security.authz.permission;

import org.apache.lucene.index.DirectoryReader;
import org.apache.lucene.util.Accountable;
import org.apache.lucene.util.RamUsageEstimator;
import org.apache.lucene.util.automaton.Automata;
import org.apache.lucene.util.automaton.Automaton;
import org.apache.lucene.util.automaton.CharacterRunAutomaton;
import org.apache.lucene.util.automaton.MinimizationOperations;
import org.apache.lucene.util.automaton.Operations;
import org.elasticsearch.ElasticsearchSecurityException;
import org.elasticsearch.common.Strings;
import org.elasticsearch.common.regex.Regex;
import org.elasticsearch.index.mapper.AllFieldMapper;
import org.elasticsearch.xpack.core.security.authz.accesscontrol.FieldSubsetReader;
import org.elasticsearch.xpack.core.security.authz.permission.FieldPermissionsDefinition.FieldGrantExcludeGroup;

```

```

import org.elasticsearch.xpack.core.security.support.Automatons;

import java.io.IOException;
import java.util.Arrays;
import java.util.HashMap;
import java.util.HashSet;
import java.util.List;
import java.util.Set;
import java.util.stream.Collectors;

import static org.apache.lucene.util.automaton.Operations.subsetOf;

/**
 * Stores patterns to fields which access is granted or denied to and maintains an automaton that can be used to check
 * if permission is
 * allowed for a specific field.
 * Field permissions are configured via a list of strings that are patterns a field has to match. Two lists determine
 * whether or
 * not a field is granted access to:
 * 1. It has to match the patterns in grantedFieldsArray
 * 2. it must not match the patterns in deniedFieldsArray
 */
public final class FieldPermissions implements Accountable {

    public static final FieldPermissions DEFAULT = new FieldPermissions();

    private static final long BASE_FIELD_PERM_DEF_BYTES = RamUsageEstimator.shallowSizeOf(new
FieldPermissionsDefinition(null, null));
    private static final long BASE_FIELD_GROUP_BYTES = RamUsageEstimator.shallowSizeOf(new
FieldGrantExcludeGroup(null, null));
    private static final long BASE_HASHSET_SIZE = RamUsageEstimator.shallowSizeOfInstance(HashSet.class);
    private static final long BASE_HASHSET_ENTRY_SIZE;
    static {
        HashMap<String, Object> map = new HashMap<>();
        map.put(FieldPermissions.class.getName(), new Object());
        long mapEntryShallowSize = RamUsageEstimator.shallowSizeOf(map.entrySet().iterator().next());
        // assume a load factor of 50%
        // for each entry, we need two object refs, one for the entry itself
        // and one for the free space that is due to the fact hash tables can
        // not be fully loaded
        BASE_HASHSET_ENTRY_SIZE = mapEntryShallowSize + 2 *
RamUsageEstimator.NUM_BYTES_OBJECT_REF;
    }

    private final FieldPermissionsDefinition fieldPermissionsDefinition;
    // an automaton that represents a union of one more sets of permitted and denied fields
    private final CharacterRunAutomaton permittedFieldsAutomaton;
    private final boolean permittedFieldsAutomatonIsTotal;

```



```

private final Automaton originalAutomaton;

private final long ramBytesUsed;

/** Constructor that does not enable field-level security: all fields are accepted. */
public FieldPermissions() {
    this(new FieldPermissionsDefinition(null, null), Automatons.MATCH_ALL);
}

/** Constructor that enables field-level security based on include/exclude rules. Exclude rules
 * have precedence over include rules. */
public FieldPermissions(FieldPermissionsDefinition fieldPermissionsDefinition) {
    this(fieldPermissionsDefinition, initializePermittedFieldsAutomaton(fieldPermissionsDefinition));
}

/** Constructor that enables field-level security based on include/exclude rules. Exclude rules
 * have precedence over include rules. */
FieldPermissions(FieldPermissionsDefinition fieldPermissionsDefinition, Automaton permittedFieldsAutomaton)
{
    if (permittedFieldsAutomaton.isDeterministic() == false && permittedFieldsAutomaton.getNumStates() > 1) {
        // we only accept deterministic automata so that the CharacterRunAutomaton constructor
        // directly wraps the provided automaton
        throw new IllegalArgumentException("Only accepts deterministic automata");
    }
    this.fieldPermissionsDefinition = fieldPermissionsDefinition;
    this.originalAutomaton = permittedFieldsAutomaton;
    this.permittedFieldsAutomaton = new CharacterRunAutomaton(permittedFieldsAutomaton);
    // we cache the result of isTotal since this might be a costly operation
    this.permittedFieldsAutomatonIsTotal = Operations.isTotal(permittedFieldsAutomaton);

    long ramBytesUsed = BASE_FIELD_PERM_DEF_BYTES;

    for (FieldGrantExcludeGroup group : fieldPermissionsDefinition.getFieldGrantExcludeGroups()) {
        ramBytesUsed += BASE_FIELD_GROUP_BYTES + BASE_HASHSET_ENTRY_SIZE;
        if (group.getGrantedFields() != null) {
            ramBytesUsed += RamUsageEstimator.shallowSizeOf(group.getGrantedFields());
        }
        if (group.getExcludedFields() != null) {
            ramBytesUsed += RamUsageEstimator.shallowSizeOf(group.getExcludedFields());
        }
    }
    ramBytesUsed += permittedFieldsAutomaton.ramBytesUsed();
    ramBytesUsed += runAutomatonRamBytesUsed(permittedFieldsAutomaton);
    this.ramBytesUsed = ramBytesUsed;
}

/**
 * Return an estimation of the ram bytes used by a {@link CharacterRunAutomaton}

```

```

    * that wraps the given automaton.
    */
    private static long runAutomatonRamBytesUsed(Automaton a) {
        return a.getNumStates() * 5; // wild guess, better than 0
    }

    public static Automaton initializePermittedFieldsAutomaton(FieldPermissionsDefinition
fieldPermissionsDefinition) {
        Set<FieldGrantExcludeGroup> groups = fieldPermissionsDefinition.getFieldGrantExcludeGroups();
        assert groups.size() > 0 : "there must always be a single group for field inclusion/exclusion";
        List<Automaton> automatonList =
            groups.stream()
                .map(g -> FieldPermissions.initializePermittedFieldsAutomaton(g.getGrantedFields(),
g.getExcludedFields()))
                .collect(Collectors.toList());
        return Automatons.unionAndMinimize(automatonList);
    }

    private static Automaton initializePermittedFieldsAutomaton(final String[] grantedFields, final String[]
deniedFields) {
        Automaton grantedFieldsAutomaton;
        if (grantedFields == null || Arrays.stream(grantedFields).anyMatch(Regex::isMatchAllPattern)) {
            grantedFieldsAutomaton = Automatons.MATCH_ALL;
        } else {
            // an automaton that includes metadata fields, including join fields created by the _parent field such
            // as _parent#type
            Automaton metaFieldsAutomaton = Operations.concatenate(Automata.makeChar('_'),
Automata.makeAnyString());
            grantedFieldsAutomaton = Operations.union(Automatons.patterns(grantedFields), metaFieldsAutomaton);
        }

        Automaton deniedFieldsAutomaton;
        if (deniedFields == null || deniedFields.length == 0) {
            deniedFieldsAutomaton = Automatons.EMPTY;
        } else {
            deniedFieldsAutomaton = Automatons.patterns(deniedFields);
        }

        grantedFieldsAutomaton = MinimizationOperations.minimize(grantedFieldsAutomaton,
Operations.DEFAULT_MAX_DETERMINIZED_STATES);
        deniedFieldsAutomaton = MinimizationOperations.minimize(deniedFieldsAutomaton,
Operations.DEFAULT_MAX_DETERMINIZED_STATES);

        if (subsetOf(deniedFieldsAutomaton, grantedFieldsAutomaton) == false) {
            throw new ElasticsearchSecurityException("Exceptions for field permissions must be a subset of the " +
                "granted fields but " + Strings.arrayToCommaDelimitedString(deniedFields) + " is not a subset of " +
                Strings.arrayToCommaDelimitedString(grantedFields));
        }
    }

```

```

    if (!containsAllField(GrantedFields) && !containsAllField(DeniedFields)) {
        // It is not explicitly stated whether _all should be allowed/denied
        // In that case we automatically disable _all, unless all fields would match
        if (Operations.isTotal(GrantedFieldsAutomaton) && Operations.isEmpty(DeniedFieldsAutomaton)) {
            // all fields are accepted, so using _all is fine
        } else {
            DeniedFieldsAutomaton = Operations.union(DeniedFieldsAutomaton,
Automata.makeString(AllFieldMapper.NAME));
        }
    }

    GrantedFieldsAutomaton = Automata.minusAndMinimize(GrantedFieldsAutomaton,
DeniedFieldsAutomaton);
    return GrantedFieldsAutomaton;
}

private static boolean containsAllField(String[] fields) {
    return fields != null && Arrays.stream(fields).anyMatch(AllFieldMapper.NAME::equals);
}

/**
 * Returns true if this field permission policy allows access to the field and false if not.
 * fieldName can be a wildcard.
 */
public boolean grantsAccessTo(String fieldName) {
    return PermittedFieldsAutomatonIsTotal || PermittedFieldsAutomaton.run(fieldName);
}

FieldPermissionsDefinition getFieldPermissionsDefinition() {
    return fieldPermissionsDefinition;
}

/** Return whether field-level security is enabled, ie. whether any field might be filtered out. */
public boolean hasFieldLevelSecurity() {
    return PermittedFieldsAutomatonIsTotal == false;
}

/** Return a wrapped reader that only exposes allowed fields. */
public DirectoryReader filter(DirectoryReader reader) throws IOException {
    if (hasFieldLevelSecurity() == false) {
        return reader;
    }
    return FieldSubsetReader.wrap(reader, PermittedFieldsAutomaton);
}

// for testing only
Automaton getIncludeAutomaton() {

```

```

    return originalAutomaton;
}

@Override
public boolean equals(Object o) {
    if (this == o) return true;
    if (o == null || getClass() != o.getClass()) return false;

    FieldPermissions that = (FieldPermissions) o;

    if (permittedFieldsAutomatonIsTotal != that.permittedFieldsAutomatonIsTotal) return false;
    return fieldPermissionsDefinition != null ?
        fieldPermissionsDefinition.equals(that.fieldPermissionsDefinition) : that.fieldPermissionsDefinition ==
null;
}

@Override
public int hashCode() {
    int result = fieldPermissionsDefinition != null ? fieldPermissionsDefinition.hashCode() : 0;
    result = 31 * result + (permittedFieldsAutomatonIsTotal ? 1 : 0);
    return result;
}

@Override
public long ramBytesUsed() {
    return ramBytesUsed;
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.xpack.core.security.authz.permission;

import org.elasticsearch.xpack.core.security.authz.privilege.ClusterPrivilege;

import java.util.function.Predicate;

/**
 * A permission that is based on privileges for cluster wide actions
 */
public final class ClusterPermission {

    public static final ClusterPermission NONE = new ClusterPermission(ClusterPrivilege.NONE);

    private final ClusterPrivilege privilege;
    private final Predicate<String> predicate;

```

```

ClusterPermission(ClusterPrivilege privilege) {
    this.privilege = privilege;
    this.predicate = privilege.predicate();
}

public ClusterPrivilege privilege() {
    return privilege;
}

public boolean check(String action) {
    return predicate.test(action);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.xpack.core.security.authz.permission;

import java.util.Arrays;
import java.util.Collections;
import java.util.Set;

/**
 * Represents the definition of a {@link FieldPermissions}. Field permissions are defined as a
 * collections of grant and exclude definitions where the exclude definition must be a subset of
 * the grant definition.
 */
public final class FieldPermissionsDefinition {

    private final Set<FieldGrantExcludeGroup> fieldGrantExcludeGroups;

    public FieldPermissionsDefinition(String[] grant, String[] exclude) {
        this(Collections.singleton(new FieldGrantExcludeGroup(grant, exclude)));
    }

    public FieldPermissionsDefinition(Set<FieldGrantExcludeGroup> fieldGrantExcludeGroups) {
        this.fieldGrantExcludeGroups = Collections.unmodifiableSet(fieldGrantExcludeGroups);
    }

    public Set<FieldGrantExcludeGroup> getFieldGrantExcludeGroups() {
        return fieldGrantExcludeGroups;
    }

    @Override
    public boolean equals(Object o) {

```

```

if (this == o) return true;
if (o == null || getClass() != o.getClass()) return false;

FieldPermissionsDefinition that = (FieldPermissionsDefinition) o;

return fieldGrantExcludeGroups != null ?
    fieldGrantExcludeGroups.equals(that.fieldGrantExcludeGroups) :
    that.fieldGrantExcludeGroups == null;
}

@Override
public int hashCode() {
    return fieldGrantExcludeGroups != null ? fieldGrantExcludeGroups.hashCode() : 0;
}

public static final class FieldGrantExcludeGroup {
    private final String[] grantedFields;
    private final String[] excludedFields;

    public FieldGrantExcludeGroup(String[] grantedFields, String[] excludedFields) {
        this.grantedFields = grantedFields;
        this.excludedFields = excludedFields;
    }

    public String[] getGrantedFields() {
        return grantedFields;
    }

    public String[] getExcludedFields() {
        return excludedFields;
    }

    @Override
    public boolean equals(Object o) {
        if (this == o) return true;
        if (o == null || getClass() != o.getClass()) return false;

        FieldGrantExcludeGroup that = (FieldGrantExcludeGroup) o;

        if (!Arrays.equals(grantedFields, that.grantedFields)) return false;
        return Arrays.equals(excludedFields, that.excludedFields);
    }

    @Override
    public int hashCode() {
        int result = Arrays.hashCode(grantedFields);
        result = 31 * result + Arrays.hashCode(excludedFields);
        return result;
    }
}

```

```

    }
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.Action;
import org.elasticsearch.client.ElasticsearchClient;

public class GetLicenseAction extends Action<GetLicenseRequest, GetLicenseResponse,
GetLicenseRequestBuilder> {

    public static final GetLicenseAction INSTANCE = new GetLicenseAction();
    public static final String NAME = "cluster:monitor/xpack/license/get";

    private GetLicenseAction() {
        super(NAME);
    }

    @Override
    public GetLicenseResponse newResponse() {
        return new GetLicenseResponse();
    }

    @Override
    public GetLicenseRequestBuilder newRequestBuilder(ElasticsearchClient client) {
        return new GetLicenseRequestBuilder(client, this);
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.Version;
import org.elasticsearch.cluster.AbstractNamedDiffable;
import org.elasticsearch.cluster.MergableCustomMetaData;
import org.elasticsearch.cluster.NamedDiff;
import org.elasticsearch.cluster.metadata.MetaData;
import org.elasticsearch.common.Nullable;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;

```

```

import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.common.xcontent.XContentParser;
import org.elasticsearch.license.License.OperationMode;
import org.elasticsearch.xpack.core.XPackPlugin;

import java.io.IOException;
import java.util.EnumSet;

/**
 * Contains metadata about registered licenses
 */
public class LicensesMetaData extends AbstractNamedDiffable<MetaData.Custom> implements
XPackPlugin.XPackMetaDataCustom,
    MergableCustomMetaData<LicensesMetaData> {

    public static final String TYPE = "licenses";

    /**
     * When license is explicitly removed by a user, LICENSE_TOMBSTONE
     * is used as a placeholder in the license metadata. This enables
     * us to distinguish between the scenario when a cluster never
     * had a license (null) and when a license was removed explicitly
     * (LICENSE_TOMBSTONE).
     * We rely on this to decide whether to generate a unsigned trial
     * license or not. we should only generate a license if no license
     * ever existed in the cluster state
     */
    public static final License LICENSE_TOMBSTONE = License.builder()
        .type("trial")
        .issuer("elasticsearch")
        .uid("TOMBSTONE")
        .issuedTo("")
        .maxNodes(0)
        .issueDate(0)
        .expiryDate(0)
        .build();

    private License license;

    // This field describes the version of x-pack for which this cluster has exercised a trial. If the field
    // is null, then no trial has been exercised. We keep the version to leave open the possibility that we
    // may eventually allow a cluster to exercise a trial every time they upgrade to a new major version.
    @Nullable
    private Version trialVersion;

    LicensesMetaData(License license, Version trialVersion) {
        this.license = license;
        this.trialVersion = trialVersion;
    }

```



```

}

public License getLicense() {
    return license;
}

boolean isEligibleForTrial() {
    if (trialVersion == null) {
        return true;
    }
    return Version.CURRENT.major > trialVersion.major;
}

Version getMostRecentTrialVersion() {
    return trialVersion;
}

@Override
public String toString() {
    return "LicensesMetaData{" +
        "license=" + license +
        ", trialVersion=" + trialVersion +
        '}';
}

@Override
public boolean equals(Object o) {
    if (this == o) return true;
    if (o == null || getClass() != o.getClass()) return false;

    LicensesMetaData that = (LicensesMetaData) o;

    if (license != null ? !license.equals(that.license) : that.license != null) return false;
    return trialVersion != null ? trialVersion.equals(that.trialVersion) : that.trialVersion == null;
}

@Override
public int hashCode() {
    int result = license != null ? license.hashCode() : 0;
    result = 31 * result + (trialVersion != null ? trialVersion.hashCode() : 0);
    return result;
}

@Override
public String getWriteableName() {
    return TYPE;
}

```

```

@Override
public Version getMinimalSupportedVersion() {
    return Version.CURRENT.minimumCompatibilityVersion();
}

@Override
public EnumSet<MetaData.XContentContext> context() {
    return EnumSet.of(MetaData.XContentContext.GATEWAY);
}

public static LicensesMetaData fromXContent(XContentParser parser) throws IOException {
    License license = LICENSE_TOMBSTONE;
    Version trialLicense = null;
    XContentParser.Token token;
    while ((token = parser.nextToken()) != XContentParser.Token.END_OBJECT) {
        if (token == XContentParser.Token.FIELD_NAME) {
            String fieldName = parser.currentName();
            if (fieldName != null) {
                if (fieldName.equals(Fields.LICENSE)) {
                    token = parser.nextToken();
                    if (token == XContentParser.Token.START_OBJECT) {
                        license = License.fromXContent(parser);
                    } else if (token == XContentParser.Token.VALUE_NULL) {
                        license = LICENSE_TOMBSTONE;
                    }
                } else if (fieldName.equals(Fields.TRIAL_LICENSE)) {
                    parser.nextToken();
                    trialLicense = Version.fromString(parser.text());
                }
            }
        }
    }
    return new LicensesMetaData(license, trialLicense);
}

@Override
public XContentBuilder toXContent(XContentBuilder builder, Params params) throws IOException {
    if (license == LICENSE_TOMBSTONE) {
        builder.nullField(Fields.LICENSE);
    } else {
        builder.startObject(Fields.LICENSE);
        license.toInnerXContent(builder, params);
        builder.endObject();
    }
    if (trialVersion != null) {
        builder.field(Fields.TRIAL_LICENSE, trialVersion.toString());
    }
    return builder;
}

```

```

}

@Override
public void writeTo(StreamOutput streamOutput) throws IOException {
    if (license == LICENSE_TOMBSTONE) {
        streamOutput.writeBoolean(false); // no license
    } else {
        streamOutput.writeBoolean(true); // has a license
        license.writeTo(streamOutput);
    }
    if (streamOutput.getVersion().onOrAfter(Version.V_6_1_0)) {
        if (trialVersion == null) {
            streamOutput.writeBoolean(false);
        } else {
            streamOutput.writeBoolean(true);
            Version.writeVersion(trialVersion, streamOutput);
        }
    }
}

public LicensesMetaData(StreamInput streamInput) throws IOException {
    if (streamInput.readBoolean()) {
        license = License.readLicense(streamInput);
    } else {
        license = LICENSE_TOMBSTONE;
    }
    if (streamInput.getVersion().onOrAfter(Version.V_6_1_0)) {
        boolean hasExercisedTrial = streamInput.readBoolean();
        if (hasExercisedTrial) {
            this.trialVersion = Version.readVersion(streamInput);
        }
    }
}

public static NamedDiff<MetaData.Custom> readDiffFrom(StreamInput streamInput) throws IOException {
    return readDiffFrom(MetaData.Custom.class, TYPE, streamInput);
}

public static License extractLicense(LicensesMetaData licensesMetaData) {
    if (licensesMetaData != null) {
        License license = licensesMetaData.getLicense();
        if (license == LicensesMetaData.LICENSE_TOMBSTONE) {
            return null;
        } else {
            return license;
        }
    }
    return null;
}

```

```

}

@Override
public LicensesMetaData merge(LicensesMetaData other) {
    if (other.license == null) {
        return this;
    } else if (license == null
        || OperationMode.compare(other.license.operationMode(), license.operationMode()) > 0) {
        return other;
    }
    return this;
}

private static final class Fields {
    private static final String LICENSE = "license";
    private static final String TRIAL_LICENSE = "trial_license";
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.rest.RestController;
import org.elasticsearch.rest.RestController;
import org.elasticsearch.rest.RestController;
import org.elasticsearch.rest.action.RestToXContentListener;
import org.elasticsearch.xpack.core.XPackClient;
import org.elasticsearch.xpack.core.rest.XPackRestHandler;

import java.io.IOException;

import static org.elasticsearch.rest.RestController.Method.DELETE;

public class RestDeleteLicenseAction extends XPackRestHandler {
    public RestDeleteLicenseAction(Settings settings, RestController controller) {
        super(settings);
        // @deprecated Remove deprecations in 6.0
        controller.registerWithDeprecatedHandler(DELETE, URI_BASE + "/license", this,
            DELETE, "/_license", deprecationLogger);

        // Remove _licenses support entirely in 6.0
        controller.registerAsDeprecatedHandler(DELETE, "/_licenses", this,
            "[DELETE /_licenses] is deprecated! Use " +
            "[DELETE /_xpack/license] instead.",
            deprecationLogger);
    }
}

```

```

    }

    @Override
    public String getName() {
        return "xpack_delete_license_action";
    }

    @Override
    public RestChannelConsumer doPrepareRequest(final RestRequest request, final XPackClient client) throws
    IOException {
        DeleteLicenseRequest deleteLicenseRequest = new DeleteLicenseRequest();
        deleteLicenseRequest.timeout(request.paramAsTime("timeout", deleteLicenseRequest.timeout()));
        deleteLicenseRequest.masterNodeTimeout(request.paramAsTime("master_timeout",
deleteLicenseRequest.masterNodeTimeout()));

        return channel -> client.es().admin().cluster().execute(DeleteLicenseAction.INSTANCE, deleteLicenseRequest,
            new RestToXContentListener<>(channel));
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.Action;
import org.elasticsearch.client.ElasticsearchClient;

public class PutLicenseAction extends Action<PutLicenseRequest, PutLicenseResponse,
PutLicenseRequestBuilder> {

    public static final PutLicenseAction INSTANCE = new PutLicenseAction();
    public static final String NAME = "cluster:admin/xpack/license/put";

    private PutLicenseAction() {
        super(NAME);
    }

    @Override
    public PutLicenseResponse newResponse() {
        return new PutLicenseResponse();
    }

    @Override
    public PutLicenseRequestBuilder newRequestBuilder(ElasticsearchClient client) {
        return new PutLicenseRequestBuilder(client, this);
    }
}

```

```

}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionRequestValidationException;
import org.elasticsearch.action.support.master.MasterNodeReadRequest;
import org.elasticsearch.common.io.stream.StreamInput;

import java.io.IOException;

public class GetBasicStatusRequest extends MasterNodeReadRequest<GetBasicStatusRequest> {

    public GetBasicStatusRequest() {
    }

    @Override
    public ActionRequestValidationException validate() {
        return null;
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.Action;
import org.elasticsearch.client.ElasticsearchClient;

public class GetTrialStatusAction extends Action<GetTrialStatusRequest, GetTrialStatusResponse,
GetTrialStatusRequestBuilder> {

    public static final GetTrialStatusAction INSTANCE = new GetTrialStatusAction();
    public static final String NAME = "cluster:admin/xpack/license/trial_status";

    private GetTrialStatusAction() {
        super(NAME);
    }

    @Override
    public GetTrialStatusRequestBuilder newRequestBuilder(ElasticsearchClient client) {
        return new GetTrialStatusRequestBuilder(client, this);
    }
}

```

```

@Override
public GetTrialStatusResponse newResponse() {
    return new GetTrialStatusResponse();
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionListener;
import org.elasticsearch.action.support.ActionFilters;
import org.elasticsearch.action.support.master.TransportMasterNodeReadAction;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.block.ClusterBlockException;
import org.elasticsearch.cluster.block.ClusterBlockLevel;
import org.elasticsearch.cluster.metadata.IndexNameExpressionResolver;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.common.inject.Inject;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.threadpool.ThreadPool;
import org.elasticsearch.transport.TransportService;

public class TransportGetBasicStatusAction extends TransportMasterNodeReadAction<GetBasicStatusRequest,
GetBasicStatusResponse> {

    @Inject
    public TransportGetBasicStatusAction(Settings settings, TransportService transportService, ClusterService
clusterService,

        ThreadPool threadPool, ActionFilters actionFilters,
        IndexNameExpressionResolver indexNameExpressionResolver) {
        super(settings, GetBasicStatusAction.NAME, transportService, clusterService, threadPool, actionFilters,
            indexNameExpressionResolver, GetBasicStatusRequest::new);
    }

    @Override
    protected String executor() {
        return ThreadPool.Names.SAME;
    }

    @Override
    protected GetBasicStatusResponse newResponse() {
        return new GetBasicStatusResponse();
    }
}

```

```

@Override
protected void masterOperation(GetBasicStatusRequest request, ClusterState state,
    ActionListener<GetBasicStatusResponse> listener) throws Exception {
    LicensesMetaData licensesMetaData = state.metaData().custom(LicensesMetaData.TYPE);
    if (licensesMetaData == null) {
        listener.onResponse(new GetBasicStatusResponse(true));
    } else {
        License license = licensesMetaData.getLicense();
        listener.onResponse(new GetBasicStatusResponse(license == null || license.type().equals("basic") == false));
    }
}

@Override
protected ClusterBlockException checkBlock(GetBasicStatusRequest request, ClusterState state) {
    return state.blocks().globalBlockedException(ClusterBlockLevel.METADATA_READ);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionListener;
import org.elasticsearch.action.support.ActionFilters;
import org.elasticsearch.action.support.master.TransportMasterNodeAction;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.block.ClusterBlockException;
import org.elasticsearch.cluster.block.ClusterBlockLevel;
import org.elasticsearch.cluster.metadata.IndexNameExpressionResolver;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.common.inject.Inject;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.threadpool.ThreadPool;
import org.elasticsearch.transport.TransportService;

public class TransportPostStartBasicAction extends TransportMasterNodeAction<PostStartBasicRequest,
    PostStartBasicResponse> {

    private final LicenseService licenseService;

    @Inject
    public TransportPostStartBasicAction(Settings settings, TransportService transportService, ClusterService
        clusterService,
        LicenseService licenseService, ThreadPool threadPool, ActionFilters actionFilters,
        IndexNameExpressionResolver indexNameExpressionResolver) {

```



```

        super(settings, PostStartBasicAction.NAME, transportService, clusterService, threadPool, actionFilters,
            indexNameExpressionResolver, PostStartBasicRequest::new);
        this.licenseService = licenseService;
    }

    @Override
    protected String executor() {
        return ThreadPool.Names.SAME;
    }

    @Override
    protected PostStartBasicResponse newResponse() {
        return new PostStartBasicResponse();
    }

    @Override
    protected void masterOperation(PostStartBasicRequest request, ClusterState state,
        ActionListener<PostStartBasicResponse> listener) throws Exception {
        licenseService.startBasicLicense(request, listener);
    }

    @Override
    protected ClusterBlockException checkBlock(PostStartBasicRequest request, ClusterState state) {
        return state.blocks().globalBlockedException(ClusterBlockLevel.METADATA_WRITE);
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.rest.BytesRestResponse;
import org.elasticsearch.rest.RestController;
import org.elasticsearch.rest.RestRequest;
import org.elasticsearch.rest.RestResponse;
import org.elasticsearch.rest.RestStatus;
import org.elasticsearch.rest.action.RestBuilderListener;
import org.elasticsearch.xpack.core.XPackClient;
import org.elasticsearch.xpack.core.rest.XPackRestHandler;

import java.io.IOException;

import static org.elasticsearch.rest.RestRequest.Method.GET;

```

```

public class RestGetTrialStatus extends XPackRestHandler {

    RestGetTrialStatus(Settings settings, RestController controller) {
        super(settings);
        controller.registerHandler(GET, URI_BASE + "/license/trial_status", this);
    }

    @Override
    protected RestChannelConsumer doPrepareRequest(RestRequest request, XPackClient client) throws IOException
    {
        return channel -> client.licensing().prepareGetStartTrial().execute(
            new RestBuilderListener<GetTrialStatusResponse>(channel) {
                @Override
                public RestResponse buildResponse(GetTrialStatusResponse response, XContentBuilder builder) throws
                Exception {
                    builder.startObject();
                    builder.field("eligible_to_start_trial", response.isEligibleToStartTrial());
                    builder.endObject();
                    return new BytesRestResponse(RestStatus.OK, builder);
                }
            });
    }

    @Override
    public String getName() {
        return "xpack_trial_status_action";
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.Action;
import org.elasticsearch.client.ElasticsearchClient;

public class DeleteLicenseAction extends Action<DeleteLicenseRequest, DeleteLicenseResponse,
DeleteLicenseRequestBuilder> {

    public static final DeleteLicenseAction INSTANCE = new DeleteLicenseAction();
    public static final String NAME = "cluster:admin/xpack/license/delete";

    private DeleteLicenseAction() {
        super(NAME);
    }
}

```

```

@Override
public DeleteLicenseResponse newResponse() {
    return new DeleteLicenseResponse();
}

@Override
public DeleteLicenseRequestBuilder newRequestBuilder(ElasticsearchClient client) {
    return new DeleteLicenseRequestBuilder(client, this);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionRequestValidationException;
import org.elasticsearch.action.support.master.MasterNodeReadRequest;
import org.elasticsearch.common.io.stream.StreamInput;

import java.io.IOException;

public class GetTrialStatusRequest extends MasterNodeReadRequest<GetTrialStatusRequest> {

    public GetTrialStatusRequest() {
    }

    @Override
    public ActionRequestValidationException validate() {
        return null;
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.apache.lucene.util.BytesRef;
import org.apache.lucene.util.BytesRefIterator;
import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.common.xcontent.XContentFactory;
import org.elasticsearch.common.xcontent.XContentType;
import org.elasticsearch.core.internal.io.Streams;

```

```

import java.io.ByteArrayOutputStream;
import java.io.IOException;
import java.io.InputStream;
import java.nio.ByteBuffer;
import java.security.InvalidKeyException;
import java.security.NoSuchAlgorithmException;
import java.security.Signature;
import java.security.SignatureException;
import java.util.Arrays;
import java.util.Base64;
import java.util.Collections;

/**
 * Responsible for verifying signed licenses
 */
public class LicenseVerifier {

    /**
     * verifies the license content with the signature using the packaged
     * public key
     * @param license to verify
     * @return true if valid, false otherwise
     */
    public static boolean verifyLicense(final License license, byte[] encryptedPublicKeyData) {
        byte[] signedContent = null;
        byte[] signatureHash = null;
        try {
            byte[] signatureBytes = Base64.getDecoder().decode(license.signature());
            ByteBuffer byteBuffer = ByteBuffer.wrap(signatureBytes);
            int version = byteBuffer.getInt();
            int magicLen = byteBuffer.getInt();
            byte[] magic = new byte[magicLen];
            byteBuffer.get(magic);
            int hashLen = byteBuffer.getInt();
            signatureHash = new byte[hashLen];
            byteBuffer.get(signatureHash);
            int signedContentLen = byteBuffer.getInt();
            signedContent = new byte[signedContentLen];
            byteBuffer.get(signedContent);
            XContentBuilder contentBuilder = XContentFactory.contentBuilder(XContentType.JSON);
            license.toXContent(contentBuilder, new
ToXContent.MapParams(Collections.singletonMap(License.LICENSE_SPEC_VIEW_MODE, "true")));
            Signature rsa = Signature.getInstance("SHA512withRSA");
            rsa.initVerify(CryptUtils.readEncryptedPublicKey(encryptedPublicKeyData));
            BytesRefIterator iterator = BytesReference.bytes(contentBuilder).iterator();
            BytesRef ref;
            while((ref = iterator.next()) != null) {

```

```

        rsa.update(ref.bytes, ref.offset, ref.length);
    }
    return rsa.verify(signedContent)
        && Arrays.equals(Base64.getEncoder().encode(encryptedPublicKeyData), signatureHash);
} catch (IOException | NoSuchAlgorithmException | SignatureException | InvalidKeyException e) {
    throw new IllegalStateException(e);
} finally {
    Arrays.fill(encryptedPublicKeyData, (byte) 0);
    if (signedContent != null) {
        Arrays.fill(signedContent, (byte) 0);
    }
    if (signatureHash != null) {
        Arrays.fill(signatureHash, (byte) 0);
    }
}
}
}

```

```

public static boolean verifyLicense(final License license) {
    final byte[] publicKeyBytes;
    try (InputStream is = LicenseVerifier.class.getResourceAsStream("/public.key")) {
        ByteArrayOutputStream out = new ByteArrayOutputStream();
        Streams.copy(is, out);
        publicKeyBytes = out.toByteArray();
    } catch (IOException ex) {
        throw new IllegalStateException(ex);
    }
    return verifyLicense(license, publicKeyBytes);
}
}

```

```

/*

```

```

 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.

```

```

*/

```

```

package org.elasticsearch.license;

```

```

import org.apache.logging.log4j.Logger;
import org.apache.logging.log4j.message.ParameterizedMessage;
import org.elasticsearch.Version;
import org.elasticsearch.action.ActionListener;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.ClusterStateUpdateTask;
import org.elasticsearch.cluster.metadata.Metadata;
import org.elasticsearch.common.Nullable;
import org.elasticsearch.xpack.core.XPackPlugin;

```

```

import java.time.Clock;
import java.util.Collections;

```

```

import java.util.Map;
import java.util.UUID;
import java.util.concurrent.atomic.AtomicReference;

public class StartBasicClusterTask extends ClusterStateUpdateTask {

    private static final String ACKNOWLEDGEMENT_HEADER = "This license update requires acknowledgement.
To acknowledge the license, " +
        "please read the following messages and call /start_basic again, this time with the \"acknowledge=true\"
parameter:";

    private final Logger logger;
    private final String clusterName;
    private final PostStartBasicRequest request;
    private final ActionListener<PostStartBasicResponse> listener;
    private final Clock clock;
    private AtomicReference<Map<String, String[]>> ackMessages = new
AtomicReference<>(Collections.emptyMap());

    StartBasicClusterTask(Logger logger, String clusterName, Clock clock, PostStartBasicRequest request,
        ActionListener<PostStartBasicResponse> listener) {
        this.logger = logger;
        this.clusterName = clusterName;
        this.request = request;
        this.listener = listener;
        this.clock = clock;
    }

    @Override
    public void clusterStateProcessed(String source, ClusterState oldState, ClusterState newState) {
        LicensesMetaData oldLicensesMetaData = oldState.metaData().custom(LicensesMetaData.TYPE);
        logger.debug("license prior to starting basic license: {}", oldLicensesMetaData);
        License oldLicense = LicensesMetaData.extractLicense(oldLicensesMetaData);
        Map<String, String[]> acknowledgeMessages = ackMessages.get();
        if (acknowledgeMessages.isEmpty() == false) {
            listener.onResponse(new
PostStartBasicResponse(PostStartBasicResponse.Status.NEED_ACKNOWLEDGEMENT, acknowledgeMessages,
                ACKNOWLEDGEMENT_HEADER));
        } else if (oldLicense != null && oldLicense.type().equals("basic")) {
            listener.onResponse(new
PostStartBasicResponse(PostStartBasicResponse.Status.ALREADY_USING_BASIC));
        } else {
            listener.onResponse(new PostStartBasicResponse(PostStartBasicResponse.Status.GENERATED_BASIC));
        }
    }

    @Override
    public ClusterState execute(ClusterState currentState) throws Exception {

```

```

XPackPlugin.checkReadyForXPackCustomMetadata(currentState);
LicensesMetaData licensesMetaData = currentState.metaData().custom(LicensesMetaData.TYPE);
License currentLicense = LicensesMetaData.extractLicense(licensesMetaData);
if (currentLicense == null || currentLicense.type().equals("basic") == false) {
    long issueDate = clock.millis();
    Metadata.Builder mdBuilder = Metadata.builder(currentState.metaData());
    License.Builder specBuilder = License.builder()
        .uid(UUID.randomUUID().toString())
        .issuedTo(clusterName)
        .maxNodes(LicenseService.SELF_GENERATED_LICENSE_MAX_NODES)
        .issueDate(issueDate)
        .type("basic")
        .expiryDate(LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS);
    License selfGeneratedLicense = SelfGeneratedLicense.create(specBuilder);
    if (request.isAcknowledged() == false && currentLicense != null) {
        Map<String, String[]> ackMessages = LicenseService.getAckMessages(selfGeneratedLicense,
currentLicense);
        if (ackMessages.isEmpty() == false) {
            this.ackMessages.set(ackMessages);
            return currentState;
        }
    }
    Version trialVersion = null;
    if (licensesMetaData != null) {
        trialVersion = licensesMetaData.getMostRecentTrialVersion();
    }
    LicensesMetaData newLicensesMetaData = new LicensesMetaData(selfGeneratedLicense, trialVersion);
    mdBuilder.putCustom(LicensesMetaData.TYPE, newLicensesMetaData);
    return ClusterState.builder(currentState).metaData(mdBuilder).build();
} else {
    return currentState;
}
}
}

```

@Override

```

public void onFailure(String source, @Nullable Exception e) {
    logger.error(new ParameterizedMessage("unexpected failure during [{ }]", source), e);
    listener.onFailure(e);
}
}

```

/\*

```

* Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
* or more contributor license agreements. Licensed under the Elastic License;
* you may not use this file except in compliance with the Elastic License.
*/

```

\*/

```

package org.elasticsearch.license;

```

```

import org.elasticsearch.common.Strings;

```

```

import org.elasticsearch.common.logging.LoggerMessageFormat;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.license.License.OperationMode;
import org.elasticsearch.xpack.core.XPackField;
import org.elasticsearch.xpack.core.XPackSettings;
import org.elasticsearch.xpack.core.monitoring.MonitoringField;

import java.util.Collections;
import java.util.LinkedHashMap;
import java.util.List;
import java.util.Map;
import java.util.Objects;
import java.util.concurrent.CopyOnWriteArrayList;
import java.util.function.BiFunction;

/**
 * A holder for the current state of the license for all xpack features.
 */
public class XPackLicenseState {

    /** Messages for each feature which are printed when the license expires. */
    static final Map<String, String[]> EXPIRATION_MESSAGES;
    static {
        Map<String, String[]> messages = new LinkedHashMap<>();
        messages.put(XPackField.SECURITY, new String[] {
            "Cluster health, cluster stats and indices stats operations are blocked",
            "All data operations (read and write) continue to work"
        });
        messages.put(XPackField.WATCHER, new String[] {
            "PUT / GET watch APIs are disabled, DELETE watch API continues to work",
            "Watches execute and write to the history",
            "The actions of the watches don't execute"
        });
        messages.put(XPackField.MONITORING, new String[] {
            "The agent will stop collecting cluster and indices metrics",
            "The agent will stop automatically cleaning indices older than [xpack.monitoring.history.duration]"
        });
        messages.put(XPackField.GRAPH, new String[] {
            "Graph explore APIs are disabled"
        });
        messages.put(XPackField.MACHINE_LEARNING, new String[] {
            "Machine learning APIs are disabled"
        });
        messages.put(XPackField.LOGSTASH, new String[] {
            "Logstash will continue to poll centrally-managed pipelines"
        });
        messages.put(XPackField.DEPRECATATION, new String[] {
            "Deprecation APIs are disabled"
        });
    }
}

```



```

});
messages.put(XPackField.UPGRADE, new String[] {
    "Upgrade API is disabled"
});
messages.put(XPackField.SQL, new String[] {
    "SQL support is disabled"
});
messages.put(XPackField.ROLLUP, new String[] {
    "Creating and Starting rollup jobs will no longer be allowed.",
    "Stopping/Deleting existing jobs, RollupCaps API and RollupSearch continue to function."
});
EXPIRATION_MESSAGES = Collections.unmodifiableMap(messages);
}

/**
 * Messages for each feature which are printed when the license type changes.
 * The value is a function taking the old and new license type, and returns the messages for that feature.
 */
static final Map<String, BiFunction<OperationMode, OperationMode, String[]>>
ACKNOWLEDGMENT_MESSAGES;
static {
    Map<String, BiFunction<OperationMode, OperationMode, String[]>> messages = new LinkedHashMap<>();
    messages.put(XPackField.SECURITY, XPackLicenseState::securityAcknowledgementMessages);
    messages.put(XPackField.WATCHER, XPackLicenseState::watcherAcknowledgementMessages);
    messages.put(XPackField.MONITORING, XPackLicenseState::monitoringAcknowledgementMessages);
    messages.put(XPackField.GRAPH, XPackLicenseState::graphAcknowledgementMessages);
    messages.put(XPackField.MACHINE_LEARNING,
XPackLicenseState::machineLearningAcknowledgementMessages);
    messages.put(XPackField.LOGSTASH, XPackLicenseState::logstashAcknowledgementMessages);
    messages.put(XPackField.SQL, XPackLicenseState::sqlAcknowledgementMessages);
    ACKNOWLEDGMENT_MESSAGES = Collections.unmodifiableMap(messages);
}

private static String[] securityAcknowledgementMessages(OperationMode currentMode, OperationMode
newMode) {
    switch (newMode) {
        case BASIC:
            switch (currentMode) {
                case TRIAL:
                case STANDARD:
                case GOLD:
                case PLATINUM:
                    return new String[] {
                        "The following X-Pack security functionality will be disabled: authentication, authorization, " +
                            "ip filtering, and auditing. Please restart your node after applying the license.",
                        "Field and document level access control will be disabled.",
                        "Custom realms will be ignored."
                    };
            }
    }
}

```

```

    }
    break;
case GOLD:
    switch (currentMode) {
        case BASIC:
        case STANDARD:
            // ^^ though technically it was already disabled, it's not bad to remind them
        case TRIAL:
        case PLATINUM:
            return new String[] {
                "Field and document level access control will be disabled.",
                "Custom realms will be ignored."
            };
    }
    break;
case STANDARD:
    switch (currentMode) {
        case BASIC:
            // ^^ though technically it was already disabled, it's not bad to remind them
        case GOLD:
        case PLATINUM:
        case TRIAL:
            return new String[] {
                "Authentication will be limited to the native realms.",
                "IP filtering and auditing will be disabled.",
                "Field and document level access control will be disabled.",
                "Custom realms will be ignored."
            };
    }
}
return Strings.EMPTY_ARRAY;
}

private static String[] watcherAcknowledgementMessages(OperationMode currentMode, OperationMode
newMode) {
    switch (newMode) {
        case BASIC:
            switch (currentMode) {
                case TRIAL:
                case STANDARD:
                case GOLD:
                case PLATINUM:
                    return new String[] { "Watcher will be disabled" };
            }
        break;
    }
    return Strings.EMPTY_ARRAY;
}

```

```

private static String[] monitoringAcknowledgementMessages(OperationMode currentMode, OperationMode
newMode) {
    switch (newMode) {
        case BASIC:
            switch (currentMode) {
                case TRIAL:
                case STANDARD:
                case GOLD:
                case PLATINUM:
                    return new String[] {
                        LoggerMessageFormat.format(
                            "Multi-cluster support is disabled for clusters with [{}] license. If you are\n" +
                            "running multiple clusters, users won't be able to access the clusters with\n" +
                            "[{}] licenses from within a single X-Pack Kibana instance. You will have to deploy a\n" +
                            "separate and dedicated X-pack Kibana instance for each [{}] cluster you wish to monitor.",
                            newMode, newMode, newMode),
                        LoggerMessageFormat.format(
                            "Automatic index cleanup is locked to {} days for clusters with [{}] license.",
                            MonitoringField.HISTORY_DURATION.getDefault(Settings.EMPTY).days(), newMode)
                    };
                }
            }
        break;
    }
    return Strings.EMPTY_ARRAY;
}

```

```

private static String[] graphAcknowledgementMessages(OperationMode currentMode, OperationMode newMode)
{
    switch (newMode) {
        case BASIC:
        case STANDARD:
        case GOLD:
            switch (currentMode) {
                case TRIAL:
                case PLATINUM:
                    return new String[] { "Graph will be disabled" };
            }
        break;
    }
    return Strings.EMPTY_ARRAY;
}

```

```

private static String[] machineLearningAcknowledgementMessages(OperationMode currentMode,
OperationMode newMode) {
    switch (newMode) {
        case BASIC:
        case STANDARD:

```

```

    case GOLD:
        switch (currentMode) {
            case TRIAL:
            case PLATINUM:
                return new String[] { "Machine learning will be disabled" };
            }
        break;
    }
    return Strings.EMPTY_ARRAY;
}

private static String[] logstashAcknowledgementMessages(OperationMode currentMode, OperationMode
newMode) {
    switch (newMode) {
        case BASIC:
            switch (currentMode) {
                case TRIAL:
                case STANDARD:
                case GOLD:
                case PLATINUM:
                    return new String[] { "Logstash will no longer poll for centrally-managed pipelines" };
                }
            break;
        }
    return Strings.EMPTY_ARRAY;
}

private static String[] sqlAcknowledgementMessages(OperationMode currentMode, OperationMode newMode) {
    switch (newMode) {
        case BASIC:
        case STANDARD:
        case GOLD:
            switch (currentMode) {
                case TRIAL:
                case PLATINUM:
                    return new String[] { "JDBC support will be disabled, but you can continue to use SQL CLI and
REST endpoint" };
                }
            break;
        }
    return Strings.EMPTY_ARRAY;
}

/** A wrapper for the license mode and state, to allow atomically swapping. */
private static class Status {

    /** The current "mode" of the license (ie license type). */
    final OperationMode mode;
}

```

```

    /** True if the license is active, or false if it is expired. */
    final boolean active;

    Status(OperationMode mode, boolean active) {
        this.mode = mode;
        this.active = active;
    }
}

private volatile Status status = new Status(OperationMode.TRIAL, true);
private final List<Runnable> listeners = new CopyOnWriteArrayList<>();
private final boolean isSecurityEnabled;
private final boolean isSecurityExplicitlyEnabled;

public XPackLicenseState(Settings settings) {
    this.isSecurityEnabled = XPackSettings.SECURITY_ENABLED.get(settings);
    // 6.0+ requires TLS for production licenses, so if TLS is enabled and security is enabled
    // we can interpret this as an explicit enabling of security if the security enabled
    // setting is not explicitly set
    this.isSecurityExplicitlyEnabled = isSecurityEnabled &&
        (settings.hasValue(XPackSettings.SECURITY_ENABLED.getKey()) ||
XPackSettings.TRANSPORT_SSL_ENABLED.get(settings));
}

/** Updates the current state of the license, which will change what features are available. */
void update(OperationMode mode, boolean active) {
    status = new Status(mode, active);
    listeners.forEach(Runnable::run);
}

/** Add a listener to be notified on license change */
public void addListener(Runnable runnable) {
    listeners.add(Objects.requireNonNull(runnable));
}

/** Remove a listener */
public void removeListener(Runnable runnable) {
    listeners.remove(runnable);
}

/** Return the current license type. */
public OperationMode getOperationMode() {
    return status.mode;
}

/** Return true if the license is currently within its time boundaries, false otherwise. */
public boolean isActive() {

```

```

        return status.active;
    }

/**
 * @return true if authentication and authorization should be enabled. this does not indicate what realms are
available
 * @see #allowedRealmType() for the enabled realms
 */
public boolean isAuthAllowed() {
    OperationMode mode = status.mode;
    return mode == OperationMode.STANDARD || mode == OperationMode.GOLD || mode ==
OperationMode.PLATINUM
        || mode == OperationMode.TRIAL;
}

/**
 * @return true if IP filtering should be enabled
 */
public boolean isIpFilteringAllowed() {
    OperationMode mode = status.mode;
    return mode == OperationMode.GOLD || mode == OperationMode.PLATINUM
        || mode == OperationMode.TRIAL;
}

/**
 * @return true if auditing should be enabled
 */
public boolean isAuditingAllowed() {
    OperationMode mode = status.mode;
    return mode == OperationMode.GOLD || mode == OperationMode.PLATINUM
        || mode == OperationMode.TRIAL;
}

/**
 * Indicates whether the stats and health API calls should be allowed. If a license is expired and past the grace
 * period then we deny these calls.
 *
 * @return true if the license allows for the stats and health APIs to be used.
 */
public boolean isStatsAndHealthAllowed() {
    return status.active;
}

/**
 * Determine if Document Level Security (DLS) and Field Level Security (FLS) should be enabled.
 * <p>
 * DLS and FLS are only disabled when the mode is not:
 * <ul>

```

```

* <li>{@link OperationMode#PLATINUM}</li>
* <li>{@link OperationMode#TRIAL}</li>
* </ul>
* Note: This does not consider the <em>state</em> of the license so that Security does not suddenly leak
information!
*
* @return {@code true} to enable DLS and FLS. Otherwise {@code false}.
*/
public boolean isDocumentAndFieldLevelSecurityAllowed() {
    OperationMode mode = status.mode;
    return mode == OperationMode.TRIAL || mode == OperationMode.PLATINUM;
}

/** Classes of realms that may be available based on the license type. */
public enum AllowedRealmType {
    NONE,
    NATIVE,
    DEFAULT,
    ALL
}

/**
 * @return the type of realms that are enabled based on the license {@link OperationMode}
 */
public AllowedRealmType allowedRealmType() {
    switch (status.mode) {
        case PLATINUM:
        case TRIAL:
            return AllowedRealmType.ALL;
        case GOLD:
            return AllowedRealmType.DEFAULT;
        case STANDARD:
            return AllowedRealmType.NATIVE;
        default:
            return AllowedRealmType.NONE;
    }
}

/**
 * @return whether custom role providers are allowed based on the license {@link OperationMode}
 */
public boolean isCustomRoleProvidersAllowed() {
    final Status localStatus = status;
    return (localStatus.mode == OperationMode.PLATINUM || localStatus.mode == OperationMode.TRIAL )
        && localStatus.active;
}

/**

```

```

* Determine if Watcher is available based on the current license.
* <p>
* Watcher is available if the license is active (hasn't expired) and of one of the following types:
* <ul>
* <li>{ @link OperationMode#STANDARD}</li>
* <li>{ @link OperationMode#PLATINUM}</li>
* <li>{ @link OperationMode#GOLD}</li>
* <li>{ @link OperationMode#TRIAL}</li>
* </ul>
*
* @return { @code true } as long as the license is valid. Otherwise { @code false }.
*/
public boolean isWatcherAllowed() {
    // status is volatile, so a local variable is used for a consistent view
    Status localStatus = status;

    if (localStatus.active == false) {
        return false;
    }

    switch (localStatus.mode) {
        case TRIAL:
        case GOLD:
        case PLATINUM:
        case STANDARD:
            return true;
        default:
            return false;
    }
}

/**
* Monitoring is always available as long as there is a valid license
*
* @return true if the license is active
*/
public boolean isMonitoringAllowed() {
    return status.active;
}

/**
* Monitoring Cluster Alerts requires the equivalent license to use Watcher.
*
* @return { @link #isWatcherAllowed()}
* @see #isWatcherAllowed()
*/
public boolean isMonitoringClusterAlertsAllowed() {
    return isWatcherAllowed();
}

```



```

}

/**
 * Determine if the current license allows the retention of indices to be modified.
 * <p>
 * Only users with a non-{@link OperationMode#BASIC} license can update the retention period.
 * <p>
 * Note: This does not consider the <em>state</em> of the license so that any change is remembered for when
they fix their license.
 *
 * @return {@code true} if the user is allowed to modify the retention. Otherwise {@code false}.
 */
public boolean isUpdateRetentionAllowed() {
    final OperationMode mode = status.mode;
    return mode != OperationMode.BASIC && mode != OperationMode.MISSING;
}

/**
 * Determine if Graph Exploration should be enabled.
 * <p>
 * Exploration is only disabled when the license has expired or if the mode is not:
 * <ul>
 * <li>{@link OperationMode#PLATINUM}</li>
 * <li>{@link OperationMode#TRIAL}</li>
 * </ul>
 *
 * @return {@code true} as long as the license is valid. Otherwise {@code false}.
 */
public boolean isGraphAllowed() {
    // status is volatile
    Status localStatus = status;
    OperationMode operationMode = localStatus.mode;

    boolean licensed = operationMode == OperationMode.TRIAL || operationMode ==
OperationMode.PLATINUM;

    return licensed && localStatus.active;
}

/**
 * Determine if Machine Learning should be enabled.
 * <p>
 * Machine Learning is only disabled when the license has expired or if the
 * mode is not:
 * <ul>
 * <li>{@link OperationMode#PLATINUM}</li>
 * <li>{@link OperationMode#TRIAL}</li>
 * </ul>

```

```

*
* @return {@code true} as long as the license is valid. Otherwise
*     {@code false}.
*/
public boolean isMachineLearningAllowed() {
    // status is volatile
    Status localStatus = status;
    OperationMode operationMode = localStatus.mode;

    boolean licensed = operationMode == OperationMode.TRIAL || operationMode ==
OperationMode.PLATINUM;

    return licensed && localStatus.active;
}

/**
 * Rollup is always available as long as there is a valid license
 *
 * @return true if the license is active
 */
public boolean isRollupAllowed() {
    return status.active;
}

/**
 * Logstash is allowed as long as there is an active license of type TRIAL, STANDARD, GOLD or PLATINUM
 * @return {@code true} as long as there is a valid license
 */
public boolean isLogstashAllowed() {
    Status localStatus = status;

    if (localStatus.active == false) {
        return false;
    }

    switch (localStatus.mode) {
        case TRIAL:
        case GOLD:
        case PLATINUM:
        case STANDARD:
            return true;
        default:
            return false;
    }
}

/**
 * Deprecation APIs are always allowed as long as there is an active license

```

```

* @return {@code true} as long as there is a valid license
*/
public boolean isDeprecationAllowed() {
    return status.active;
}

/**
 * Determine if Upgrade API should be enabled.
 * <p>
 * Upgrade API is not available in for all license types except {@link OperationMode#MISSING}
 *
 * @return {@code true} as long as the license is valid. Otherwise
 *         {@code false}.
 */
public boolean isUpgradeAllowed() {
    // status is volatile
    Status localStatus = status;
    // Should work on all active licenses
    return localStatus.active;
}

/**
 * Determine if SQL support should be enabled.
 * <p>
 * SQL is available for all license types except {@link OperationMode#MISSING}
 */
public boolean isSqlAllowed() {
    return status.active;
}

/**
 * Determine if JDBC support should be enabled.
 * <p>
 * JDBC is available only in for {@link OperationMode#PLATINUM} and {@link OperationMode#TRIAL}
licences
 */
public boolean isJdbcAllowed() {
    // status is volatile
    Status localStatus = status;
    OperationMode operationMode = localStatus.mode;

    boolean licensed = operationMode == OperationMode.TRIAL || operationMode ==
OperationMode.PLATINUM;

    return licensed && localStatus.active;
}

public boolean isTrialLicense() {

```

```

        return status.mode == OperationMode.TRIAL;
    }

    public boolean isSecurityAvailable() {
        OperationMode mode = status.mode;
        return mode == OperationMode.GOLD || mode == OperationMode.PLATINUM || mode ==
OperationMode.STANDARD ||
            mode == OperationMode.TRIAL;
    }

    public boolean isSecurityEnabled() {
        final OperationMode mode = status.mode;
        return mode == OperationMode.TRIAL ? isSecurityExplicitlyEnabled : isSecurityEnabled;
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.support.master.AcknowledgedResponse;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;

import java.io.IOException;

public class DeleteLicenseResponse extends AcknowledgedResponse {

    DeleteLicenseResponse() {
    }

    DeleteLicenseResponse(boolean acknowledged) {
        super(acknowledged);
    }

    @Override
    public void readFrom(StreamInput in) throws IOException {
        super.readFrom(in);
        readAcknowledged(in);
    }

    @Override
    public void writeTo(StreamOutput out) throws IOException {
        super.writeTo(out);
        writeAcknowledged(out);
    }
}

```

```

}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.support.master.AcknowledgedResponse;
import org.elasticsearch.common.Strings;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;
import org.elasticsearch.common.xcontent.XContentBuilder;

import java.io.IOException;
import java.util.Collections;
import java.util.HashMap;
import java.util.Map;

public class PutLicenseResponse extends AcknowledgedResponse {

    private LicensesStatus status;
    private Map<String, String[]> acknowledgeMessages;
    private String acknowledgeHeader;

    PutLicenseResponse() {
    }

    public PutLicenseResponse(boolean acknowledged, LicensesStatus status) {
        this(acknowledged, status, null, Collections.<String, String[]>emptyMap());
    }

    public PutLicenseResponse(boolean acknowledged, LicensesStatus status, String acknowledgeHeader,
        Map<String, String[]> acknowledgeMessages) {
        super(acknowledged);
        this.status = status;
        this.acknowledgeHeader = acknowledgeHeader;
        this.acknowledgeMessages = acknowledgeMessages;
    }

    public LicensesStatus status() {
        return status;
    }

    public Map<String, String[]> acknowledgeMessages() {
        return acknowledgeMessages;
    }
}

```

```

public String acknowledgeHeader() {
    return acknowledgeHeader;
}

```

@Override

```

public void readFrom(StreamInput in) throws IOException {
    super.readFrom(in);
    readAcknowledged(in);
    status = LicensesStatus.fromId(in.readVInt());
    acknowledgeHeader = in.readOptionalString();
    int size = in.readVInt();
    Map<String, String[]> acknowledgeMessages = new HashMap<>(size);
    for (int i = 0; i < size; i++) {
        String feature = in.readString();
        int nMessages = in.readVInt();
        String[] messages = new String[nMessages];
        for (int j = 0; j < nMessages; j++) {
            messages[j] = in.readString();
        }
        acknowledgeMessages.put(feature, messages);
    }
    this.acknowledgeMessages = acknowledgeMessages;
}

```

@Override

```

public void writeTo(StreamOutput out) throws IOException {
    super.writeTo(out);
    writeAcknowledged(out);
    out.writeVInt(status.id());
    out.writeOptionalString(acknowledgeHeader);
    out.writeVInt(acknowledgeMessages.size());
    for (Map.Entry<String, String[]> entry : acknowledgeMessages.entrySet()) {
        out.writeString(entry.getKey());
        out.writeVInt(entry.getValue().length);
        for (String message : entry.getValue()) {
            out.writeString(message);
        }
    }
}

```

@Override

```

protected void addCustomFields(XContentBuilder builder, Params params) throws IOException {
    switch (status) {
        case VALID:
            builder.field("license_status", "valid");
            break;
        case INVALID:

```

```

        builder.field("license_status", "invalid");
        break;
    case EXPIRED:
        builder.field("license_status", "expired");
        break;
    default:
        throw new IllegalArgumentException("unknown status [" + status + "] found");
    }
    if (!acknowledgeMessages.isEmpty()) {
        builder.startObject("acknowledge");
        builder.field("message", acknowledgeHeader);
        for (Map.Entry<String, String[]> entry : acknowledgeMessages.entrySet()) {
            builder.startArray(entry.getKey());
            for (String message : entry.getValue()) {
                builder.value(message);
            }
            builder.endArray();
        }
        builder.endObject();
    }
}

@Override
public String toString() {
    return Strings.toString(this, true, true);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionRequestBuilder;
import org.elasticsearch.client.ElasticsearchClient;

class PostStartTrialRequestBuilder extends ActionRequestBuilder<PostStartTrialRequest,
    PostStartTrialResponse, PostStartTrialRequestBuilder> {

    PostStartTrialRequestBuilder(ElasticsearchClient client, PostStartTrialAction action) {
        super(client, action, new PostStartTrialRequest());
    }

    public PostStartTrialRequestBuilder setAcknowledge(boolean acknowledge) {
        request.acknowledge(acknowledge);
        return this;
    }
}

```

```

}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.ElasticsearchException;
import org.elasticsearch.action.ActionListener;
import org.elasticsearch.action.support.ActionFilters;
import org.elasticsearch.action.support.master.TransportMasterNodeAction;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.ack.ClusterStateUpdateResponse;
import org.elasticsearch.cluster.block.ClusterBlockException;
import org.elasticsearch.cluster.block.ClusterBlockLevel;
import org.elasticsearch.cluster.metadata.IndexNameExpressionResolver;
import org.elasticsearch.common.inject.Inject;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.threadpool.ThreadPool;
import org.elasticsearch.transport.TransportService;

public class TransportDeleteLicenseAction extends TransportMasterNodeAction<DeleteLicenseRequest,
DeleteLicenseResponse> {

    private final LicenseService licenseService;

    @Inject
    public TransportDeleteLicenseAction(Settings settings, TransportService transportService, ClusterService
clusterService,
                                     LicenseService licenseService, ThreadPool threadPool, ActionFilters actionFilters,
                                     IndexNameExpressionResolver indexNameExpressionResolver) {
        super(settings, DeleteLicenseAction.NAME, transportService, clusterService, threadPool, actionFilters,
            indexNameExpressionResolver, DeleteLicenseRequest::new);
        this.licenseService = licenseService;
    }

    @Override
    protected String executor() {
        return ThreadPool.Names.MANAGEMENT;
    }

    @Override
    protected DeleteLicenseResponse newResponse() {
        return new DeleteLicenseResponse();
    }
}

```



```

@Override
protected ClusterBlockException checkBlock(DeleteLicenseRequest request, ClusterState state) {
    return state.blocks().globalBlockedException(ClusterBlockLevel.METADATA_WRITE);
}

@Override
protected void masterOperation(final DeleteLicenseRequest request, ClusterState state, final
ActionListener<DeleteLicenseResponse>
    listener) throws ElasticsearchException {
    licenseService.removeLicense(request, new ActionListener<ClusterStateUpdateResponse>() {
        @Override
        public void onResponse(ClusterStateUpdateResponse clusterStateUpdateResponse) {
            listener.onResponse(new DeleteLicenseResponse(clusterStateUpdateResponse.isAcknowledged()));
        }

        @Override
        public void onFailure(Exception e) {
            listener.onFailure(e);
        }
    });
}
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.apache.logging.log4j.Logger;
import org.apache.logging.log4j.message.ParameterizedMessage;
import org.apache.logging.log4j.util.Supplier;
import org.apache.lucene.util.BytesRef;
import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.license.License.OperationMode;
import org.elasticsearch.watcher.FileChangesListener;
import org.elasticsearch.watcher.FileWatcher;
import org.elasticsearch.watcher.ResourceWatcherService;

import java.io.IOException;
import java.nio.charset.StandardCharsets;
import java.nio.file.Files;
import java.nio.file.Path;
import java.util.concurrent.atomic.AtomicBoolean;

/**
 * File based watcher for license { @link OperationMode }

```

```

* Watches for changes in <code>licenseModePath</code>, use
* {@link #getCurrentOperationMode()} to access the latest mode
*
* In case of failure to read a valid operation mode from <code>licenseModePath</code>,
* the operation mode will default to PLATINUM
*/
public final class OperationModeFileWatcher implements FileChangeListener {
    private final ResourceWatcherService resourceWatcherService;
    private final Path licenseModePath;
    private final AtomicBoolean initialized = new AtomicBoolean();
    private final OperationMode defaultOperationMode = OperationMode.PLATINUM;
    private volatile OperationMode currentOperationMode = defaultOperationMode;
    private final Logger logger;
    private final Runnable onChange;

    public OperationModeFileWatcher(ResourceWatcherService resourceWatcherService, Path licenseModePath,
        Logger logger, Runnable onChange) {
        this.resourceWatcherService = resourceWatcherService;
        this.licenseModePath = licenseModePath;
        this.logger = logger;
        this.onChange = onChange;
    }

    public void init() {
        if (initialized.compareAndSet(false, true)) {
            final FileWatcher watcher = new FileWatcher(licenseModePath);
            watcher.addListener(this);
            try {
                resourceWatcherService.add(watcher, ResourceWatcherService.Frequency.HIGH);
                if (Files.exists(licenseModePath)) {
                    onChange(licenseModePath);
                }
            } catch (IOException e) {
                logger.error("couldn't initialize watching license mode file", e);
            }
        }
    }

    /**
     * Returns the current operation mode based on license mode file.
     * Defaults to {@link OperationMode#PLATINUM}
     */
    public OperationMode getCurrentOperationMode() {
        return currentOperationMode;
    }

    @Override
    public void onFileInit(Path file) {

```

```

    onChange(file);
}

@Override
public void onFileCreated(Path file) {
    onChange(file);
}

@Override
public void onFileDeleted(Path file) {
    onChange(file);
}

@Override
public void onFileChanged(Path file) {
    onChange(file);
}

private synchronized void onChange(Path file) {
    if (file.equals(licenseModePath)) {
        OperationMode newOperationMode = defaultOperationMode;
        try {
            if (Files.exists(licenseModePath)
                && Files.isReadable(licenseModePath)) {
                final byte[] content;
                try {
                    content = Files.readAllBytes(licenseModePath);
                } catch (IOException e) {
                    logger.error(
                        (Supplier<?>) () -> new ParameterizedMessage(
                            "couldn't read operation mode from [{}]", licenseModePath.toAbsolutePath()), e);
                    return;
                }
                // this UTF-8 conversion is much pickier than java String
                final String operationMode = new BytesRef(content).utf8ToString();
                try {
                    newOperationMode = OperationMode.resolve(operationMode);
                } catch (IllegalArgumentException e) {
                    logger.error(
                        (Supplier<?>) () -> new ParameterizedMessage(
                            "invalid operation mode in [{}]", licenseModePath.toAbsolutePath()), e);
                    return;
                }
            }
        } finally {
            // set this after the fact to prevent that we are jumping back and forth first setting to default and then
            // reading the
            // actual op mode resetting it.

```

```

        this.currentOperationMode = newOperationMode;
    }
    onChange.run();
}
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionRequestBuilder;
import org.elasticsearch.client.ElasticsearchClient;

class GetTrialStatusRequestBuilder extends ActionRequestBuilder<GetTrialStatusRequest,
    GetTrialStatusResponse, GetTrialStatusRequestBuilder> {

    GetTrialStatusRequestBuilder(ElasticsearchClient client, GetTrialStatusAction action) {
        super(client, action, new GetTrialStatusRequest());
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionRequestValidationException;
import org.elasticsearch.action.ValidateActions;
import org.elasticsearch.action.support.master.AcknowledgedRequest;
import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;
import org.elasticsearch.common.xcontent.XContentType;

import java.io.IOException;

public class PutLicenseRequest extends AcknowledgedRequest<PutLicenseRequest> {

    private License license;
    private boolean acknowledge = false;

    public PutLicenseRequest() {
}

```

```

@Override
public ActionRequestValidationException validate() {
    return (license == null) ? ValidateActions.addValidationError("license is missing", null) : null;
}

/**
 * Parses license from json format to an instance of { @link License }
 *
 * @param licenseDefinition licenses definition
 * @param xContentType the content type of the license
 */
public PutLicenseRequest license(BytesReference licenseDefinition, XContentType xContentType) {
    try {
        return license(License.fromSource(licenseDefinition, xContentType));
    } catch (IOException e) {
        throw new IllegalArgumentException("failed to parse license source", e);
    }
}

public PutLicenseRequest license(License license) {
    this.license = license;
    return this;
}

public License license() {
    return license;
}

public PutLicenseRequest acknowledge(boolean acknowledge) {
    this.acknowledge = acknowledge;
    return this;
}

public boolean acknowledged() {
    return acknowledge;
}

@Override
public void readFrom(StreamInput in) throws IOException {
    super.readFrom(in);
    license = License.readLicense(in);
    acknowledge = in.readBoolean();
}

@Override
public void writeTo(StreamOutput out) throws IOException {
    super.writeTo(out);
}

```

```

        license.writeTo(out);
        out.writeBoolean(acknowledge);
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.common.xcontent.LoggingDeprecationHandler;
import org.elasticsearch.common.xcontent.NamedXContentRegistry;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.common.xcontent.XContentFactory;
import org.elasticsearch.common.xcontent.XContentParser;
import org.elasticsearch.common.xcontent.XContentType;

import java.io.IOException;
import java.nio.ByteBuffer;
import java.util.Base64;
import java.util.Collections;

import static org.elasticsearch.license.CryptUtils.decrypt;
import static org.elasticsearch.license.CryptUtils.encrypt;

class SelfGeneratedLicense {

    public static License create(License.Builder specBuilder) {
        License spec = specBuilder
            .issuer("elasticsearch")
            .version(License.VERSION_CURRENT)
            .build();
        final String signature;
        try {
            XContentBuilder contentBuilder = XContentFactory.contentBuilder(XContentType.JSON);
            spec.toXContent(contentBuilder, new
ToXContent.MapParams(Collections.singletonMap(License.LICENSE_SPEC_VIEW_MODE, "true")));
            byte[] encrypt = encrypt(BytesReference.toBytes(BytesReference.bytes(contentBuilder)));
            byte[] bytes = new byte[4 + 4 + encrypt.length];
            ByteBuffer byteBuffer = ByteBuffer.wrap(bytes);
            // always generate license version -VERSION_CURRENT
            byteBuffer.putInt(-License.VERSION_CURRENT)
                .putInt(encrypt.length)
                .put(encrypt);
            signature = Base64.getEncoder().encodeToString(bytes);

```

```

    } catch (IOException e) {
        throw new IllegalStateException(e);
    }
    return License.builder().fromLicenseSpec(spec, signature).build();
}

public static boolean verify(final License license) {
    try {
        byte[] signatureBytes = Base64.getDecoder().decode(license.signature());
        ByteBuffer byteBuffer = ByteBuffer.wrap(signatureBytes);
        int version = byteBuffer.getInt();
        int contentLen = byteBuffer.getInt();
        byte[] content = new byte[contentLen];
        byteBuffer.get(content);
        final License expectedLicense;
        // EMPTY is safe here because we don't call namedObject
        try (XContentParser parser = XContentFactory.xContent(XContentType.JSON)
            .createParser(NamedXContentRegistry.EMPTY, LoggingDeprecationHandler.INSTANCE,
decrypt(content))) {
            parser.nextToken();
            expectedLicense = License.builder().fromLicenseSpec(License.fromXContent(parser),
                license.signature().version(-version).build());
        }
        return license.equals(expectedLicense);
    } catch (IOException e) {
        throw new IllegalStateException(e);
    }
}

public static boolean validSelfGeneratedType(String type) {
    return "basic".equals(type) || "trial".equals(type);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.rest.BytesRestResponse;
import org.elasticsearch.rest.RestController;
import org.elasticsearch.rest.RestRequest;
import org.elasticsearch.rest.RestResponse;
import org.elasticsearch.rest.action.RestBuilderListener;
import org.elasticsearch.xpack.core.XPackClient;

```

```

import org.elasticsearch.xpack.core.rest.XPackRestHandler;

import java.io.IOException;
import java.util.Map;

import static org.elasticsearch.rest.RestRequest.Method.POST;

public class RestPostStartTrialLicense extends XPackRestHandler {

    RestPostStartTrialLicense(Settings settings, RestController controller) {
        super(settings);
        controller.registerHandler(POST, URI_BASE + "/license/start_trial", this);
    }

    @Override
    protected RestChannelConsumer doPrepareRequest(RestRequest request, XPackClient client) throws IOException
    {
        PostStartTrialRequest startTrialRequest = new PostStartTrialRequest();
        startTrialRequest.setType(request.param("type", "trial"));
        startTrialRequest.acknowledge(request.paramAsBoolean("acknowledge", false));
        return channel -> client.licensing().postStartTrial(startTrialRequest,
            new RestBuilderListener<PostStartTrialResponse>(channel) {
                @Override
                public RestResponse buildResponse(PostStartTrialResponse response, XContentBuilder builder) throws
                Exception {
                    PostStartTrialResponse.Status status = response.getStatus();
                    builder.startObject();
                    builder.field("acknowledged", startTrialRequest.isAcknowledged());
                    if (status.isTrialStarted()) {
                        builder.field("trial_was_started", true);
                        builder.field("type", startTrialRequest.getType());
                    } else {
                        builder.field("trial_was_started", false);
                        builder.field("error_message", status.getErrorMessage());
                    }

                    Map<String, String[]> acknowledgementMessages = response.getAcknowledgementMessages();
                    if (acknowledgementMessages.isEmpty() == false) {
                        builder.startObject("acknowledge");
                        builder.field("message", response.getAcknowledgementMessage());
                        for (Map.Entry<String, String[]> entry : acknowledgementMessages.entrySet()) {
                            builder.startArray(entry.getKey());
                            for (String message : entry.getValue()) {
                                builder.value(message);
                            }
                            builder.endArray();
                        }
                        builder.endObject();
                    }
                }
            }
        );
    }
}

```



```

        }
        builder.endObject();
        return new BytesRestResponse(status.getRestStatus(), builder);
    }
});
}

@Override
public String getName() {
    return "xpack_upgrade_to_trial_action";
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.ElasticsearchException;
import org.elasticsearch.action.ActionListener;
import org.elasticsearch.action.support.ActionFilters;
import org.elasticsearch.action.support.master.TransportMasterNodeReadAction;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.block.ClusterBlockException;
import org.elasticsearch.cluster.block.ClusterBlockLevel;
import org.elasticsearch.cluster.metadata.IndexNameExpressionResolver;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.common.inject.Inject;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.threadpool.ThreadPool;
import org.elasticsearch.transport.TransportService;

public class TransportGetLicenseAction extends TransportMasterNodeReadAction<GetLicenseRequest,
GetLicenseResponse> {

    private final LicenseService licenseService;

    @Inject
    public TransportGetLicenseAction(Settings settings, TransportService transportService, ClusterService
clusterService,
                                   LicenseService licenseService, ThreadPool threadPool, ActionFilters actionFilters,
                                   IndexNameExpressionResolver indexNameExpressionResolver) {
        super(settings, GetLicenseAction.NAME, transportService, clusterService, threadPool, actionFilters,
indexNameExpressionResolver,
              GetLicenseRequest::new);
        this.licenseService = licenseService;
    }
}

```

```

@Override
protected String executor() {
    return ThreadPool.Names.MANAGEMENT;
}

@Override
protected GetLicenseResponse newResponse() {
    return new GetLicenseResponse();
}

@Override
protected ClusterBlockException checkBlock(GetLicenseRequest request, ClusterState state) {
    return state.blocks().globalBlockedException(ClusterBlockLevel.METADATA_READ);
}

@Override
protected void masterOperation(final GetLicenseRequest request, ClusterState state,
    final ActionListener<GetLicenseResponse> listener) throws ElasticsearchException {
    listener.onResponse(new GetLicenseResponse(licenseService.getLicense()));
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.rest.BytesRestResponse;
import org.elasticsearch.rest.RestController;
import org.elasticsearch.rest.RestRequest;
import org.elasticsearch.rest.RestResponse;
import org.elasticsearch.rest.action.RestBuilderListener;
import org.elasticsearch.xpack.core.XPackClient;
import org.elasticsearch.xpack.core.rest.XPackRestHandler;

import java.io.IOException;

import static org.elasticsearch.rest.RestRequest.Method.POST;

public class RestPostStartBasicLicense extends XPackRestHandler {

    RestPostStartBasicLicense(Settings settings, RestController controller) {
        super(settings);
    }

```

```

        controller.registerHandler(POST, URI_BASE + "/license/start_basic", this);
    }

    @Override
    protected RestChannelConsumer doPrepareRequest(RestRequest request, XPackClient client) throws IOException
    {
        PostStartBasicRequest startBasicRequest = new PostStartBasicRequest();
        startBasicRequest.acknowledge(request.paramAsBoolean("acknowledge", false));
        startBasicRequest.timeout(request.paramAsTime("timeout", startBasicRequest.timeout()));
        startBasicRequest.masterNodeTimeout(request.paramAsTime("master_timeout",
startBasicRequest.masterNodeTimeout()));
        return channel -> client.licensing().postStartBasic(startBasicRequest, new
RestBuilderListener<PostStartBasicResponse>(channel) {
            @Override
            public RestResponse buildResponse(PostStartBasicResponse response, XContentBuilder builder) throws
Exception {
                PostStartBasicResponse.Status status = response.getStatus();
                response.toXContent(builder, ToXContent.EMPTY_PARAMS);
                return new BytesRestResponse(status.getRestStatus(), builder);
            }
        });
    }

    @Override
    public String getName() {
        return "xpack_start_basic_action";
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import java.io.IOException;
import java.io.InputStream;
import java.nio.ByteBuffer;
import java.util.ArrayList;
import java.util.Base64;
import java.util.Comparator;
import java.util.List;
import java.util.Locale;

import org.apache.lucene.util.CollectionUtil;
import org.elasticsearch.ElasticsearchException;
import org.elasticsearch.ElasticsearchParseException;
import org.elasticsearch.common.Strings;

```

```

import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;
import org.elasticsearch.common.xcontent.LoggingDeprecationHandler;
import org.elasticsearch.common.xcontent.NamedXContentRegistry;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.ToXContentObject;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.common.xcontent.XContentFactory;
import org.elasticsearch.common.xcontent.XContentParser;
import org.elasticsearch.common.xcontent.XContentType;

/**
 * Data structure for license. Use { @link Builder} to build a license.
 * Provides serialization/deserialization & validation methods for license object
 */
public class License implements ToXContentObject {
    public static final int VERSION_START = 1;
    public static final int VERSION_NO_FEATURE_TYPE = 2;
    public static final int VERSION_START_DATE = 3;
    public static final int VERSION_CURRENT = VERSION_START_DATE;

    /**
     * XContent param name to deserialize license(s) with
     * an additional <code>status</code> field, indicating whether a
     * particular license is 'active' or 'expired' and no signature
     * and in a human readable format
     */
    public static final String REST_VIEW_MODE = "rest_view";
    /**
     * XContent param name to deserialize license(s) with
     * no signature
     */
    public static final String LICENSE_SPEC_VIEW_MODE = "license_spec_view";
    /**
     * XContent param name to deserialize licenses according
     * to a specific license version
     */
    public static final String LICENSE_VERSION_MODE = "license_version";

    public static final Comparator<License> LATEST_ISSUE_DATE_FIRST =
    Comparator.comparing(License::issueDate).reversed();

    private final int version;
    private final String uid;
    private final String issuer;
    private final String issuedTo;
    private final long issueDate;

```

```

private final String type;
private final String subscriptionType;
private final String feature;
private final String signature;
private final long expiryDate;
private final long startDate;
private final int maxNodes;
private final OperationMode operationMode;

/**
 * Decouples operation mode of a license from the license type value.
 * <p>
 * Note: The mode indicates features that should be made available, but it does not indicate whether the license is
active!
 *
 * The id byte is used for ordering operation modes (used for merging license md in tribe node)
 */
public enum OperationMode {
    MISSING((byte) 0),
    TRIAL((byte) 1),
    BASIC((byte) 2),
    STANDARD((byte) 3),
    GOLD((byte) 4),
    PLATINUM((byte) 5);

    private final byte id;

    OperationMode(byte id) {
        this.id = id;
    }

    /** Returns non-zero positive number when <code>opMode1</code> is greater than <code>opMode2</code>
 */
    public static int compare(OperationMode opMode1, OperationMode opMode2) {
        return Integer.compare(opMode1.id, opMode2.id);
    }

    public static OperationMode resolve(String type) {
        switch (type.toLowerCase(Locale.ROOT)) {
            case "missing":
                return MISSING;
            case "trial":
            case "none": // bwc for 1.x subscription_type field
            case "dev": // bwc for 1.x subscription_type field
            case "development": // bwc for 1.x subscription_type field
                return TRIAL;
            case "basic":
                return BASIC;

```

```

        case "standard":
            return STANDARD;
        case "silver":
        case "gold":
            return GOLD;
        case "platinum":
        case "cloud_internal":
        case "internal": // bwc for 1.x subscription_type field
            return PLATINUM;
        default:
            throw new IllegalArgumentException("unknown type [" + type + "]");
    }
}
}

private License(int version, String uid, String issuer, String issuedTo, long issueDate, String type,
                String subscriptionType, String feature, String signature, long expiryDate, int maxNodes, long startDate)
{
    this.version = version;
    this.uid = uid;
    this.issuer = issuer;
    this.issuedTo = issuedTo;
    this.issueDate = issueDate;
    this.type = type;
    this.subscriptionType = subscriptionType;
    this.feature = feature;
    this.signature = signature;
    // We will validate that only a basic license can have the
BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS
    // in the validate() method.
    if (expiryDate == -1) {
        this.expiryDate = LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS;
    } else {
        this.expiryDate = expiryDate;
    }
    this.maxNodes = maxNodes;
    this.startDate = startDate;
    if (version == VERSION_START) {
        // in 1.x: the acceptable values for 'subscription_type': none | dev | silver | gold | platinum
        this.operationMode = OperationMode.resolve(subscriptionType);
    } else {
        // in 2.x: the acceptable values for 'type': trial | basic | silver | dev | gold | platinum
        this.operationMode = OperationMode.resolve(type);
    }
    validate();
}

/**

```

```

* @return version of the license
*/
public int version() {
    return version;
}

/**
* @return a unique identifier for a license
*/
public String uid() {
    return uid;
}

/**
* @return type of the license [trial, subscription, internal]
*/
public String type() {
    return type;
}

/**
* @return the issueDate in milliseconds
*/
public long issueDate() {
    return issueDate;
}

/**
* @return the startDate in milliseconds
*/
public long startDate() {
    return startDate;
}

/**
* @return the expiry date in milliseconds
*/
public long expiryDate() {
    return expiryDate;
}

/**
* @return the maximum number of nodes this license has been issued for
*/
public int maxNodes() {
    return maxNodes;
}

```

```

/**
 * @return a string representing the entity this licenses has been issued to
 */
public String issuedTo() {
    return issuedTo;
}

/**
 * @return a string representing the entity responsible for issuing this license (internal)
 */
public String issuer() {
    return issuer;
}

/**
 * @return a string representing the signature of the license used for license verification
 */
public String signature() {
    return signature;
}

/**
 * @return the operation mode of the license as computed from the license type or from
 * the license mode file
 */
public OperationMode operationMode() {
    synchronized (this) {
        if (canReadOperationModeFromFile() && operationModeFileWatcher != null) {
            return operationModeFileWatcher.getCurrentOperationMode();
        }
    }
    return operationMode;
}

private boolean canReadOperationModeFromFile() {
    return type.equals("cloud_internal");
}

private volatile OperationModeFileWatcher operationModeFileWatcher;

/**
 * Sets the operation mode file watcher for the license and initializes the
 * file watcher when the license type allows to override operation mode from file
 */
public synchronized void setOperationModeFileWatcher(final OperationModeFileWatcher
operationModeFileWatcher) {
    this.operationModeFileWatcher = operationModeFileWatcher;
    if (canReadOperationModeFromFile()) {

```



```

        this.operationModeFileWatcher.init();
    }
}

/**
 * Removes operation mode file watcher, so unused license objects can be gc'ed
 */
public synchronized void removeOperationModeFileWatcher() {
    this.operationModeFileWatcher = null;
}

/**
 * @return the current license's status
 */
public Status status() {
    long now = System.currentTimeMillis();
    if (issueDate > now) {
        return Status.INVALID;
    } else if (expiryDate < now) {
        return Status.EXPIRED;
    }
    return Status.ACTIVE;
}

private void validate() {
    if (issuer == null) {
        throw new IllegalStateException("issuer can not be null");
    } else if (issuedTo == null) {
        throw new IllegalStateException("issuedTo can not be null");
    } else if (issueDate == -1) {
        throw new IllegalStateException("issueDate has to be set");
    } else if (type == null) {
        throw new IllegalStateException("type can not be null");
    } else if (subscriptionType == null && version == VERSION_START) {
        throw new IllegalStateException("subscriptionType can not be null");
    } else if (uid == null) {
        throw new IllegalStateException("uid can not be null");
    } else if (feature == null && version == VERSION_START) {
        throw new IllegalStateException("feature can not be null");
    } else if (maxNodes == -1) {
        throw new IllegalStateException("maxNodes has to be set");
    } else if (expiryDate == -1) {
        throw new IllegalStateException("expiryDate has to be set");
    } else if (expiryDate == LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS
&& "basic".equals(type) == false) {
        throw new IllegalStateException("only basic licenses are allowed to have no expiration");
    }
}
}

```

```

public static License readLicense(StreamInput in) throws IOException {
    int version = in.readVInt(); // Version for future extensibility
    if (version > VERSION_CURRENT) {
        throw new ElasticsearchException("Unknown license version found, please upgrade all nodes to the latest
elasticsearch-license" +
            " plugin");
    }
    Builder builder = builder();
    builder.version(version);
    builder.uid(in.readString());
    builder.type(in.readString());
    if (version == VERSION_START) {
        builder.subscriptionType(in.readString());
    }
    builder.issueDate(in.readLong());
    if (version == VERSION_START) {
        builder.feature(in.readString());
    }
    builder.expiryDate(in.readLong());
    builder.maxNodes(in.readInt());
    builder.issuedTo(in.readString());
    builder.issuer(in.readString());
    builder.signature(in.readOptionalString());
    if (version >= VERSION_START_DATE) {
        builder.startDate(in.readLong());
    }
    return builder.build();
}

```

```

public void writeTo(StreamOutput out) throws IOException {
    out.writeVInt(version);
    out.writeString(uid);
    out.writeString(type);
    if (version == VERSION_START) {
        out.writeString(subscriptionType);
    }
    out.writeLong(issueDate);
    if (version == VERSION_START) {
        out.writeString(feature);
    }
    out.writeLong(expiryDate);
    out.writeInt(maxNodes);
    out.writeString(issuedTo);
    out.writeString(issuer);
    out.writeOptionalString(signature);
    if (version >= VERSION_START_DATE) {
        out.writeLong(startDate);
    }
}

```

```

    }
}

@Override
public String toString() {
    try {
        final XContentBuilder builder = XContentFactory.jsonBuilder();
        toXContent(builder, ToXContent.EMPTY_PARAMS);
        return Strings.toString(builder);
    } catch (IOException e) {
        return "";
    }
}

@Override
public XContentBuilder toXContent(XContentBuilder builder, Params params) throws IOException {
    builder.startObject();
    toInnerXContent(builder, params);
    builder.endObject();
    return builder;
}

public XContentBuilder toInnerXContent(XContentBuilder builder, Params params) throws IOException {
    boolean licenseSpecMode = params.paramAsBoolean(LICENSE_SPEC_VIEW_MODE, false);
    boolean restViewMode = params.paramAsBoolean(REST_VIEW_MODE, false);
    boolean previouslyHumanReadable = builder.humanReadable();
    if (licenseSpecMode && restViewMode) {
        throw new IllegalArgumentException("can have either " + REST_VIEW_MODE + " or " +
LICENSE_SPEC_VIEW_MODE);
    } else if (restViewMode) {
        if (!previouslyHumanReadable) {
            builder.humanReadable(true);
        }
    }
    final int version;
    if (params.param(LICENSE_VERSION_MODE) != null && restViewMode) {
        version = Integer.parseInt(params.param(LICENSE_VERSION_MODE));
    } else {
        version = this.version;
    }
    if (restViewMode) {
        builder.field(Fields.STATUS, status().label());
    }
    builder.field(Fields.UID, uid);
    builder.field(Fields.TYPE, type);
    if (version == VERSION_START) {
        builder.field(Fields.SUBSCRIPTION_TYPE, subscriptionType);
    }
}

```

```

builder.timeField(Fields.ISSUE_DATE_IN_MILLIS, Fields.ISSUE_DATE, issueDate);
if (version == VERSION_START) {
    builder.field(Fields.FEATURE, feature);
}

if (expiryDate != LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS) {
    builder.timeField(Fields.EXPIRY_DATE_IN_MILLIS, Fields.EXPIRY_DATE, expiryDate);
}
builder.field(Fields.MAX_NODES, maxNodes);
builder.field(Fields.ISSUED_TO, issuedTo);
builder.field(Fields.ISSUER, issuer);
if (!licenseSpecMode && !restViewMode && signature != null) {
    builder.field(Fields.SIGNATURE, signature);
}
if (restViewMode) {
    builder.humanReadable(previouslyHumanReadable);
}
if (version >= VERSION_START_DATE) {
    builder.timeField(Fields.START_DATE_IN_MILLIS, Fields.START_DATE, startDate);
}
return builder;
}

public static License fromXContent(XContentParser parser) throws IOException {
    Builder builder = new Builder();
    XContentParser.Token token;
    while ((token = parser.nextToken()) != XContentParser.Token.END_OBJECT) {
        if (token == XContentParser.Token.FIELD_NAME) {
            String currentFieldName = parser.currentName();
            token = parser.nextToken();
            if (token.isValue()) {
                if (Fields.UID.equals(currentFieldName)) {
                    builder.uid(parser.text());
                } else if (Fields.TYPE.equals(currentFieldName)) {
                    builder.type(parser.text());
                } else if (Fields.SUBSCRIPTION_TYPE.equals(currentFieldName)) {
                    builder.subscriptionType(parser.text());
                } else if (Fields.ISSUE_DATE.equals(currentFieldName)) {
                    builder.issueDate(parseDate(parser, "issue", false));
                } else if (Fields.ISSUE_DATE_IN_MILLIS.equals(currentFieldName)) {
                    builder.issueDate(parser.longValue());
                } else if (Fields.FEATURE.equals(currentFieldName)) {
                    builder.feature(parser.text());
                } else if (Fields.EXPIRY_DATE.equals(currentFieldName)) {
                    builder.expiryDate(parseDate(parser, "expiration", true));
                } else if (Fields.EXPIRY_DATE_IN_MILLIS.equals(currentFieldName)) {
                    builder.expiryDate(parser.longValue());
                } else if (Fields.START_DATE.equals(currentFieldName)) {

```

```

        builder.startDate(parseDate(parser, "start", false));
    } else if (Fields.START_DATE_IN_MILLIS.equals(currentFieldName)) {
        builder.startDate(parser.longValue());
    } else if (Fields.MAX_NODES.equals(currentFieldName)) {
        builder.maxNodes(parser.intValue());
    } else if (Fields.ISSUED_TO.equals(currentFieldName)) {
        builder.issuedTo(parser.text());
    } else if (Fields.ISSUER.equals(currentFieldName)) {
        builder.issuer(parser.text());
    } else if (Fields.SIGNATURE.equals(currentFieldName)) {
        builder.signature(parser.text());
    } else if (Fields.VERSION.equals(currentFieldName)) {
        builder.version(parser.intValue());
    }
    // Ignore unknown elements - might be new version of license
} else if (token == XContentParser.Token.START_ARRAY) {
    // It was probably created by newer version - ignoring
    parser.skipChildren();
} else if (token == XContentParser.Token.START_OBJECT) {
    // It was probably created by newer version - ignoring
    parser.skipChildren();
}
}
}
// not a license spec
if (builder.signature != null) {
    byte[] signatureBytes = Base64.getDecoder().decode(builder.signature);
    ByteBuffer byteBuffer = ByteBuffer.wrap(signatureBytes);
    int version = byteBuffer.getInt();
    // we take the absolute version, because negative versions
    // mean that the license was generated by the cluster (see TrialLicense)
    // and positive version means that the license was signed
    if (version < 0) {
        version *= -1;
    }
    if (version == 0) {
        throw new ElasticsearchException("malformed signature for license [" + builder.uid + "]);
    } else if (version > VERSION_CURRENT) {
        throw new ElasticsearchException("Unknown license version found, please upgrade all nodes to the latest
" +
        "elasticsearch-license plugin");
    }
    // signature version is the source of truth
    builder.version(version);
}
return builder.build();
}

```

```

/**
 * Returns true if the license was auto-generated (by license plugin),
 * false otherwise
 */
public static boolean isAutoGeneratedLicense(String signature) {
    try {
        byte[] signatureBytes = Base64.getDecoder().decode(signature);
        ByteBuffer byteBuffer = ByteBuffer.wrap(signatureBytes);
        return byteBuffer.getInt() < 0;
    } catch (IllegalArgumentException e) {
        throw new IllegalStateException(e);
    }
}

public static License fromSource(BytesReference bytes, XContentType xContentType) throws IOException {
    if (bytes == null || bytes.length() == 0) {
        throw new ElasticsearchParseException("failed to parse license - no content provided");
    }
    if (xContentType == null) {
        throw new ElasticsearchParseException("failed to parse license - no content-type provided");
    }
    // EMPTY is safe here because we don't call namedObject
    try (InputStream byteStream = bytes.streamInput();
        XContentParser parser = xContentType.xContent()
            .createParser(NamedXContentRegistry.EMPTY, LoggingDeprecationHandler.INSTANCE, byteStream))
    {
        License license = null;
        if (parser.nextToken() == XContentParser.Token.START_OBJECT) {
            if (parser.nextToken() == XContentParser.Token.FIELD_NAME) {
                String currentFieldName = parser.currentName();
                if (Fields.LICENSES.equals(currentFieldName)) {
                    final List<License> pre20Licenses = new ArrayList<>();
                    if (parser.nextToken() == XContentParser.Token.START_ARRAY) {
                        while (parser.nextToken() != XContentParser.Token.END_ARRAY) {
                            pre20Licenses.add(License.fromXContent(parser));
                        }
                        // take the latest issued unexpired license
                        CollectionUtil.timSort(pre20Licenses, LATEST_ISSUE_DATE_FIRST);
                        long now = System.currentTimeMillis();
                        for (License oldLicense : pre20Licenses) {
                            if (oldLicense.expiryDate() > now) {
                                license = oldLicense;
                                break;
                            }
                        }
                    }
                    if (license == null && !pre20Licenses.isEmpty()) {
                        license = pre20Licenses.get(0);
                    }
                }
            }
        }
    }
}

```

```

        } else {
            throw new ElasticsearchParseException("failed to parse licenses expected an array of licenses");
        }
    } else if (Fields.LICENSE.equals(currentFieldName)) {
        license = License.fromXContent(parser);
    }
    // Ignore all other fields - might be created with new version
} else {
    throw new ElasticsearchParseException("failed to parse licenses expected field");
}
} else {
    throw new ElasticsearchParseException("failed to parse licenses expected start object");
}
return license;
}
}
}

```

@Override

```

public boolean equals(Object o) {
    if (this == o) return true;
    if (o == null || getClass() != o.getClass()) return false;

    License license = (License) o;

    if (issueDate != license.issueDate) return false;
    if (expiryDate != license.expiryDate) return false;
    if (startDate != license.startDate) return false;
    if (maxNodes != license.maxNodes) return false;
    if (version != license.version) return false;
    if (uid != null ? !uid.equals(license.uid) : license.uid != null) return false;
    if (issuer != null ? !issuer.equals(license.issuer) : license.issuer != null) return false;
    if (issuedTo != null ? !issuedTo.equals(license.issuedTo) : license.issuedTo != null) return false;
    if (type != null ? !type.equals(license.type) : license.type != null) return false;
    if (subscriptionType != null ? !subscriptionType.equals(license.subscriptionType) : license.subscriptionType !=
null)
        return false;
    if (feature != null ? !feature.equals(license.feature) : license.feature != null) return false;
    return !(signature != null ? !signature.equals(license.signature) : license.signature != null);
}

```

@Override

```

public int hashCode() {
    int result = uid != null ? uid.hashCode() : 0;
    result = 31 * result + (issuer != null ? issuer.hashCode() : 0);
    result = 31 * result + (issuedTo != null ? issuedTo.hashCode() : 0);
    result = 31 * result + (int) (issueDate ^ (issueDate >>> 32));
    result = 31 * result + (type != null ? type.hashCode() : 0);
}

```

```

result = 31 * result + (subscriptionType != null ? subscriptionType.hashCode() : 0);
result = 31 * result + (feature != null ? feature.hashCode() : 0);
result = 31 * result + (signature != null ? signature.hashCode() : 0);
result = 31 * result + (int) (expiryDate ^ (expiryDate >>> 32));
result = 31 * result + (int) (startDate ^ (startDate >>> 32));
result = 31 * result + maxNodes;
result = 31 * result + version;
return result;
}

public static final class Fields {
    public static final String STATUS = "status";
    public static final String UID = "uid";
    public static final String TYPE = "type";
    public static final String SUBSCRIPTION_TYPE = "subscription_type";
    public static final String ISSUE_DATE_IN_MILLIS = "issue_date_in_millis";
    public static final String ISSUE_DATE = "issue_date";
    public static final String FEATURE = "feature";
    public static final String EXPIRY_DATE_IN_MILLIS = "expiry_date_in_millis";
    public static final String EXPIRY_DATE = "expiry_date";
    public static final String START_DATE_IN_MILLIS = "start_date_in_millis";
    public static final String START_DATE = "start_date";
    public static final String MAX_NODES = "max_nodes";
    public static final String ISSUED_TO = "issued_to";
    public static final String ISSUER = "issuer";
    public static final String VERSION = "version";
    public static final String SIGNATURE = "signature";

    public static final String LICENSES = "licenses";
    public static final String LICENSE = "license";

}

private static long parseDate(XContentParser parser, String description, boolean endOfTheDay) throws
IOException {
    if (parser.currentToken() == XContentParser.Token.VALUE_NUMBER) {
        return parser.longValue();
    } else {
        try {
            if (endOfTheDay) {
                return DateUtils.endOfTheDay(parser.text());
            } else {
                return DateUtils.beginningOfTheDay(parser.text());
            }
        } catch (IllegalArgumentException ex) {
            throw new ElasticsearchParseException("invalid " + description + " date format " + parser.text());
        }
    }
}

```



```

}

public static Builder builder() {
    return new Builder();
}

public static class Builder {
    private int version = License.VERSION_CURRENT;
    private String uid;
    private String issuer;
    private String issuedTo;
    private long issueDate = -1;
    private String type;
    private String subscriptionType;
    private String feature;
    private String signature;
    private long expiryDate = -1;
    private long startDate = -1;
    private int maxNodes = -1;

    public Builder uid(String uid) {
        this.uid = uid;
        return this;
    }

    public Builder version(int version) {
        this.version = version;
        return this;
    }

    public Builder issuer(String issuer) {
        this.issuer = issuer;
        return this;
    }

    public Builder issuedTo(String issuedTo) {
        this.issuedTo = issuedTo;
        return this;
    }

    public Builder issueDate(long issueDate) {
        this.issueDate = issueDate;
        return this;
    }

    public Builder type(String type) {
        this.type = type;
        return this;
    }
}

```

```

    }

    public Builder subscriptionType(String subscriptionType) {
        this.subscriptionType = subscriptionType;
        return this;
    }

    public Builder feature(String feature) {
        this.feature = feature;
        return this;
    }

    public Builder expiryDate(long expiryDate) {
        this.expiryDate = expiryDate;
        return this;
    }

    public Builder maxNodes(int maxNodes) {
        this.maxNodes = maxNodes;
        return this;
    }

    public Builder signature(String signature) {
        if (signature != null) {
            this.signature = signature;
        }
        return this;
    }

    public Builder startDate(long startDate) {
        this.startDate = startDate;
        return this;
    }

    public Builder fromLicenseSpec(License license, String signature) {
        return uid(license.uid())
            .version(license.version())
            .issuedTo(license.issuedTo())
            .issueDate(license.issueDate())
            .startDate(license.startDate())
            .type(license.type())
            .subscriptionType(license.subscriptionType)
            .feature(license.feature)
            .maxNodes(license.maxNodes())
            .expiryDate(license.expiryDate())
            .issuer(license.issuer())
            .signature(signature);
    }
}

```

```

/**
 * Returns a builder that converts pre 2.0 licenses
 * to the new license format
 */
public Builder fromPre20LicenseSpec(License pre20License) {
    return uid(pre20License.uid())
        .issuedTo(pre20License.issuedTo())
        .issueDate(pre20License.issueDate())
        .maxNodes(pre20License.maxNodes())
        .expiryDate(pre20License.expiryDate());
}

public License build() {
    return new License(version, uid, issuer, issuedTo, issueDate, type,
        subscriptionType, feature, signature, expiryDate, maxNodes, startDate);
}

public Builder validate() {
    if (issuer == null) {
        throw new IllegalStateException("issuer can not be null");
    } else if (issuedTo == null) {
        throw new IllegalStateException("issuedTo can not be null");
    } else if (issueDate == -1) {
        throw new IllegalStateException("issueDate has to be set");
    } else if (type == null) {
        throw new IllegalStateException("type can not be null");
    } else if (uid == null) {
        throw new IllegalStateException("uid can not be null");
    } else if (signature == null) {
        throw new IllegalStateException("signature can not be null");
    } else if (maxNodes == -1) {
        throw new IllegalStateException("maxNodes has to be set");
    } else if (expiryDate == -1) {
        throw new IllegalStateException("expiryDate has to be set");
    }
    return this;
}

public enum Status {

    ACTIVE("active"),
    INVALID("invalid"),
    EXPIRED("expired");

    private final String label;
}

```

```

    Status(String label) {
        this.label = label;
    }

    public String label() {
        return label;
    }

    public void writeTo(StreamOutput out) throws IOException {
        out.writeString(label);
    }

    public static Status readFrom(StreamInput in) throws IOException {
        String value = in.readString();
        switch (value) {
            case "active":
                return ACTIVE;
            case "invalid":
                return INVALID;
            case "expired":
                return EXPIRED;
            default:
                throw new IllegalArgumentException("unknown license status [" + value + "]");
        }
    }
}

/**
 * Returns <code>>true</code> iff the license is a production license
 */
public boolean isProductionLicense() {
    switch (operationMode()) {
        case MISSING:
        case TRIAL:
        case BASIC:
            return false;
        case STANDARD:
        case GOLD:
        case PLATINUM:
            return true;
        default:
            throw new AssertionError("unknown operation mode: " + operationMode());
    }
}
}
}
}
/**
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one

```

\* or more contributor license agreements. Licensed under the Elastic License;

\* you may not use this file except in compliance with the Elastic License.

\*/

```
package org.elasticsearch.license;
```

```
import org.elasticsearch.common.settings.Settings;
```

```
import org.elasticsearch.rest.RestController;
```

```
import org.elasticsearch.rest.RestController;
```

```
import org.elasticsearch.rest.action.RestToXContentListener;
```

```
import org.elasticsearch.xpack.core.XPackClient;
```

```
import org.elasticsearch.xpack.core.rest.XPackRestHandler;
```

```
import java.io.IOException;
```

```
import static org.elasticsearch.rest.RestController.Method.POST;
```

```
import static org.elasticsearch.rest.RestController.Method.PUT;
```

```
public class RestPutLicenseAction extends XPackRestHandler {
```

```
    public RestPutLicenseAction(Settings settings, RestController controller) {
```

```
        super(settings);
```

```
        // @deprecated Remove deprecations in 6.0
```

```
        controller.registerWithDeprecatedHandler(POST, URI_BASE + "/license", this,  
            POST, "/_license", deprecationLogger);
```

```
        controller.registerWithDeprecatedHandler(PUT, URI_BASE + "/license", this,  
            PUT, "/_license", deprecationLogger);
```

```
        // Remove _licenses support entirely in 6.0
```

```
        controller.registerAsDeprecatedHandler(POST, "/_licenses", this,  
            "[POST /_licenses] is deprecated! Use " +  
            "[POST /_xpack/license] instead.",  
            deprecationLogger);
```

```
        controller.registerAsDeprecatedHandler(PUT, "/_licenses", this,  
            "[PUT /_licenses] is deprecated! Use " +  
            "[PUT /_xpack/license] instead.",  
            deprecationLogger);
```

```
    }
```

```
    @Override
```

```
    public String getName() {
```

```
        return "xpack_put_license_action";
```

```
    }
```

```
    @Override
```

```
    public RestChannelConsumer doPrepareRequest(final RestRequest request, final XPackClient client) throws  
    IOException {
```

```
        if (request.hasContent() == false) {
```

```
            throw new IllegalArgumentException("The license must be provided in the request body");
```

```
        }
```

```

PutLicenseRequest putLicenseRequest = new PutLicenseRequest();
putLicenseRequest.license(request.content(), request.getXContentType());
putLicenseRequest.acknowledge(request.paramAsBoolean("acknowledge", false));
putLicenseRequest.timeout(request.paramAsTime("timeout", putLicenseRequest.timeout()));
putLicenseRequest.masterNodeTimeout(request.paramAsTime("master_timeout",
putLicenseRequest.masterNodeTimeout()));

if ("basic".equals(putLicenseRequest.license().type())) {
    throw new IllegalArgumentException("Installing basic licenses is no longer allowed. Use the POST " +
        "_xpack/license/start_basic API to install a basic license that does not expire.");
}

return channel -> client.es().admin().cluster().execute(PutLicenseAction.INSTANCE, putLicenseRequest,
    new RestToXContentListener<>(channel));
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionResponse;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;

import java.io.IOException;

public class GetLicenseResponse extends ActionResponse {

    private License license;

    GetLicenseResponse() {
    }

    GetLicenseResponse(License license) {
        this.license = license;
    }

    public License license() {
        return license;
    }

    @Override
    public void readFrom(StreamInput in) throws IOException {
        super.readFrom(in);
        if (in.readBoolean()) {

```

```

        license = License.readLicense(in);
    }
}

@Override
public void writeTo(StreamOutput out) throws IOException {
    super.writeTo(out);
    if (license == null) {
        out.writeBoolean(false);
    } else {
        out.writeBoolean(true);
        license.writeTo(out);
    }
}

}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.support.master.MasterNodeReadOperationRequestBuilder;
import org.elasticsearch.client.ElasticsearchClient;

public class GetLicenseRequestBuilder extends MasterNodeReadOperationRequestBuilder<GetLicenseRequest,
GetLicenseResponse,
    GetLicenseRequestBuilder> {

    public GetLicenseRequestBuilder(ElasticsearchClient client) {
        this(client, GetLicenseAction.INSTANCE);
    }

    /**
     * Creates new get licenses request builder
     *
     * @param client elasticsearch client
     */
    public GetLicenseRequestBuilder(ElasticsearchClient client, GetLicenseAction action) {
        super(client, action, new GetLicenseRequest());
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */

```

```

package org.elasticsearch.license;

import org.elasticsearch.action.ActionRequestValidationException;
import org.elasticsearch.action.support.master.MasterNodeReadRequest;

public class GetLicenseRequest extends MasterNodeReadRequest<GetLicenseRequest> {

    public GetLicenseRequest() {
    }

    @Override
    public ActionRequestValidationException validate() {
        return null;
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionListener;
import org.elasticsearch.action.support.ActionFilters;
import org.elasticsearch.action.support.master.TransportMasterNodeAction;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.block.ClusterBlockException;
import org.elasticsearch.cluster.block.ClusterBlockLevel;
import org.elasticsearch.cluster.metadata.IndexNameExpressionResolver;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.common.inject.Inject;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.threadpool.ThreadPool;
import org.elasticsearch.transport.TransportService;

public class TransportPostStartTrialAction extends TransportMasterNodeAction<PostStartTrialRequest,
PostStartTrialResponse> {

    private final LicenseService licenseService;

    @Inject
    public TransportPostStartTrialAction(Settings settings, TransportService transportService, ClusterService
clusterService,
                                     LicenseService licenseService, ThreadPool threadPool, ActionFilters actionFilters,
                                     IndexNameExpressionResolver indexNameExpressionResolver) {
        super(settings, PostStartTrialAction.NAME, transportService, clusterService, threadPool, actionFilters,
            indexNameExpressionResolver, PostStartTrialRequest::new);
    }
}

```



```

        this.licenseService = licenseService;
    }

    @Override
    protected String executor() {
        return ThreadPool.Names.SAME;
    }

    @Override
    protected PostStartTrialResponse newResponse() {
        return new PostStartTrialResponse();
    }

    @Override
    protected void masterOperation(PostStartTrialRequest request, ClusterState state,
        ActionListener<PostStartTrialResponse> listener) throws Exception {
        licenseService.startTrialLicense(request, listener);
    }

    @Override
    protected ClusterBlockException checkBlock(PostStartTrialRequest request, ClusterState state) {
        return state.blocks().globalBlockedException(ClusterBlockLevel.METADATA_WRITE);
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.inject.Inject;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.xcontent.ToXContent;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.rest.BytesRestResponse;
import org.elasticsearch.rest.RestController;
import org.elasticsearch.rest.RestRequest;
import org.elasticsearch.rest.RestResponse;
import org.elasticsearch.rest.action.RestBuilderListener;
import org.elasticsearch.xpack.core.XPackClient;
import org.elasticsearch.xpack.core.rest.XPackRestHandler;

import java.io.IOException;
import java.util.HashMap;
import java.util.Map;

import static org.elasticsearch.rest.RestRequest.Method.GET;

```

```

import static org.elasticsearch.rest.RestStatus.NOT_FOUND;
import static org.elasticsearch.rest.RestStatus.OK;

public class RestGetLicenseAction extends XPackRestHandler {

    @Inject
    public RestGetLicenseAction(Settings settings, RestController controller) {
        super(settings);
        // @deprecated Remove deprecations in 6.0
        controller.registerWithDeprecatedHandler(GET, URI_BASE + "/license", this,
            GET, "/_license", deprecationLogger);

        // Remove _licenses support entirely in 6.0
        controller.registerAsDeprecatedHandler(GET, "/_licenses", this,
            "[GET /_licenses] is deprecated! Use " +
            "[GET /_xpack/license] instead.",
            deprecationLogger);
    }

    @Override
    public String getName() {
        return "xpack_get_license_action";
    }

    /**
     * There will be only one license displayed per feature, the selected license will have the latest expiry_date
     * out of all other licenses for the feature.
     * <p>
     * The licenses are sorted by latest issue_date
     */
    @Override
    public RestChannelConsumer doPrepareRequest(final RestRequest request, final XPackClient client) throws
    IOException {
        final Map<String, String> overrideParams = new HashMap<>(2);
        overrideParams.put(License.REST_VIEW_MODE, "true");
        overrideParams.put(License.LICENSE_VERSION_MODE, String.valueOf(License.VERSION_CURRENT));
        final ToXContent.Params params = new ToXContent.DelegatingMapParams(overrideParams, request);
        GetLicenseRequest getLicenseRequest = new GetLicenseRequest();
        getLicenseRequest.local(request.paramAsBoolean("local", getLicenseRequest.local()));
        return channel -> client.es().admin().cluster().execute(GetLicenseAction.INSTANCE, getLicenseRequest,
            new RestBuilderListener<GetLicenseResponse>(channel) {
                @Override
                public RestResponse buildResponse(GetLicenseResponse response, XContentBuilder builder) throws
                Exception {
                    // Default to pretty printing, but allow ?pretty=false to disable
                    if (!request.hasParam("pretty")) {
                        builder.prettyPrint().IfAtEnd();
                    }
                }
            }
        );
    }
}

```

```

        boolean hasLicense = response.license() != null;
        builder.startObject();
        if (hasLicense) {
            builder.startObject("license");
            response.license().toInnerXContent(builder, params);
            builder.endObject();
        }
        builder.endObject();
        return new BytesRestResponse(hasLicense ? OK : NOT_FOUND, builder);
    }
});
}

}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.support.master.AcknowledgedRequestBuilder;
import org.elasticsearch.client.ElasticsearchClient;
import org.elasticsearch.common.bytes.BytesReference;
import org.elasticsearch.common.xcontent.XContentType;

/**
 * Register license request builder
 */
public class PutLicenseRequestBuilder extends AcknowledgedRequestBuilder<PutLicenseRequest,
PutLicenseResponse, PutLicenseRequestBuilder> {

    public PutLicenseRequestBuilder(ElasticsearchClient client) {
        this(client, PutLicenseAction.INSTANCE);
    }

    /**
     * Constructs register license request
     *
     * @param client elasticsearch client
     */
    public PutLicenseRequestBuilder(ElasticsearchClient client, PutLicenseAction action) {
        super(client, action, new PutLicenseRequest());
    }

    /**
     * Sets the license
     *

```

```

* @param license license
* @return this builder
*/
public PutLicenseRequestBuilder setLicense(License license) {
    request.license(license);
    return this;
}

public PutLicenseRequestBuilder setLicense(BytesReference licenseSource, XContentType xContentType) {
    request.license(licenseSource, xContentType);
    return this;
}

public PutLicenseRequestBuilder setAcknowledge(boolean acknowledge) {
    request.acknowledge(acknowledge);
    return this;
}
}
/*
* Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
* or more contributor license agreements. Licensed under the Elastic License;
* you may not use this file except in compliance with the Elastic License.
*/
package org.elasticsearch.license;

import org.elasticsearch.action.Action;
import org.elasticsearch.client.ElasticsearchClient;

public class GetBasicStatusAction extends Action<GetBasicStatusRequest, GetBasicStatusResponse,
GetBasicStatusRequestBuilder> {

    public static final GetBasicStatusAction INSTANCE = new GetBasicStatusAction();
    public static final String NAME = "cluster:admin/xpack/license/basic_status";

    private GetBasicStatusAction() {
        super(NAME);
    }

    @Override
    public GetBasicStatusRequestBuilder newRequestBuilder(ElasticsearchClient client) {
        return new GetBasicStatusRequestBuilder(client, this);
    }

    @Override
    public GetBasicStatusResponse newResponse() {
        return new GetBasicStatusResponse();
    }
}

```

```

/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.ElasticsearchSecurityException;
import org.elasticsearch.rest.RestStatus;

public class LicenseUtils {

    public static final String EXPIRED_FEATURE_METADATA = "es.license.expired.feature";

    /**
     * Exception to be thrown when a feature action requires a valid license, but license
     * has expired
     *
     * <code>feature</code> accessible through { @link #EXPIRED_FEATURE_METADATA } in the
     * exception's rest header
     */
    public static ElasticsearchSecurityException newComplianceException(String feature) {
        ElasticsearchSecurityException e = new ElasticsearchSecurityException("current license is non-compliant for
[{}]",
            RestStatus.FORBIDDEN, feature);
        e.addMetadata(EXPIRED_FEATURE_METADATA, feature);
        return e;
    }

    /**
     * Checks if a given { @link ElasticsearchSecurityException } refers to a feature that
     * requires a valid license, but the license has expired.
     */
    public static boolean isLicenseExpiredException(ElasticsearchSecurityException exception) {
        return (exception != null) && (exception.getMetadata(EXPIRED_FEATURE_METADATA) != null);
    }

    public static boolean licenseNeedsExtended(License license) {
        return "basic".equals(license.type()) && license.expiryDate() !=
LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS;
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

```

```

import org.elasticsearch.action.ActionRequest;
import org.elasticsearch.action.ActionResponse;
import org.elasticsearch.cluster.NamedDiff;
import org.elasticsearch.cluster.metadata.IndexNameExpressionResolver;
import org.elasticsearch.cluster.metadata.MetaData;
import org.elasticsearch.cluster.node.DiscoveryNodes;
import org.elasticsearch.common.ParseField;
import org.elasticsearch.common.io.stream.NamedWriteableRegistry;
import org.elasticsearch.common.settings.ClusterSettings;
import org.elasticsearch.common.settings.IndexScopedSettings;
import org.elasticsearch.common.settings.Setting;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.settings.SettingsFilter;
import org.elasticsearch.common.xcontent.NamedXContentRegistry;
import org.elasticsearch.plugins.ActionPlugin;
import org.elasticsearch.rest.RestController;
import org.elasticsearch.rest.RestController;

import java.util.ArrayList;
import java.util.Arrays;
import java.util.Collections;
import java.util.List;
import java.util.function.Supplier;

import static org.elasticsearch.xpack.core.XPackClientActionPlugin.isTribeNode;
import static org.elasticsearch.xpack.core.XPackPlugin.transportClientMode;

public class Licensing implements ActionPlugin {

    public static final String NAME = "license";
    protected final Settings settings;
    private final boolean isTransportClient;
    private final boolean isTribeNode;

    // Until this is moved out to its own plugin (its currently in XPackPlugin.java, we need to make sure that any edits
    to this file
    // are also carried out in XPackClientPlugin.java
    public List<NamedWriteableRegistry.Entry> getNamedWriteables() {
        List<NamedWriteableRegistry.Entry> entries = new ArrayList<>();
        entries.add(new NamedWriteableRegistry.Entry(MetaData.Custom.class, LicensesMetaData.TYPE,
LicensesMetaData::new));
        entries.add(new NamedWriteableRegistry.Entry(NamedDiff.class, LicensesMetaData.TYPE,
LicensesMetaData::readDiffFrom));
        return entries;
    }

    // Until this is moved out to its own plugin (its currently in XPackPlugin.java, we need to make sure that any edits

```

to this file

```
// are also carried out in XPackClientPlugin.java
public List<NamedXContentRegistry.Entry> getNamedXContent() {
    List<NamedXContentRegistry.Entry> entries = new ArrayList<>();
    // Metadata
    entries.add(new NamedXContentRegistry.Entry(MetaData.Custom.class, new
ParseField(LicensesMetaData.TYPE),
        LicensesMetaData::fromXContent));
    return entries;
}

public Licensing(Settings settings) {
    this.settings = settings;
    isTransportClient = transportClientMode(settings);
    isTribeNode = isTribeNode(settings);
}

@Override
public List<ActionHandler<? extends ActionRequest, ? extends ActionResponse>> getActions() {
    if (isTribeNode) {
        return Collections.singletonList(new ActionHandler<>(GetLicenseAction.INSTANCE,
TransportGetLicenseAction.class));
    }
    return Arrays.asList(new ActionHandler<>(PutLicenseAction.INSTANCE, TransportPutLicenseAction.class),
        new ActionHandler<>(GetLicenseAction.INSTANCE, TransportGetLicenseAction.class),
        new ActionHandler<>(DeleteLicenseAction.INSTANCE, TransportDeleteLicenseAction.class),
        new ActionHandler<>(PostStartTrialAction.INSTANCE, TransportPostStartTrialAction.class),
        new ActionHandler<>(GetTrialStatusAction.INSTANCE, TransportGetTrialStatusAction.class),
        new ActionHandler<>(PostStartBasicAction.INSTANCE, TransportPostStartBasicAction.class),
        new ActionHandler<>(GetBasicStatusAction.INSTANCE, TransportGetBasicStatusAction.class));
}

@Override
public List<RestHandler> getRestHandlers(Settings settings, RestController restController, ClusterSettings
clusterSettings,
    IndexScopedSettings indexScopedSettings, SettingsFilter settingsFilter, IndexNameExpressionResolver
indexNameExpressionResolver,
    Supplier<DiscoveryNodes> nodesInCluster) {
    List<RestHandler> handlers = new ArrayList<>();
    handlers.add(new RestGetLicenseAction(settings, restController));
    if (false == isTribeNode) {
        handlers.add(new RestPutLicenseAction(settings, restController));
        handlers.add(new RestDeleteLicenseAction(settings, restController));
        handlers.add(new RestGetTrialStatus(settings, restController));
        handlers.add(new RestGetBasicStatus(settings, restController));
        handlers.add(new RestPostStartTrialLicense(settings, restController));
        handlers.add(new RestPostStartBasicLicense(settings, restController));
    }
}
```

```

        return handlers;
    }

    // Until this is moved out to its own plugin (its currently in XPackPlugin.java, we need to make sure that any edits
    // to this file
    // are also carried out in XPackClientPlugin.java
    public List<Setting<?>> getSettings() {
        // TODO convert this wildcard to a real setting
        return Collections.singletonList(Setting.groupSetting("license.", Setting.Property.NodeScope));
    }

}

/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import javax.crypto.BadPaddingException;
import javax.crypto.Cipher;
import javax.crypto.IllegalBlockSizeException;
import javax.crypto.NoSuchPaddingException;
import javax.crypto.SecretKey;
import javax.crypto.SecretKeyFactory;
import javax.crypto.spec.PBEKeySpec;
import javax.crypto.spec.SecretKeySpec;
import java.nio.charset.StandardCharsets;
import java.security.InvalidKeyException;
import java.security.KeyFactory;
import java.security.MessageDigest;
import java.security.NoSuchAlgorithmException;
import java.security.PrivateKey;
import java.security.PublicKey;
import java.security.SecureRandom;
import java.security.spec.InvalidKeySpecException;
import java.security.spec.PKCS8EncodedKeySpec;
import java.security.spec.X509EncodedKeySpec;
import java.util.Base64;

public class CryptUtils {
    private static final int minimumPadding = 20;
    private static final byte[] salt = {
        (byte) 0xA9, (byte) 0xA2, (byte) 0xB5, (byte) 0xDE,
        (byte) 0x2A, (byte) 0x8A, (byte) 0x9A, (byte) 0xE6
    };
    private static final int iterationCount = 1024;

```



```

private static final int aesKeyLength = 128;
private static final String keyAlgorithm = "RSA";
private static final String passHashAlgorithm = "SHA-512";
private static final String DEFAULT_PASS_PHRASE = "elasticsearch-license";

private static final SecureRandom random = new SecureRandom();

/**
 * Read encrypted private key file content with default pass phrase
 */
public static PrivateKey readEncryptedPrivateKey(byte[] fileContents) {
    try {
        return readEncryptedPrivateKey(fileContents, hashPassPhrase(DEFAULT_PASS_PHRASE));
    } catch (NoSuchAlgorithmException e) {
        throw new IllegalStateException(e);
    }
}

/**
 * Read encrypted public key file content with default pass phrase
 */
public static PublicKey readEncryptedPublicKey(byte[] fileContents) {
    try {
        return readEncryptedPublicKey(fileContents, hashPassPhrase(DEFAULT_PASS_PHRASE));
    } catch (NoSuchAlgorithmException e) {
        throw new IllegalStateException(e);
    }
}

/**
 * Returns encrypted public key file content with default pass phrase
 */
public static byte[] writeEncryptedPublicKey(PublicKey publicKey) {
    try {
        return writeEncryptedPublicKey(publicKey, hashPassPhrase(DEFAULT_PASS_PHRASE));
    } catch (NoSuchAlgorithmException e) {
        throw new IllegalStateException(e);
    }
}

/**
 * Returns encrypted private key file content with default pass phrase
 */
public static byte[] writeEncryptedPrivateKey(PrivateKey privateKey) {
    try {
        return writeEncryptedPrivateKey(privateKey, hashPassPhrase(DEFAULT_PASS_PHRASE));
    } catch (NoSuchAlgorithmException e) {
        throw new IllegalStateException(e);
    }
}

```

```

    }
}

/**
 * Read encrypted private key file content with provided <code>passPhrase</code>
 */
public static PrivateKey readEncryptedPrivateKey(byte[] fileContents, char[] passPhrase) {
    PKCS8EncodedKeySpec privateKeySpec = new PKCS8EncodedKeySpec(decrypt(fileContents, passPhrase));
    try {
        return KeyFactory.getInstance(keyAlgorithm).generatePrivate(privateKeySpec);
    } catch (NoSuchAlgorithmException | InvalidKeySpecException e) {
        throw new IllegalStateException(e);
    }
}

/**
 * Read encrypted public key file content with provided <code>passPhrase</code>
 */
public static PublicKey readEncryptedPublicKey(byte[] fileContents, char[] passPhrase) {
    X509EncodedKeySpec publicKeySpec = new X509EncodedKeySpec(decrypt(fileContents, passPhrase));
    try {
        return KeyFactory.getInstance(CryptUtils.keyAlgorithm).generatePublic(publicKeySpec);
    } catch (NoSuchAlgorithmException | InvalidKeySpecException e) {
        throw new IllegalStateException(e);
    }
}

/**
 * Returns encrypted public key file content with provided <code>passPhrase</code>
 */
public static byte[] writeEncryptedPublicKey(PublicKey publicKey, char[] passPhrase) {
    X509EncodedKeySpec encodedKeySpec = new X509EncodedKeySpec(publicKey.getEncoded());
    return encrypt(encodedKeySpec.getEncoded(), passPhrase);
}

/**
 * Returns encrypted private key file content with provided <code>passPhrase</code>
 */
public static byte[] writeEncryptedPrivateKey(PrivateKey privateKey, char[] passPhrase) {
    PKCS8EncodedKeySpec encodedKeySpec = new PKCS8EncodedKeySpec(privateKey.getEncoded());
    return encrypt(encodedKeySpec.getEncoded(), passPhrase);
}

/**
 * Encrypts provided <code>data</code> with <code>DEFAULT_PASS_PHRASE</code>
 */
public static byte[] encrypt(byte[] data) {
    try {

```

```

        return encrypt(data, hashPassPhrase(DEFAULT_PASS_PHRASE));
    } catch (NoSuchAlgorithmException e) {
        throw new IllegalStateException(e);
    }
}

/**
 * Decrypts provided <code>encryptedData</code> with <code>DEFAULT_PASS_PHRASE</code>
 */
public static byte[] decrypt(byte[] encryptedData) {
    try {
        return decrypt(encryptedData, hashPassPhrase(DEFAULT_PASS_PHRASE));
    } catch (NoSuchAlgorithmException e) {
        throw new IllegalStateException(e);
    }
}

/**
 * Encrypts provided <code>data</code> with <code>passPhrase</code>
 */
public static byte[] encrypt(byte[] data, char[] passPhrase) {
    try {
        final Cipher encryptionCipher = getEncryptionCipher(getSecretKey(passPhrase));
        return encryptionCipher.doFinal(pad(data, minimumPadding));
    } catch (InvalidKeySpecException | IllegalBlockSizeException | BadPaddingException e) {
        throw new IllegalStateException(e);
    }
}

/**
 * Decrypts provided <code>encryptedData</code> with <code>passPhrase</code>
 */
private static byte[] decrypt(byte[] encryptedData, char[] passPhrase) {
    try {
        final Cipher cipher = getDecryptionCipher(getSecretKey(passPhrase));
        return unPad(cipher.doFinal(encryptedData));
    } catch (IllegalBlockSizeException | BadPaddingException | InvalidKeySpecException e) {
        throw new IllegalStateException(e);
    }
}

private static SecretKey getSecretKey(char[] passPhrase) throws InvalidKeySpecException {
    try {
        PBEKeySpec keySpec = new PBEKeySpec(passPhrase, salt, iterationCount, aesKeyLength);

        byte[] shortKey = SecretKeyFactory.getInstance("PBESWithSHA1AndDESede").
            generateSecret(keySpec).getEncoded();
    }
}

```

```

byte[] intermediaryKey = new byte[aesKeyLength / 8];
for (int i = 0, j = 0; i < aesKeyLength / 8; i++) {
    intermediaryKey[i] = shortKey[j];
    if (++j == shortKey.length)
        j = 0;
}

return new SecretKeySpec(intermediaryKey, "AES");
} catch (NoSuchAlgorithmException | InvalidKeySpecException e) {
    throw new IllegalStateException(e);
}
}

private static Cipher getEncryptionCipher(SecretKey secretKey) {
    return getCipher(Cipher.ENCRYPT_MODE, secretKey);
}

private static Cipher getDecryptionCipher(SecretKey secretKey) {
    return getCipher(Cipher.DECRYPT_MODE, secretKey);
}

private static Cipher getCipher(int mode, SecretKey secretKey) {
    try {
        Cipher cipher = Cipher.getInstance(secretKey.getAlgorithm());
        cipher.init(mode, secretKey, random);
        return cipher;
    } catch (NoSuchAlgorithmException | InvalidKeyException | NoSuchPaddingException e) {
        throw new IllegalStateException(e);
    }
}

private static byte[] pad(byte[] bytes, int length) {
    if (bytes.length >= length) {
        byte[] out = new byte[bytes.length + 1];
        System.arraycopy(bytes, 0, out, 0, bytes.length);
        out[bytes.length] = (byte) 1;
        return out;
    }

    byte[] out = new byte[length + 1];

    int i = 0;
    for (; i < bytes.length; i++)
        out[i] = bytes[i];

    int padded = length - i;

```

```

    // fill the rest with random bytes
    byte[] fill = new byte[padded - 1];
    random.nextBytes(fill);
    System.arraycopy(fill, 0, out, i, padded - 1);

    out[length] = (byte) (padded + 1);

    return out;
}

private static byte[] unPad(byte[] bytes) {
    int padded = (int) bytes[bytes.length - 1];
    int targetLength = bytes.length - padded;

    byte[] out = new byte[targetLength];

    System.arraycopy(bytes, 0, out, 0, targetLength);

    return out;
}

private static char[] hashPassPhrase(String passPhrase) throws NoSuchAlgorithmException {
    final byte[] passBytes = passPhrase.getBytes(StandardCharsets.UTF_8);
    final byte[] digest = MessageDigest.getInstance(passHashAlgorithm).digest(passBytes);
    return Base64.getEncoder().encodeToString(digest).toCharArray();
}
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.Version;
import org.elasticsearch.action.ActionResponse;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;
import org.elasticsearch.rest.RestStatus;

import java.io.IOException;
import java.util.Collections;
import java.util.HashMap;
import java.util.Map;

class PostStartTrialResponse extends ActionResponse {

    // Nodes Prior to 6.3 did not have NEED_ACKNOWLEDGEMENT as part of status

```

```

enum Pre63Status {
    UPGRADED_TO_TRIAL,
    TRIAL_ALREADY_ACTIVATED;
}
enum Status {
    UPGRADED_TO_TRIAL(true, null, RestStatus.OK),
    TRIAL_ALREADY_ACTIVATED(false, "Operation failed: Trial was already activated.",
RestStatus.FORBIDDEN),
    NEED_ACKNOWLEDGEMENT(false, "Operation failed: Needs acknowledgement.", RestStatus.OK);

private final boolean isTrialStarted;

private final String errorMessage;
private final RestStatus restStatus;
Status(boolean isTrialStarted, String errorMessage, RestStatus restStatus) {
    this.isTrialStarted = isTrialStarted;
    this.errorMessage = errorMessage;
    this.restStatus = restStatus;
}

boolean isTrialStarted() {
    return isTrialStarted;
}

String getErrorMessage() {
    return errorMessage;
}

RestStatus getRestStatus() {
    return restStatus;
}
}

private Status status;
private Map<String, String[]> acknowledgeMessages;
private String acknowledgeMessage;

PostStartTrialResponse() {
}

PostStartTrialResponse(Status status) {
    this(status, Collections.emptyMap(), null);
}

PostStartTrialResponse(Status status, Map<String, String[]> acknowledgeMessages, String acknowledgeMessage)
{
    this.status = status;
}

```

```

        this.acknowledgeMessages = acknowledgeMessages;
        this.acknowledgeMessage = acknowledgeMessage;
    }

    public Status getStatus() {
        return status;
    }

    @Override
    public void readFrom(StreamInput in) throws IOException {
        status = in.readEnum(Status.class);
        if (in.getVersion().onOrAfter(Version.V_6_3_0)) {
            acknowledgeMessage = in.readOptionalString();
            int size = in.readVInt();
            Map<String, String[]> acknowledgeMessages = new HashMap<>(size);
            for (int i = 0; i < size; i++) {
                String feature = in.readString();
                int nMessages = in.readVInt();
                String[] messages = new String[nMessages];
                for (int j = 0; j < nMessages; j++) {
                    messages[j] = in.readString();
                }
                acknowledgeMessages.put(feature, messages);
            }
            this.acknowledgeMessages = acknowledgeMessages;
        } else {
            this.acknowledgeMessages = Collections.emptyMap();
        }
    }

    @Override
    public void writeTo(StreamOutput out) throws IOException {
        Version version = Version.V_6_3_0;
        if (out.getVersion().onOrAfter(version)) {
            out.writeEnum(status);
            out.writeOptionalString(acknowledgeMessage);
            out.writeVInt(acknowledgeMessages.size());
            for (Map.Entry<String, String[]> entry : acknowledgeMessages.entrySet()) {
                out.writeString(entry.getKey());
                out.writeVInt(entry.getValue().length);
                for (String message : entry.getValue()) {
                    out.writeString(message);
                }
            }
        } else {
            if (status == Status.UPGRADED_TO_TRIAL) {
                out.writeEnum(Pre63Status.UPGRADED_TO_TRIAL);
            } else if (status == Status.TRIAL_ALREADY_ACTIVATED) {

```

```

        out.writeEnum(Pre63Status.TRIAL_ALREADY_ACTIVATED);
    } else {
        throw new IllegalArgumentException("Starting trial on node with version [" + Version.CURRENT + "]
requires " +
            "acknowledgement parameter.");
    }
}
}
}

```

```

Map<String, String[]> getAcknowledgementMessages() {
    return acknowledgeMessages;
}

```

```

String getAcknowledgementMessage() {
    return acknowledgeMessage;
}
}

```

```

/*

```

```

* Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
* or more contributor license agreements. Licensed under the Elastic License;
* you may not use this file except in compliance with the Elastic License.
*/

```

```

package org.elasticsearch.license;

```

```

import org.elasticsearch.Version;
import org.elasticsearch.action.ActionResponse;
import org.elasticsearch.common.Nullable;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;
import org.elasticsearch.common.io.stream.Writable;
import org.elasticsearch.common.xcontent.ToXContentObject;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.xpack.core.XPackBuild;

```

```

import java.io.IOException;
import java.util.ArrayList;
import java.util.Collections;
import java.util.HashMap;
import java.util.List;
import java.util.Locale;
import java.util.Map;
import java.util.Set;
import java.util.stream.Collectors;

```

```

public class XPackInfoResponse extends ActionResponse {

```

```

    @Nullable private BuildInfo buildInfo;
    @Nullable private LicenseInfo licenseInfo;

```



```

@Nullable private FeatureSetsInfo featureSetsInfo;

public XPackInfoResponse() {}

public XPackInfoResponse(@Nullable BuildInfo buildInfo, @Nullable LicenseInfo licenseInfo, @Nullable
FeatureSetsInfo featureSetsInfo) {
    this.buildInfo = buildInfo;
    this.licenseInfo = licenseInfo;
    this.featureSetsInfo = featureSetsInfo;
}

/**
 * @return The build info (incl. build hash and timestamp)
 */
public BuildInfo getBuildInfo() {
    return buildInfo;
}

/**
 * @return The current license info (incl. UID, type/mode. status and expiry date). May return {@code null}
when no
 *     license is currently installed.
 */
public LicenseInfo getLicenseInfo() {
    return licenseInfo;
}

/**
 * @return The current status of the feature sets in X-Pack. Feature sets describe the features available/enabled in
X-Pack.
 */
public FeatureSetsInfo getFeatureSetsInfo() {
    return featureSetsInfo;
}

@Override
public void writeTo(StreamOutput out) throws IOException {
    super.writeTo(out);
    out.writeOptionalWriteable(buildInfo);
    out.writeOptionalWriteable(licenseInfo);
    out.writeOptionalWriteable(featureSetsInfo);
}

@Override
public void readFrom(StreamInput in) throws IOException {
    this.buildInfo = in.readOptionalWriteable(BuildInfo::new);
    this.licenseInfo = in.readOptionalWriteable(LicenseInfo::new);
    this.featureSetsInfo = in.readOptionalWriteable(FeatureSetsInfo::new);
}

```

```

}

public static class LicenseInfo implements ToXContentObject, Writeable {

    private final String uid;
    private final String type;
    private final String mode;
    private final long expiryDate;
    private final License.Status status;

    public LicenseInfo(License license) {
        this(license.uid(), license.type(), license.operationMode().name().toLowerCase(Locale.ROOT),
            license.status(), license.expiryDate());
    }

    public LicenseInfo(StreamInput in) throws IOException {
        this(in.readString(), in.readString(), in.readString(), License.Status.readFrom(in), in.readLong());
    }

    public LicenseInfo(String uid, String type, String mode, License.Status status, long expiryDate) {
        this.uid = uid;
        this.type = type;
        this.mode = mode;
        this.status = status;
        this.expiryDate = expiryDate;
    }

    public String getUid() {
        return uid;
    }

    public String getType() {
        return type;
    }

    public String getMode() {
        return mode;
    }

    public long getExpiryDate() {
        return expiryDate;
    }

    public License.Status getStatus() {
        return status;
    }

    @Override

```

```

public XContentBuilder toXContent(XContentBuilder builder, Params params) throws IOException {
    builder.startObject()
        .field("uid", uid)
        .field("type", type)
        .field("mode", mode)
        .field("status", status.label());
    if (expiryDate != LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS) {
        builder.timeField("expiry_date_in_millis", "expiry_date", expiryDate);
    }
    return builder.endObject();
}

public void writeTo(StreamOutput out) throws IOException {
    out.writeString(uid);
    out.writeString(type);
    out.writeString(mode);
    status.writeTo(out);
    out.writeLong(expiryDate);
}
}

public static class BuildInfo implements ToXContentObject, Writable {

    private final String hash;
    private final String timestamp;

    public BuildInfo(XPackBuild build) {
        this(build.shortHash(), build.date());
    }

    public BuildInfo(StreamInput input) throws IOException {
        this(input.readString(), input.readString());
    }

    public BuildInfo(String hash, String timestamp) {
        this.hash = hash;
        this.timestamp = timestamp;
    }

    public String getHash() {
        return hash;
    }

    public String getTimestamp() {
        return timestamp;
    }

    @Override

```

```

public XContentBuilder toXContent(XContentBuilder builder, Params params) throws IOException {
    return builder.startObject()
        .field("hash", hash)
        .field("date", timestamp)
        .endObject();
}

public void writeTo(StreamOutput output) throws IOException {
    output.writeString(hash);
    output.writeString(timestamp);
}
}

public static class FeatureSetsInfo implements ToXContentObject, Writable {

    private final Map<String, FeatureSet> featureSets;

    public FeatureSetsInfo(StreamInput in) throws IOException {
        int size = in.readVInt();
        Map<String, FeatureSet> featureSets = new HashMap<>(size);
        for (int i = 0; i < size; i++) {
            FeatureSet featureSet = new FeatureSet(in);
            featureSets.put(featureSet.name, featureSet);
        }
        this.featureSets = Collections.unmodifiableMap(featureSets);
    }

    public FeatureSetsInfo(Set<FeatureSet> featureSets) {
        Map<String, FeatureSet> map = new HashMap<>(featureSets.size());
        for (FeatureSet featureSet : featureSets) {
            map.put(featureSet.name, featureSet);
        }
        this.featureSets = Collections.unmodifiableMap(map);
    }

    public Map<String, FeatureSet> getFeatureSets() {
        return featureSets;
    }

    @Override
    public XContentBuilder toXContent(XContentBuilder builder, Params params) throws IOException {
        builder.startObject();
        List<String> names = new
ArrayList<>(this.featureSets.keySet()).stream().sorted().collect(Collectors.toList());
        for (String name : names) {
            builder.field(name, featureSets.get(name), params);
        }
        return builder.endObject();
    }
}

```

```

}

public void writeTo(StreamOutput out) throws IOException {
    out.writeVInt(featureSets.size());
    for (FeatureSet featureSet : featureSets.values()) {
        featureSet.writeTo(out);
    }
}

public static class FeatureSet implements ToXContentObject, Writable {

    private final String name;
    @Nullable private final String description;
    private final boolean available;
    private final boolean enabled;
    @Nullable private final Map<String, Object> nativeCodeInfo;

    public FeatureSet(StreamInput in) throws IOException {
        this(in.readString(), in.readOptionalString(), in.readBoolean(), in.readBoolean(),
            in.getVersion().onOrAfter(Version.V_5_4_0) ? in.readMap() : null);
    }

    public FeatureSet(String name, @Nullable String description, boolean available, boolean enabled,
        @Nullable Map<String, Object> nativeCodeInfo) {
        this.name = name;
        this.description = description;
        this.available = available;
        this.enabled = enabled;
        this.nativeCodeInfo = nativeCodeInfo;
    }

    public String name() {
        return name;
    }

    @Nullable
    public String description() {
        return description;
    }

    public boolean available() {
        return available;
    }

    public boolean enabled() {
        return enabled;
    }
}

```

```
@Nullable
public Map<String, Object> nativeCodeInfo() {
    return nativeCodeInfo;
}

public XContentBuilder toXContent(XContentBuilder builder, Params params) throws IOException {
    builder.startObject();
    if (description != null) {
        builder.field("description", description);
    }
    builder.field("available", available);
    builder.field("enabled", enabled);
    if (nativeCodeInfo != null) {
        builder.field("native_code_info", nativeCodeInfo);
    }
    return builder.endObject();
}

public void writeTo(StreamOutput out) throws IOException {
    out.writeString(name);
    out.writeOptionalString(description);
    out.writeBoolean(available);
    out.writeBoolean(enabled);
    if (out.getVersion().onOrAfter(Version.V_5_4_0)) {
        out.writeMap(nativeCodeInfo);
    }
}

}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.Action;
import org.elasticsearch.client.ElasticsearchClient;

public class PostStartBasicAction extends Action<PostStartBasicRequest, PostStartBasicResponse,
PostStartBasicRequestBuilder> {

    public static final PostStartBasicAction INSTANCE = new PostStartBasicAction();
    public static final String NAME = "cluster:admin/xpack/license/start_basic";

    private PostStartBasicAction() {
```

```

    super(NAME);
}

@Override
public PostStartBasicRequestBuilder newRequestBuilder(ElasticsearchClient client) {
    return new PostStartBasicRequestBuilder(client, this);
}

@Override
public PostStartBasicResponse newResponse() {
    return new PostStartBasicResponse();
}
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionRequestBuilder;
import org.elasticsearch.client.ElasticsearchClient;

class GetBasicStatusRequestBuilder extends ActionRequestBuilder<GetBasicStatusRequest,
GetBasicStatusResponse,
    GetBasicStatusRequestBuilder> {

    GetBasicStatusRequestBuilder(ElasticsearchClient client, GetBasicStatusAction action) {
        super(client, action, new GetBasicStatusRequest());
    }
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.Version;
import org.elasticsearch.action.ActionRequestValidationException;
import org.elasticsearch.action.support.master.MasterNodeRequest;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;

import java.io.IOException;

public class PostStartTrialRequest extends MasterNodeRequest<PostStartTrialRequest> {

```

```

private boolean acknowledge = false;
private String type;

@Override
public ActionRequestValidationException validate() {
    return null;
}

public PostStartTrialRequest setType(String type) {
    this.type = type;
    return this;
}

public String getType() {
    return type;
}

public PostStartTrialRequest acknowledge(boolean acknowledge) {
    this.acknowledge = acknowledge;
    return this;
}

public boolean isAcknowledged() {
    return acknowledge;
}

@Override
public void readFrom(StreamInput in) throws IOException {
    super.readFrom(in);
    if (in.getVersion().onOrAfter(Version.V_6_3_0)) {
        type = in.readString();
        acknowledge = in.readBoolean();
    } else {
        type = "trial";
        acknowledge = true;
    }
}

@Override
public void writeTo(StreamOutput out) throws IOException {
    Version version = Version.V_6_3_0;
    if (out.getVersion().onOrAfter(version)) {
        super.writeTo(out);
        out.writeString(type);
        out.writeBoolean(acknowledge);
    } else {
        if ("trial".equals(type) == false) {
            throw new IllegalArgumentException("All nodes in cluster must be version [" + version

```



```

        + "]" or newer to start trial with a different type than 'trial'. Attempting to write to " +
        "a node with version [" + out.getVersion() + "] with trial type [" + type + "].");
    } else if (acknowledged == false) {
        throw new IllegalArgumentException("Request must be acknowledged to send to a node with a version " +
            "prior to [" + version + "]. Attempting to send request to node with version [" + out.getVersion() + "] "
+
            "without acknowledgement.");
    } else {
        super.writeTo(out);
    }
}
}
}
}
}
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionListener;
import org.elasticsearch.action.support.ActionFilters;
import org.elasticsearch.action.support.master.TransportMasterNodeReadAction;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.block.ClusterBlockException;
import org.elasticsearch.cluster.block.ClusterBlockLevel;
import org.elasticsearch.cluster.metadata.IndexNameExpressionResolver;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.common.inject.Inject;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.threadpool.ThreadPool;
import org.elasticsearch.transport.TransportService;

public class TransportGetTrialStatusAction extends TransportMasterNodeReadAction<GetTrialStatusRequest,
GetTrialStatusResponse> {

    @Inject
    public TransportGetTrialStatusAction(Settings settings, TransportService transportService, ClusterService
clusterService,
                                     ThreadPool threadPool, ActionFilters actionFilters,
                                     IndexNameExpressionResolver indexNameExpressionResolver) {
        super(settings, GetTrialStatusAction.NAME, transportService, clusterService, threadPool, actionFilters,
            indexNameExpressionResolver, GetTrialStatusRequest::new);
    }

    @Override
    protected String executor() {
        return ThreadPool.Names.SAME;
    }
}

```

```

    }

    @Override
    protected GetTrialStatusResponse newResponse() {
        return new GetTrialStatusResponse();
    }

    @Override
    protected void masterOperation(GetTrialStatusRequest request, ClusterState state,
        ActionListener<GetTrialStatusResponse> listener) throws Exception {
        LicensesMetaData licensesMetaData = state.metaData().custom(LicensesMetaData.TYPE);
        listener.onResponse(new GetTrialStatusResponse(licensesMetaData == null ||
licensesMetaData.isEligibleForTrial()));
    }

    @Override
    protected ClusterBlockException checkBlock(GetTrialStatusRequest request, ClusterState state) {
        return state.blocks().globalBlockedException(ClusterBlockLevel.METADATA_READ);
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.ElasticsearchException;
import org.elasticsearch.Version;
import org.elasticsearch.action.ActionListener;
import org.elasticsearch.cluster.AckedClusterStateUpdateTask;
import org.elasticsearch.cluster.ClusterChangedEvent;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.ClusterStateListener;
import org.elasticsearch.cluster.ack.ClusterStateUpdateResponse;
import org.elasticsearch.cluster.metadata.MetaData;
import org.elasticsearch.cluster.node.DiscoveryNode;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.common.component.AbstractLifecycleComponent;
import org.elasticsearch.common.component.Lifecycle;
import org.elasticsearch.common.joda.FormatDateTimeFormatter;
import org.elasticsearch.common.joda.Joda;
import org.elasticsearch.common.logging.LoggerMessageFormat;
import org.elasticsearch.common.settings.Setting;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.discovery.DiscoveryModule;

```

```

import org.elasticsearch.env.Environment;
import org.elasticsearch.gateway.GatewayService;
import org.elasticsearch.watcher.ResourceWatcherService;
import org.elasticsearch.xpack.core.XPackPlugin;
import org.elasticsearch.xpack.core.XPackSettings;
import org.elasticsearch.xpack.core.scheduler.SchedulerEngine;

import java.time.Clock;
import java.util.ArrayList;
import java.util.Arrays;
import java.util.Collections;
import java.util.HashMap;
import java.util.HashSet;
import java.util.List;
import java.util.Locale;
import java.util.Map;
import java.util.Set;
import java.util.concurrent.atomic.AtomicReference;

/**
 * Service responsible for managing { @link LicensesMetaData}.
 * <p>
 * On the master node, the service handles updating the cluster state when a new license is registered.
 * It also listens on all nodes for cluster state updates, and updates { @link XPackLicenseState } when
 * the license changes are detected in the cluster state.
 */
public class LicenseService extends AbstractLifecycleComponent implements ClusterStateListener,
SchedulerEngine.Listener {

    public static final Setting<String> SELF_GENERATED_LICENSE_TYPE = new
Setting<>("xpack.license.self_generated.type",
    (s) -> "basic", (s) -> {
        if (SelfGeneratedLicense.validSelfGeneratedType(s)) {
            return s;
        } else {
            throw new IllegalArgumentException("Illegal self generated license type [" + s + "]. Must be trial or basic.");
        }
    }, Setting.Property.NodeScope);

    // pkg private for tests
    static final TimeValue NON_BASIC_SELF_GENERATED_LICENSE_DURATION =
TimeValue.timeValueHours(30 * 24);

    static final Set<String> VALID_TRIAL_TYPES = new HashSet<>(Arrays.asList("trial", "platinum", "gold"));

/**
 * Duration of grace period after a license has expired
 */

```

```

static final TimeValue GRACE_PERIOD_DURATION = days(7);

public static final long BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS =
Long.MAX_VALUE - days(365).millis();

private final ClusterService clusterService;

/**
 * The xpack feature state to update when license changes are made.
 */
private final XPackLicenseState licenseState;

/**
 * Currently active license
 */
private final AtomicReference<License> currentLicense = new AtomicReference<>();
private SchedulerEngine scheduler;
private final Clock clock;

/**
 * File watcher for operation mode changes
 */
private final OperationModeFileWatcher operationModeFileWatcher;

/**
 * Callbacks to notify relative to license expiry
 */
private List<ExpirationCallback> expirationCallbacks = new ArrayList<>();

/**
 * Max number of nodes licensed by generated trial license
 */
static final int SELF_GENERATED_LICENSE_MAX_NODES = 1000;

public static final String LICENSE_JOB = "licenseJob";

private static final FormatDateTimeFormatter DATE_FORMATTER = Joda.forPattern("EEEE, MMMMM dd,
yyyy", Locale.ROOT);

private static final String ACKNOWLEDGEMENT_HEADER = "This license update requires acknowledgement.
To acknowledge the license, " +
    "please read the following messages and update the license again, this time with the \"acknowledge=true\"
parameter:";

public LicenseService(Settings settings, ClusterService clusterService, Clock clock, Environment env,
    ResourceWatcherService resourceWatcherService, XPackLicenseState licenseState) {
    super(settings);
    this.clusterService = clusterService;

```

```

this.clock = clock;
this.scheduler = new SchedulerEngine(clock);
this.licenseState = licenseState;
this.operationModeFileWatcher = new OperationModeFileWatcher(resourceWatcherService,
    XPackPlugin.resolveConfigFile(env, "license_mode"), logger, () -> updateLicenseState(getLicense()));
this.scheduler.register(this);
populateExpirationCallbacks();
}

private void logExpirationWarning(long expirationMillis, boolean expired) {
    String expiredMsg = expired ? "expired" : "will expire";
    String general = LoggerMessageFormat.format(null, "License [{}] on [{}].\n" +
        "# If you have a new license, please update it. Otherwise, please reach out to\n" +
        "# your support contact.\n" +
        "# ", expiredMsg, DATE_FORMATTER.printer().print(expirationMillis));
    if (expired) {
        general = general.toUpperCase(Locale.ROOT);
    }
    StringBuilder builder = new StringBuilder(general);
    builder.append(System.lineSeparator());
    if (expired) {
        builder.append("# COMMERCIAL PLUGINS OPERATING WITH REDUCED FUNCTIONALITY");
    } else {
        builder.append("# Commercial plugins operate with reduced functionality on license expiration:");
    }
    XPackLicenseState.EXPIRATION_MESSAGES.forEach((feature, messages) -> {
        if (messages.length > 0) {
            builder.append(System.lineSeparator());
            builder.append("# - ");
            builder.append(feature);
            for (String message : messages) {
                builder.append(System.lineSeparator());
                builder.append("# - ");
                builder.append(message);
            }
        }
    });
    logger.warn("{} ", builder);
}

private void populateExpirationCallbacks() {
    expirationCallbacks.add(new ExpirationCallback.Pre(days(7), days(25), days(1)) {
        @Override
        public void on(License license) {
            logExpirationWarning(license.expiryDate(), false);
        }
    });
    expirationCallbacks.add(new ExpirationCallback.Pre(days(0), days(7), TimeValue.timeValueMinutes(10)) {

```

```

@Override
public void on(License license) {
    logExpirationWarning(license.expiryDate(), false);
}
});
expirationCallbacks.add(new ExpirationCallback.Post(days(0), null, TimeValue.timeValueMinutes(10)) {
    @Override
    public void on(License license) {
        // logged when grace period begins
        logExpirationWarning(license.expiryDate(), true);
    }
});
}

/**
 * Registers new license in the cluster
 * Master only operation. Installs a new license on the master provided it is VALID
 */
public void registerLicense(final PutLicenseRequest request, final ActionListener<PutLicenseResponse> listener)
{
    final License newLicense = request.license();
    final long now = clock.millis();
    if (!LicenseVerifier.verifyLicense(newLicense) || newLicense.issueDate() > now || newLicense.startDate() >
now) {
        listener.onResponse(new PutLicenseResponse(true, LicensesStatus.INVALID));
    } else if (newLicense.type().equals("basic")) {
        listener.onFailure(new IllegalArgumentException("Registering basic licenses is not allowed."));
    } else if (newLicense.expiryDate() < now) {
        listener.onResponse(new PutLicenseResponse(true, LicensesStatus.EXPIRED));
    } else {
        if (!request.acknowledged()) {
            // TODO: ack messages should be generated on the master, since another node's cluster state may be
behind...
            final License currentLicense = getLicense();
            if (currentLicense != null) {
                Map<String, String[]> acknowledgeMessages = getAckMessages(newLicense, currentLicense);
                if (acknowledgeMessages.isEmpty() == false) {
                    // needs acknowledgement
                    listener.onResponse(new PutLicenseResponse(false, LicensesStatus.VALID,
ACKNOWLEDGEMENT_HEADER,
                    acknowledgeMessages));
                }
            }
        }
    }

    if (newLicense.isProductionLicense()
        && XPackSettings.SECURITY_ENABLED.get(settings)

```

```

        && XPackSettings.TRANSPORT_SSL_ENABLED.get(settings) == false
        && isProductionMode(settings, clusterService.localNode()) {
// security is on but TLS is not configured we gonna fail the entire request and throw an exception
throw new IllegalStateException("Cannot install a [" + newLicense.operationMode() +
        "] license unless TLS is configured or security is disabled");
// TODO we should really validate that all nodes have xpack installed and are consistently configured but
this
// should happen on a different level and not in this code
} else {
clusterService.submitStateUpdateTask("register license [" + newLicense.uid() + "]", new
        AckedClusterStateUpdateTask<PutLicenseResponse>(request, listener) {
            @Override
            protected PutLicenseResponse newResponse(boolean acknowledged) {
                return new PutLicenseResponse(acknowledged, LicensesStatus.VALID);
            }

            @Override
            public ClusterState execute(ClusterState currentState) throws Exception {
                XPackPlugin.checkReadyForXPackCustomMetadata(currentState);
                Metadata currentMetadata = currentState.metadata();
                LicensesMetadata licensesMetadata = currentMetadata.custom(LicensesMetadata.TYPE);
                Version trialVersion = null;
                if (licensesMetadata != null) {
                    trialVersion = licensesMetadata.getMostRecentTrialVersion();
                }
                Metadata.Builder mdBuilder = Metadata.builder(currentMetadata);
                mdBuilder.putCustom(LicensesMetadata.TYPE, new LicensesMetadata(newLicense,
trialVersion));
                return ClusterState.builder(currentState).metadata(mdBuilder).build();
            }
        });
    }
}

public static Map<String, String[]> getAckMessages(License newLicense, License currentLicense) {
    Map<String, String[]> acknowledgeMessages = new HashMap<>();
    if (!License.isAutoGeneratedLicense(currentLicense.signature()) // current license is not auto-generated
        && currentLicense.issueDate() > newLicense.issueDate()) { // and has a later issue date
        acknowledgeMessages.put("license", new String[]{
            "The new license is older than the currently installed license. " +
            "Are you sure you want to override the current license?" });
    }
    XPackLicenseState.ACKNOWLEDGMENT_MESSAGES.forEach((feature, ackMessages) -> {
        String[] messages = ackMessages.apply(currentLicense.operationMode(), newLicense.operationMode());
        if (messages.length > 0) {
            acknowledgeMessages.put(feature, messages);
        }
    });
}

```

```

    });
    return acknowledgeMessages;
}

private static TimeValue days(int days) {
    return TimeValue.timeValueHours(days * 24);
}

@Override
public void triggered(SchedulerEngine.Event event) {
    final LicensesMetaData licensesMetaData =
clusterService.state().metaData().custom(LicensesMetaData.TYPE);
    if (licensesMetaData != null) {
        final License license = licensesMetaData.getLicense();
        if (event.getJobName().equals(LICENSE_JOB)) {
            updateLicenseState(license);
        } else if (event.getJobName().startsWith(ExpirationCallback.EXPIRATION_JOB_PREFIX)) {
            expirationCallbacks.stream()
                .filter(expirationCallback -> expirationCallback.getId().equals(event.getJobName()))
                .forEach(expirationCallback -> expirationCallback.on(license));
        }
    }
}

/**
 * Remove license from the cluster state metadata
 */
public void removeLicense(final DeleteLicenseRequest request, final
ActionListener<ClusterStateUpdateResponse> listener) {
    clusterService.submitStateUpdateTask("delete license",
        new AckedClusterStateUpdateTask<ClusterStateUpdateResponse>(request, listener) {
            @Override
            protected ClusterStateUpdateResponse newResponse(boolean acknowledged) {
                return new ClusterStateUpdateResponse(acknowledged);
            }
        }

    @Override
    public ClusterState execute(ClusterState currentState) throws Exception {
        MetaData metaData = currentState.metaData();
        final LicensesMetaData currentLicenses = metaData.custom(LicensesMetaData.TYPE);
        if (currentLicenses.getLicense() != LicensesMetaData.LICENSE_TOMBSTONE) {
            MetaData.Builder mdBuilder = MetaData.builder(currentState.metaData());
            LicensesMetaData newMetadadata = new
LicensesMetaData(LicensesMetaData.LICENSE_TOMBSTONE,
                currentLicenses.getMostRecentTrialVersion());
            mdBuilder.putCustom(LicensesMetaData.TYPE, newMetadadata);
            return ClusterState.builder(currentState).metaData(mdBuilder).build();
        }
    }
}

```



```

        } else {
            return currentState;
        }
    }
});
}

public License getLicense() {
    final License license = getLicense(clusterService.state().metaData());
    return license == LicensesMetaData.LICENSE_TOMBSTONE ? null : license;
}

void startTrialLicense(PostStartTrialRequest request, final ActionListener<PostStartTrialResponse> listener) {
    if (VALID_TRIAL_TYPES.contains(request.getType()) == false) {
        throw new IllegalArgumentException("Cannot start trial of type [" + request.getType() + "]. Valid trial types
are "
            + VALID_TRIAL_TYPES + ".");
    }
    StartTrialClusterTask task = new StartTrialClusterTask(logger, clusterService.getClusterName().value(), clock,
request, listener);
    clusterService.submitStateUpdateTask("started trial license", task);
}

void startBasicLicense(PostStartBasicRequest request, final ActionListener<PostStartBasicResponse> listener) {
    StartBasicClusterTask task = new StartBasicClusterTask(logger, clusterService.getClusterName().value(),
clock, request, listener);
    clusterService.submitStateUpdateTask("start basic license", task);
}

/**
 * Master-only operation to generate a one-time global self generated license.
 * The self generated license is only generated and stored if the current cluster state metadata
 * has no existing license. If the cluster currently has a basic license that has an expiration date,
 * a new basic license with no expiration date is generated.
 */
private void registerOrUpdateSelfGeneratedLicense() {
    clusterService.submitStateUpdateTask("maybe generate license for cluster",
        new StartupSelfGeneratedLicenseTask(settings, clock, clusterService));
}

@Override
protected void doStart() throws ElasticsearchException {
    clusterService.addListener(this);
    scheduler.start(Collections.emptyList());
    logger.debug("initializing license state");
    if (clusterService.lifecycleState() == Lifecycle.State.STARTED) {
        final ClusterState clusterState = clusterService.state();
        if (clusterState.blocks().hasGlobalBlock(GatewayService.STATE_NOT_RECOVERED_BLOCK) == false

```

```

    &&
        clusterState.nodes().getMasterNode() != null &&
XPackPlugin.isReadyForXPackCustomMetadata(clusterState)) {
    final LicensesMetaData currentMetaData = clusterState.metaData().custom(LicensesMetaData.TYPE);
    boolean noLicense = currentMetaData == null || currentMetaData.getLicense() == null;
    if (clusterState.getNodes().isLocalNodeElectedMaster() &&
        (noLicense || LicenseUtils.licenseNeedsExtended(currentMetaData.getLicense()))) {
        // triggers a cluster changed event eventually notifying the current licensee
        registerOrUpdateSelfGeneratedLicense();
    }
}
}
}

@Override
protected void doStop() throws ElasticsearchException {
    clusterService.removeListener(this);
    scheduler.stop();
    // clear current license
    currentLicense.set(null);
}

@Override
protected void doClose() throws ElasticsearchException {
}

/**
 * When there is no global block on {@link
org.elasticsearch.gateway.GatewayService#STATE_NOT_RECOVERED_BLOCK}
 * notify licensees and issue auto-generated license if no license has been installed/issued yet.
 */
@Override
public void clusterChanged(ClusterChangedEvent event) {
    final ClusterState previousClusterState = event.previousState();
    final ClusterState currentClusterState = event.state();
    if (!currentClusterState.blocks().hasGlobalBlock(GatewayService.STATE_NOT_RECOVERED_BLOCK)) {
        if (XPackPlugin.isReadyForXPackCustomMetadata(currentClusterState) == false) {
            logger.debug("cannot add license to cluster as the following nodes might not understand the license
metadata: {}",
                () -> XPackPlugin.nodesNotReadyForXPackCustomMetadata(currentClusterState));
            return;
        }

        final LicensesMetaData prevLicensesMetaData =
previousClusterState.getMetaData().custom(LicensesMetaData.TYPE);
        final LicensesMetaData currentLicensesMetaData =
currentClusterState.getMetaData().custom(LicensesMetaData.TYPE);
        if (logger.isDebugEnabled()) {

```

```

        logger.debug("previous [{}]", prevLicensesMetaData);
        logger.debug("current [{}]", currentLicensesMetaData);
    }
    // notify all interested plugins
    if (previousClusterState.blocks().hasGlobalBlock(GatewayService.STATE_NOT_RECOVERED_BLOCK)
        || prevLicensesMetaData == null) {
        if (currentLicensesMetaData != null) {
            onUpdate(currentLicensesMetaData);
        }
    } else if (!prevLicensesMetaData.equals(currentLicensesMetaData)) {
        onUpdate(currentLicensesMetaData);
    }

    License currentLicense = null;
    boolean noLicenseInPrevMetadata = prevLicensesMetaData == null || prevLicensesMetaData.getLicense()
    == null;
    if (noLicenseInPrevMetadata == false) {
        currentLicense = prevLicensesMetaData.getLicense();
    }
    boolean noLicenseInCurrentMetadata = (currentLicensesMetaData == null ||
currentLicensesMetaData.getLicense() == null);
    if (noLicenseInCurrentMetadata == false) {
        currentLicense = currentLicensesMetaData.getLicense();
    }

    boolean noLicense = noLicenseInPrevMetadata && noLicenseInCurrentMetadata;
    // auto-generate license if no licenses ever existed or if the current license is basic and
    // needs extended. this will trigger a subsequent cluster changed event
    if (currentClusterState.getNodes().isLocalNodeElectedMaster()
        && (noLicense || LicenseUtils.licenseNeedsExtended(currentLicense))) {
        registerOrUpdateSelfGeneratedLicense();
    }
} else if (logger.isDebugEnabled()) {
    logger.debug("skipped license notifications reason: [{}]",
GatewayService.STATE_NOT_RECOVERED_BLOCK);
}
}

protected void updateLicenseState(final License license) {
    if (license == LicensesMetaData.LICENSE_TOMBSTONE) {
        // implies license has been explicitly deleted
        licenseState.update(License.OperationMode.MISSING, false);
        return;
    }
    if (license != null) {
        long time = clock.millis();
        boolean active;
        if (license.expiryDate() == BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS) {

```

```

        active = true;
    } else {
        // We subtract the grace period from the current time to avoid overflowing on an expiration
        // date that is near Long.MAX_VALUE
        active = time >= license.issueDate() && time - GRACE_PERIOD_DURATION.getMillis() <
license.expiryDate();
    }
    licenseState.update(license.operationMode(), active);

    if (active) {
        if (time < license.expiryDate()) {
            logger.debug("license [{}] - valid", license.uid());
        } else {
            logger.warn("license [{}] - grace", license.uid());
        }
    } else {
        logger.warn("license [{}] - expired", license.uid());
    }
}

/**
 * Notifies registered licensees of license state change and/or new active license
 * based on the license in <code>currentLicensesMetaData</code>.
 * Additionally schedules license expiry notifications and event callbacks
 * relative to the current license's expiry
 */
private void onUpdate(final LicensesMetaData currentLicensesMetaData) {
    final License license = getLicense(currentLicensesMetaData);
    // license can be null if the trial license is yet to be auto-generated
    // in this case, it is a no-op
    if (license != null) {
        final License previousLicense = currentLicense.get();
        if (license.equals(previousLicense) == false) {
            currentLicense.set(license);
            license.setOperationModeFileWatcher(operationModeFileWatcher);
            scheduler.add(new SchedulerEngine.Job(LICENSE_JOB, nextLicenseCheck(license)));
            for (ExpirationCallback expirationCallback : expirationCallbacks) {
                scheduler.add(new SchedulerEngine.Job(expirationCallback.getId(),
                    (startTime, now) ->
                        expirationCallback.nextScheduledTimeForExpiry(license.expiryDate(), startTime, now)));
            }
            if (previousLicense != null) {
                // remove operationModeFileWatcher to gc the old license object
                previousLicense.removeOperationModeFileWatcher();
            }
            logger.info("license [{}] mode [{}] - valid", license.uid(),
                license.operationMode().name().toLowerCase(Locale.ROOT));
        }
    }
}

```

```

    }
    updateLicenseState(license);
}
}

// pkg private for tests
static SchedulerEngine.Schedule nextLicenseCheck(License license) {
    return (startTime, time) -> {
        if (time < license.issueDate()) {
            // when we encounter a license with a future issue date
            // which can happen with autogenerated license,
            // we want to schedule a notification on the license issue date
            // so the license is notified once it is valid
            // see https://github.com/elastic/x-plugins/issues/983
            return license.issueDate();
        } else if (time < license.expiryDate()) {
            return license.expiryDate();
        } else if (time < license.expiryDate() + GRACE_PERIOD_DURATION.getMillis()) {
            return license.expiryDate() + GRACE_PERIOD_DURATION.getMillis();
        }
        return -1; // license is expired, no need to check again
    };
}

public static License getLicense(final MetaData metaData) {
    final LicensesMetaData licensesMetaData = metaData.custom(LicensesMetaData.TYPE);
    return getLicense(licensesMetaData);
}

static License getLicense(final LicensesMetaData metaData) {
    if (metaData != null) {
        License license = metaData.getLicense();
        if (license == LicensesMetaData.LICENSE_TOMBSTONE) {
            return license;
        } else if (license != null) {
            boolean autoGeneratedLicense = License.isAutoGeneratedLicense(license.signature());
            if ((autoGeneratedLicense && SelfGeneratedLicense.verify(license))
                || (!autoGeneratedLicense && LicenseVerifier.verifyLicense(license))) {
                return license;
            }
        }
    }
    return null;
}

private static boolean isProductionMode(Settings settings, DiscoveryNode localNode) {
    final boolean singleNodeDisco = "single-
node".equals(DiscoveryModule.DISCOVERY_TYPE_SETTING.get(settings));
}

```

```

    return singleNodeDisco == false && isBoundToLoopback(localNode) == false;
}

private static boolean isBoundToLoopback(DiscoveryNode localNode) {
    return localNode.getAddress().address().isLoopbackAddress();
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.Action;
import org.elasticsearch.client.ElasticsearchClient;

public class PostStartTrialAction extends Action<PostStartTrialRequest, PostStartTrialResponse,
PostStartTrialRequestBuilder> {

    public static final PostStartTrialAction INSTANCE = new PostStartTrialAction();
    public static final String NAME = "cluster:admin/xpack/license/start_trial";

    private PostStartTrialAction() {
        super(NAME);
    }

    @Override
    public PostStartTrialRequestBuilder newRequestBuilder(ElasticsearchClient client) {
        return new PostStartTrialRequestBuilder(client, this);
    }

    @Override
    public PostStartTrialResponse newResponse() {
        return new PostStartTrialResponse();
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionListener;
import org.elasticsearch.client.ElasticsearchClient;
import org.elasticsearch.rest.action.RestBuilderListener;

```

```

public class LicensingClient {

    private final ElasticsearchClient client;

    public LicensingClient(ElasticsearchClient client) {
        this.client = client;
    }

    public PutLicenseRequestBuilder preparePutLicense(License license) {
        return new PutLicenseRequestBuilder(client).setLicense(license);
    }

    public void putLicense(PutLicenseRequest request, ActionListener<PutLicenseResponse> listener) {
        client.execute(PutLicenseAction.INSTANCE, request, listener);
    }

    public GetLicenseRequestBuilder prepareGetLicense() {
        return new GetLicenseRequestBuilder(client);
    }

    public void getLicense(GetLicenseRequest request, ActionListener<GetLicenseResponse> listener) {
        client.execute(GetLicenseAction.INSTANCE, request, listener);
    }

    public DeleteLicenseRequestBuilder prepareDeleteLicense() {
        return new DeleteLicenseRequestBuilder(client);
    }

    public void deleteLicense(DeleteLicenseRequest request, ActionListener<DeleteLicenseResponse> listener) {
        client.execute(DeleteLicenseAction.INSTANCE, request, listener);
    }

    public PostStartTrialRequestBuilder preparePostStartTrial() {
        return new PostStartTrialRequestBuilder(client, PostStartTrialAction.INSTANCE);
    }

    public GetTrialStatusRequestBuilder prepareGetStartTrial() {
        return new GetTrialStatusRequestBuilder(client, GetTrialStatusAction.INSTANCE);
    }

    public void postStartTrial(PostStartTrialRequest request, ActionListener<PostStartTrialResponse> listener) {
        client.execute(PostStartTrialAction.INSTANCE, request, listener);
    }

    public void postStartBasic(PostStartBasicRequest request, ActionListener<PostStartBasicResponse> listener) {
        client.execute(PostStartBasicAction.INSTANCE, request, listener);
    }
}

```

```

public PostStartBasicRequestBuilder preparePostStartBasic() {
    return new PostStartBasicRequestBuilder(client, PostStartBasicAction.INSTANCE);
}

public GetBasicStatusRequestBuilder prepareGetStartBasic() {
    return new GetBasicStatusRequestBuilder(client, GetBasicStatusAction.INSTANCE);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.rest.BytesRestResponse;
import org.elasticsearch.rest.RestController;
import org.elasticsearch.rest.RestRequest;
import org.elasticsearch.rest.RestResponse;
import org.elasticsearch.rest.RestStatus;
import org.elasticsearch.rest.action.RestBuilderListener;
import org.elasticsearch.xpack.core.XPackClient;
import org.elasticsearch.xpack.core.rest.XPackRestHandler;

import java.io.IOException;

import static org.elasticsearch.rest.RestRequest.Method.GET;

public class RestGetBasicStatus extends XPackRestHandler {

    RestGetBasicStatus(Settings settings, RestController controller) {
        super(settings);
        controller.registerHandler(GET, URI_BASE + "/license/basic_status", this);
    }

    @Override
    protected RestChannelConsumer doPrepareRequest(RestRequest request, XPackClient client) throws IOException
    {
        return channel -> client.licensing().prepareGetStartBasic().execute(
            new RestBuilderListener<GetBasicStatusResponse>(channel) {
                @Override
                public RestResponse buildResponse(GetBasicStatusResponse response, XContentBuilder builder)
                throws Exception {
                    builder.startObject();
                    builder.field("eligible_to_start_basic", response.isEligibleToStartBasic());
                    builder.endObject();
                }
            }
        );
    }
}

```



```

        return new BytesRestResponse(RestStatus.OK, builder);
    }
});
}

@Override
public String getName() {
    return "xpack_basic_status_action";
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionRequestValidationException;
import org.elasticsearch.action.support.master.AcknowledgedRequest;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;

import java.io.IOException;

public class DeleteLicenseRequest extends AcknowledgedRequest<DeleteLicenseRequest> {

    public DeleteLicenseRequest() {
    }

    @Override
    public ActionRequestValidationException validate() {
        return null;
    }

    @Override
    public void readFrom(StreamInput in) throws IOException {
        super.readFrom(in);
    }

    @Override
    public void writeTo(StreamOutput out) throws IOException {
        super.writeTo(out);
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;

```

```

* you may not use this file except in compliance with the Elastic License.
*/
package org.elasticsearch.license;

import org.apache.logging.log4j.Logger;
import org.apache.logging.log4j.message.ParameterizedMessage;
import org.apache.logging.log4j.util.Supplier;
import org.elasticsearch.Version;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.ClusterStateUpdateTask;
import org.elasticsearch.cluster.metadata.MetaData;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.common.Nullable;
import org.elasticsearch.common.logging.Loggers;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.xpack.core.XPackPlugin;

import java.time.Clock;
import java.util.UUID;

public class StartupSelfGeneratedLicenseTask extends ClusterStateUpdateTask {

    /**
     * Max number of nodes licensed by generated trial license
     */
    private int selfGeneratedLicenseMaxNodes = 1000;

    private final Settings settings;
    private final Clock clock;
    private final ClusterService clusterService;
    private final Logger logger;

    public StartupSelfGeneratedLicenseTask(Settings settings, Clock clock, ClusterService clusterService) {
        this.settings = settings;
        this.clock = clock;
        this.clusterService = clusterService;
        this.logger = Loggers.getLogger(getClass(), settings);
    }

    @Override
    public void clusterStateProcessed(String source, ClusterState oldState, ClusterState newState) {
        LicensesMetaData licensesMetaData = newState.metadata().custom(LicensesMetaData.TYPE);
        if (logger.isDebugEnabled()) {
            logger.debug("registered self generated license: {}", licensesMetaData);
        }
    }

    @Override

```

```

public ClusterState execute(ClusterState currentState) throws Exception {
    XPackPlugin.checkReadyForXPackCustomMetadata(currentState);
    final MetaData metaData = currentState.metaData();
    final LicensesMetaData currentLicensesMetaData = metaData.custom(LicensesMetaData.TYPE);
    // do not generate a license if any license is present
    if (currentLicensesMetaData == null) {
        String type = LicenseService.SELF_GENERATED_LICENSE_TYPE.get(settings);
        if (SelfGeneratedLicense.validSelfGeneratedType(type) == false) {
            throw new IllegalArgumentException("Illegal self generated license type [" + type +
                "]. Must be trial or basic.");
        }

        return updateWithLicense(currentState, type);
    } else if (LicenseUtils.licenseNeedsExtended(currentLicensesMetaData.getLicense())) {
        return extendBasic(currentState, currentLicensesMetaData);
    } else {
        return currentState;
    }
}

@Override
public void onFailure(String source, @Nullable Exception e) {
    logger.error((Supplier<?>) () -> new ParameterizedMessage("unexpected failure during [{}]", source), e);
}

private ClusterState extendBasic(ClusterState currentState, LicensesMetaData currentLicenseMetadata) {
    License license = currentLicenseMetadata.getLicense();
    MetaData.Builder mdBuilder = MetaData.builder(currentState.metaData());
    LicensesMetaData newLicenseMetadata = createBasicLicenseFromExistingLicense(currentLicenseMetadata);
    mdBuilder.putCustom(LicensesMetaData.TYPE, newLicenseMetadata);
    logger.info("Existing basic license has an expiration. Basic licenses no longer expire." +
        "Regenerating license.\n\nOld license:\n { }\n\n New license:\n{ }", license,
newLicenseMetadata.getLicense());
    return ClusterState.builder(currentState).metaData(mdBuilder).build();
}

private LicensesMetaData createBasicLicenseFromExistingLicense(LicensesMetaData currentLicenseMetadata) {
    License currentLicense = currentLicenseMetadata.getLicense();
    License.Builder specBuilder = License.builder()
        .uid(currentLicense.uid())
        .issuedTo(currentLicense.issuedTo())
        .maxNodes(selfGeneratedLicenseMaxNodes)
        .issueDate(currentLicense.issueDate())
        .type("basic")
        .expiryDate(LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS);
    License selfGeneratedLicense = SelfGeneratedLicense.create(specBuilder);
    Version trialVersion = currentLicenseMetadata.getMostRecentTrialVersion();
    return new LicensesMetaData(selfGeneratedLicense, trialVersion);
}

```

```

}

private ClusterState updateWithLicense(ClusterState currentState, String type) {
    long issueDate = clock.millis();
    Metadata.Builder mdBuilder = Metadata.builder(currentState.metadata());
    long expiryDate;
    if ("basic".equals(type)) {
        expiryDate = LicenseService.BASIC_SELF_GENERATED_LICENSE_EXPIRATION_MILLIS;
    } else {
        expiryDate = issueDate +
LicenseService.NON_BASIC_SELF_GENERATED_LICENSE_DURATION.getMillis();
    }
    License.Builder specBuilder = License.builder()
        .uid(UUID.randomUUID().toString())
        .issuedTo(clusterService.getClusterName().value())
        .maxNodes(selfGeneratedLicenseMaxNodes)
        .issueDate(issueDate)
        .type(type)
        .expiryDate(expiryDate);
    License selfGeneratedLicense = SelfGeneratedLicense.create(specBuilder);
    LicensesMetadata licensesMetadata;
    if ("trial".equals(type)) {
        licensesMetadata = new LicensesMetadata(selfGeneratedLicense, Version.CURRENT);
    } else {
        licensesMetadata = new LicensesMetadata(selfGeneratedLicense, null);
    }
    mdBuilder.putCustom(LicensesMetadata.TYPE, licensesMetadata);
    return ClusterState.builder(currentState).metadata(mdBuilder).build();
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.support.master.AcknowledgedResponse;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;
import org.elasticsearch.common.xcontent.XContentBuilder;
import org.elasticsearch.rest.RestStatus;

import java.io.IOException;
import java.util.Collections;
import java.util.HashMap;
import java.util.Map;

```

```

import static org.elasticsearch.license.PostStartBasicResponse.Status.NEED_ACKNOWLEDGEMENT;

class PostStartBasicResponse extends AcknowledgedResponse {

    private Map<String, String[]> acknowledgeMessages;
    private String acknowledgeMessage;

    enum Status {
        GENERATED_BASIC(true, null, RestStatus.OK),
        ALREADY_USING_BASIC(false, "Operation failed: Current license is basic.", RestStatus.FORBIDDEN),
        NEED_ACKNOWLEDGEMENT(false, "Operation failed: Needs acknowledgement.", RestStatus.OK);

        private final boolean isBasicStarted;
        private final String errorMessage;
        private final RestStatus restStatus;

        Status(boolean isBasicStarted, String errorMessage, RestStatus restStatus) {
            this.isBasicStarted = isBasicStarted;
            this.errorMessage = errorMessage;
            this.restStatus = restStatus;
        }

        boolean isBasicStarted() {
            return isBasicStarted;
        }

        String getErrorMessage() {
            return errorMessage;
        }

        RestStatus getRestStatus() {
            return restStatus;
        }
    }

    private Status status;

    PostStartBasicResponse() {
    }

    PostStartBasicResponse(Status status) {
        this(status, Collections.emptyMap(), null);
    }

    PostStartBasicResponse(Status status, Map<String, String[]> acknowledgeMessages, String
acknowledgeMessage) {
        super(status != NEED_ACKNOWLEDGEMENT);
        this.status = status;
    }

```

```

    this.acknowledgeMessages = acknowledgeMessages;
    this.acknowledgeMessage = acknowledgeMessage;
}

public Status getStatus() {
    return status;
}

@Override
public void readFrom(StreamInput in) throws IOException {
    super.readFrom(in);
    readAcknowledged(in);
    status = in.readEnum(Status.class);
    acknowledgeMessage = in.readOptionalString();
    int size = in.readVInt();
    Map<String, String[]> acknowledgeMessages = new HashMap<>(size);
    for (int i = 0; i < size; i++) {
        String feature = in.readString();
        int nMessages = in.readVInt();
        String[] messages = new String[nMessages];
        for (int j = 0; j < nMessages; j++) {
            messages[j] = in.readString();
        }
        acknowledgeMessages.put(feature, messages);
    }
    this.acknowledgeMessages = acknowledgeMessages;
}

@Override
public void writeTo(StreamOutput out) throws IOException {
    super.writeTo(out);
    writeAcknowledged(out);
    out.writeEnum(status);
    out.writeOptionalString(acknowledgeMessage);
    out.writeVInt(acknowledgeMessages.size());
    for (Map.Entry<String, String[]> entry : acknowledgeMessages.entrySet()) {
        out.writeString(entry.getKey());
        out.writeVInt(entry.getValue().length);
        for (String message : entry.getValue()) {
            out.writeString(message);
        }
    }
}

@Override
protected void addCustomFields(XContentBuilder builder, Params params) throws IOException {
    if (status.isBasicStarted()) {
        builder.field("basic_was_started", true);
    }
}

```

```

    } else {
        builder.field("basic_was_started", false);
        builder.field("error_message", status.getErrorMessage());
    }
    if (acknowledgeMessages.isEmpty() == false) {
        builder.startObject("acknowledge");
        builder.field("message", acknowledgeMessage);
        for (Map.Entry<String, String[]> entry : acknowledgeMessages.entrySet()) {
            builder.startArray(entry.getKey());
            for (String message : entry.getValue()) {
                builder.value(message);
            }
            builder.endArray();
        }
        builder.endObject();
    }
}
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.joda.FormatDateTimeFormatter;
import org.elasticsearch.common.joda.Joda;
import org.joda.time.MutableDateTime;
import org.joda.time.format.DateTimeFormatter;
import org.joda.time.format.ISODateTimeFormat;

public class DateUtils {

    private static final FormatDateTimeFormatter formatDateOnlyFormatter = Joda.forPattern("yyyy-MM-dd");

    private static final DateTimeFormatter dateOnlyFormatter = formatDateOnlyFormatter.parser().withZoneUTC();

    private static final DateTimeFormatter dateTimeFormatter = ISODateTimeFormat.dateTime().withZoneUTC();

    public static long endOfDay(String date) {
        try {
            // Try parsing using complete date/time format
            return dateTimeFormatter.parseDateTime(date).getMillis();
        } catch (IllegalArgumentException ex) {
            // Fall back to the date only format
            MutableDateTime dateTime = dateOnlyFormatter.parseMutableDateTime(date);
            dateTime.millisOfDay().set(dateTime.millisOfDay().getMaximumValue());
            return dateTime.getMillis();
        }
    }
}

```

```

    }
}

public static long beginningOfTheDay(String date) {
    try {
        // Try parsing using complete date/time format
        return dateTimeFormatter.parseDateTime(date).getMillis();
    } catch (IllegalArgumentException ex) {
        // Fall back to the date only format
        return dateOnlyFormatter.parseDateTime(date).getMillis();
    }
}

}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.support.master.AcknowledgedRequestBuilder;
import org.elasticsearch.client.ElasticsearchClient;

public class DeleteLicenseRequestBuilder extends AcknowledgedRequestBuilder<DeleteLicenseRequest,
DeleteLicenseResponse,
DeleteLicenseRequestBuilder> {

    public DeleteLicenseRequestBuilder(ElasticsearchClient client) {
        this(client, DeleteLicenseAction.INSTANCE);
    }

    /**
     * Creates new get licenses request builder
     *
     * @param client elasticsearch client
     */
    public DeleteLicenseRequestBuilder(ElasticsearchClient client, DeleteLicenseAction action) {
        super(client, action, new DeleteLicenseRequest());
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

```



```

public enum LicensesStatus {
    VALID((byte) 0),
    INVALID((byte) 1),
    EXPIRED((byte) 2);

    private final byte id;

    LicensesStatus(byte id) {
        this.id = id;
    }

    public int id() {
        return id;
    }

    public static LicensesStatus fromId(int id) {
        if (id == 0) {
            return VALID;
        } else if (id == 1) {
            return INVALID;
        } else if (id == 2) {
            return EXPIRED;
        } else {
            throw new IllegalStateException("no valid LicensesStatus for id=" + id);
        }
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */

/**
 * Licensing for xpack.
 *
 * A {@link org.elasticsearch.license.License} is a signed set of json properties that determine what features
 * are available in a running cluster. Licenses are registered through a
 * {@link org.elasticsearch.license.PutLicenseRequest}. This action is handled by the master node, which places
 * the signed license into the cluster state. Each node listens for cluster state updates via the
 * {@link org.elasticsearch.license.LicenseService}, and updates its local copy of the license when it detects
 * changes in the cluster state.
 *
 * The logic for which features are available given the current license is handled by
 * {@link org.elasticsearch.license.XPackLicenseState}, which is updated by the
 * {@link org.elasticsearch.license.LicenseService} when the license changes.
 */
package org.elasticsearch.license;

```

```

/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.ElasticsearchException;
import org.elasticsearch.action.ActionListener;
import org.elasticsearch.action.support.ActionFilters;
import org.elasticsearch.action.support.master.TransportMasterNodeAction;
import org.elasticsearch.cluster.service.ClusterService;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.block.ClusterBlockException;
import org.elasticsearch.cluster.block.ClusterBlockLevel;
import org.elasticsearch.cluster.metadata.IndexNameExpressionResolver;
import org.elasticsearch.common.inject.Inject;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.threadpool.ThreadPool;
import org.elasticsearch.transport.TransportService;

public class TransportPutLicenseAction extends TransportMasterNodeAction<PutLicenseRequest,
PutLicenseResponse> {

    private final LicenseService licenseService;

    @Inject
    public TransportPutLicenseAction(Settings settings, TransportService transportService, ClusterService
clusterService,
                                   LicenseService licenseService, ThreadPool threadPool, ActionFilters actionFilters,
                                   IndexNameExpressionResolver indexNameExpressionResolver) {
        super(settings, PutLicenseAction.NAME, transportService, clusterService, threadPool, actionFilters,
indexNameExpressionResolver,
              PutLicenseRequest::new);
        this.licenseService = licenseService;
    }

    @Override
    protected String executor() {
        return ThreadPool.Names.MANAGEMENT;
    }

    @Override
    protected PutLicenseResponse newResponse() {
        return new PutLicenseResponse();
    }

    @Override

```

```

protected ClusterBlockException checkBlock(PutLicenseRequest request, ClusterState state) {
    return state.blocks().globalBlockedException(ClusterBlockLevel.METADATA_WRITE);
}

@Override
protected void masterOperation(final PutLicenseRequest request, ClusterState state, final
ActionListener<PutLicenseResponse>
    listener) throws ElasticsearchException {
    licenseService.registerLicense(request, listener);
}

}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionRequestBuilder;
import org.elasticsearch.client.ElasticsearchClient;

class PostStartBasicRequestBuilder extends ActionRequestBuilder<PostStartBasicRequest,
    PostStartBasicResponse, PostStartBasicRequestBuilder> {

    PostStartBasicRequestBuilder(ElasticsearchClient client, PostStartBasicAction action) {
        super(client, action, new PostStartBasicRequest());
    }

    public PostStartBasicRequestBuilder setAcknowledge(boolean acknowledge) {
        request.acknowledge(acknowledge);
        return this;
    }
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionResponse;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;

import java.io.IOException;

class GetTrialStatusResponse extends ActionResponse {

```

```

private boolean eligibleToStartTrial;

GetTrialStatusResponse() {
}

GetTrialStatusResponse(boolean eligibleToStartTrial) {
    this.eligibleToStartTrial = eligibleToStartTrial;
}

boolean isEligibleToStartTrial() {
    return eligibleToStartTrial;
}

@Override
public void readFrom(StreamInput in) throws IOException {
    eligibleToStartTrial = in.readBoolean();
}

@Override
public void writeTo(StreamOutput out) throws IOException {
    out.writeBoolean(eligibleToStartTrial);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.apache.logging.log4j.Logger;
import org.apache.logging.log4j.message.ParameterizedMessage;
import org.elasticsearch.Version;
import org.elasticsearch.action.ActionListener;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.cluster.ClusterStateUpdateTask;
import org.elasticsearch.cluster.metadata.Metadata;
import org.elasticsearch.common.Nullable;
import org.elasticsearch.xpack.core.XPackPlugin;

import java.time.Clock;
import java.util.Collections;
import java.util.HashMap;
import java.util.Map;
import java.util.UUID;
import java.util.concurrent.atomic.AtomicBoolean;
import java.util.concurrent.atomic.AtomicReference;

```

```

public class StartTrialClusterTask extends ClusterStateUpdateTask {

    private static final String ACKNOWLEDGEMENT_HEADER = "This API initiates a free 30-day trial for all
    platinum features. " +
        "By starting this trial, you agree that it is subject to the terms and conditions at" +
        " https://www.elastic.co/legal/trial_license/. To begin your free trial, call /start_trial again and specify " +
        "the \"acknowledge=true\" parameter.";

    private static final Map<String, String[]> ACK_MESSAGES = Collections.singletonMap("security",
        new String[] { "With a trial license, X-Pack security features are available, but are not enabled by default." });

    private final Logger logger;
    private final String clusterName;
    private final PostStartTrialRequest request;
    private final ActionListener<PostStartTrialResponse> listener;
    private final Clock clock;

    StartTrialClusterTask(Logger logger, String clusterName, Clock clock, PostStartTrialRequest request,
        ActionListener<PostStartTrialResponse> listener) {
        this.logger = logger;
        this.clusterName = clusterName;
        this.request = request;
        this.listener = listener;
        this.clock = clock;
    }

    @Override
    public void clusterStateProcessed(String source, ClusterState oldState, ClusterState newState) {
        LicensesMetaData oldLicensesMetaData = oldState.metaData().custom(LicensesMetaData.TYPE);
        logger.debug("started self generated trial license: {}", oldLicensesMetaData);

        if (request.isAcknowledged() == false) {
            listener.onResponse(new
                PostStartTrialResponse(PostStartTrialResponse.Status.NEED_ACKNOWLEDGEMENT,
                    ACK_MESSAGES, ACKNOWLEDGEMENT_HEADER));
        } else if (oldLicensesMetaData == null || oldLicensesMetaData.isEligibleForTrial()) {
            listener.onResponse(new PostStartTrialResponse(PostStartTrialResponse.Status.UPGRADED_TO_TRIAL));
        } else {
            listener.onResponse(new
                PostStartTrialResponse(PostStartTrialResponse.Status.TRIAL_ALREADY_ACTIVATED));
        }
    }

    @Override
    public ClusterState execute(ClusterState currentState) throws Exception {
        XPackPlugin.checkReadyForXPackCustomMetadata(currentState);
        LicensesMetaData currentLicensesMetaData = currentState.metaData().custom(LicensesMetaData.TYPE);
    }
}

```

```

if (request.isAcknowledged() == false) {
    return currentState;
} else if (currentLicensesMetaData == null || currentLicensesMetaData.isEligibleForTrial()) {
    long issueDate = clock.millis();
    MetaData.Builder mdBuilder = MetaData.builder(currentState.metaData());
    long expiryDate = issueDate +
LicenseService.NON_BASIC_SELF_GENERATED_LICENSE_DURATION.getMillis();

    License.Builder specBuilder = License.builder()
        .uid(UUID.randomUUID().toString())
        .issuedTo(clusterName)
        .maxNodes(LicenseService.SELF_GENERATED_LICENSE_MAX_NODES)
        .issueDate(issueDate)
        .type(request.getType())
        .expiryDate(expiryDate);
    License selfGeneratedLicense = SelfGeneratedLicense.create(specBuilder);
    LicensesMetaData newLicensesMetaData = new LicensesMetaData(selfGeneratedLicense,
Version.CURRENT);
    mdBuilder.putCustom(LicensesMetaData.TYPE, newLicensesMetaData);
    return ClusterState.builder(currentState).metaData(mdBuilder).build();
} else {
    return currentState;
}
}

@Override
public void onFailure(String source, @Nullable Exception e) {
    logger.error(new ParameterizedMessage("unexpected failure during [{ }]", source), e);
    listener.onFailure(e);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionRequestValidationException;
import org.elasticsearch.action.support.master.AcknowledgedRequest;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;

import java.io.IOException;

public class PostStartBasicRequest extends AcknowledgedRequest<PostStartBasicRequest> {

```

```

private boolean acknowledge = false;

@Override
public ActionRequestValidationException validate() {
    return null;
}

public PostStartBasicRequest acknowledge(boolean acknowledge) {
    this.acknowledge = acknowledge;
    return this;
}

public boolean isAcknowledged() {
    return acknowledge;
}

@Override
public void readFrom(StreamInput in) throws IOException {
    super.readFrom(in);
    acknowledge = in.readBoolean();
}

@Override
public void writeTo(StreamOutput out) throws IOException {
    super.writeTo(out);
    out.writeBoolean(acknowledge);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.action.ActionResponse;
import org.elasticsearch.common.io.stream.StreamInput;
import org.elasticsearch.common.io.stream.StreamOutput;

import java.io.IOException;

class GetBasicStatusResponse extends ActionResponse {

    private boolean eligibleToStartBasic;

    GetBasicStatusResponse() {
    }
}

```

```

GetBasicStatusResponse(boolean eligibleToStartBasic) {
    this.eligibleToStartBasic = eligibleToStartBasic;
}

boolean isEligibleToStartBasic() {
    return eligibleToStartBasic;
}

@Override
public void readFrom(StreamInput in) throws IOException {
    eligibleToStartBasic = in.readBoolean();
}

@Override
public void writeTo(StreamOutput out) throws IOException {
    out.writeBoolean(eligibleToStartBasic);
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.elasticsearch.common.logging.LoggerMessageFormat;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.xpack.core.scheduler.SchedulerEngine;

import java.util.UUID;

abstract class ExpirationCallback {

    static final String EXPIRATION_JOB_PREFIX = ".license_expiration_job_";

    public enum Orientation {PRE, POST}

    /**
     * Callback that is triggered every <code>frequency</code> when
     * current time is between <code>max</code> and <code>min</code>
     * before license expiry.
     */
    public abstract static class Pre extends ExpirationCallback {

        /**
         * Callback schedule prior to license expiry
         *
         * @param min    latest relative time to execute before license expiry

```



```

    * @param max    earliest relative time to execute before license expiry
    * @param frequency interval between execution
    */
    Pre(TimeValue min, TimeValue max, TimeValue frequency) {
        super(Orientation.PRE, min, max, frequency);
    }
}

/**
 * Callback that is triggered every <code>frequency</code> when
 * current time is between <code>min</code> and <code>max</code>
 * after license expiry.
 */
public abstract static class Post extends ExpirationCallback {

    /**
     * Callback schedule after license expiry
     *
     * @param min    earliest relative time to execute after license expiry
     * @param max    latest relative time to execute after license expiry
     * @param frequency interval between execution
     */
    Post(TimeValue min, TimeValue max, TimeValue frequency) {
        super(Orientation.POST, min, max, frequency);
    }
}

private final String id;
private final Orientation orientation;
private final long min;
private final long max;
private final long frequency;

private ExpirationCallback(Orientation orientation, TimeValue min, TimeValue max, TimeValue frequency) {
    this.orientation = orientation;
    this.min = (min == null) ? 0 : min.getMillis();
    this.max = (max == null) ? Long.MAX_VALUE : max.getMillis();
    this.frequency = frequency.getMillis();
    this.id = String.join("", EXPIRATION_JOB_PREFIX, UUID.randomUUID().toString());
}

public final String getId() {
    return id;
}

public final long getFrequency() {
    return frequency;
}
}

```

```

/**
 * Calculates the delay for the next trigger time. When <code>now</code> is in a
 * valid time bracket with respect to <code>expirationDate</code>, the delay is 0.
 * When <code>now</code> is before the time bracket, than delay to the start of the
 * time bracket and when <code>now</code> is passed the valid time bracket, the delay
 * is <code>null</code>
 * @param expirationDate license expiry date in milliseconds
 * @param now current time in milliseconds
 * @return time delay
 */
final TimeValue delay(long expirationDate, long now) {
    final TimeValue delay;
    switch (orientation) {
        case PRE:
            if (expirationDate >= now) {
                // license not yet expired
                long preExpiryDuration = expirationDate - now;
                if (preExpiryDuration > max) {
                    // license duration is longer than maximum duration, delay it to the first match time
                    delay = TimeValue.timeValueMillis(preExpiryDuration - max);
                } else if (preExpiryDuration <= max && preExpiryDuration >= min) {
                    // no delay in valid time bracket
                    delay = TimeValue.timeValueMillis(0);
                } else {
                    // passed last match time
                    delay = null;
                }
            } else {
                // invalid after license expiry
                delay = null;
            }
            break;
        case POST:
            if (expirationDate >= now) {
                // license not yet expired, delay it to the first match time
                delay = TimeValue.timeValueMillis(expirationDate - now + min);
            } else {
                // license has expired
                long expiredDuration = now - expirationDate;
                if (expiredDuration < min) {
                    // license expiry duration is shorter than minimum duration, delay it to the first match time
                    delay = TimeValue.timeValueMillis(min - expiredDuration);
                } else if (expiredDuration >= min && expiredDuration <= max) {
                    // no delay in valid time bracket
                    delay = TimeValue.timeValueMillis(0);
                } else {
                    // passed last match time

```

```

        delay = null;
    }
}
break;
default:
    throw new IllegalStateException("orientation [" + orientation + "] unknown");
}
return delay;
}

/**
 * {@link SchedulerEngine.Schedule#nextScheduledTimeAfter(long, long)} with respect to
 * license expiry date
 */
public final long nextScheduledTimeForExpiry(long expiryDate, long startTime, long time) {
    TimeValue delay = delay(expiryDate, time);
    if (delay != null) {
        long delayInMillis = delay.getMillis();
        if (delayInMillis == 0L) {
            if (startTime == time) {
                // initial trigger and in time bracket, schedule immediately
                return time;
            } else {
                // in time bracket, add frequency
                return time + frequency;
            }
        } else {
            // not in time bracket
            return time + delayInMillis;
        }
    }
    return -1;
}

/**
 * Code to execute when the expiry callback is triggered in a valid
 * time bracket
 * @param license license to operate on
 */
public abstract void on(License license);

public final String toString() {
    return LoggerMessageFormat.format(null, "ExpirationCallback:(orientation [{}], min [{}], max [{}], freq
[{}])",
        orientation.name(), TimeValue.timeValueMillis(min), TimeValue.timeValueMillis(max),
        TimeValue.timeValueMillis(frequency));
}
}

```

```

{
  "metadata": {
    "name": "X-Pack Monitoring: License Expiration",
    "xpack": {
      "link": "license",
      "expires_days": [ 60, 30, 14, 7 ],
      "severity": 0,
      "alert_index": ".monitoring-alerts-6",
      "cluster_uuid": "${monitoring.watch.cluster_uuid}",
      "type": "monitoring",
      "version_created": 6020099,
      "watch": "${monitoring.watch.id}"
    }
  },
  "trigger": {
    "schedule": {
      "interval": "1m"
    }
  },
  "input": {
    "chain": {
      "inputs": [
        {
          "check": {
            "search": {
              "request": {
                "indices": [
                  ".monitoring-es-*"
                ],
                "body": {
                  "size": 1,
                  "sort": [
                    {
                      "timestamp": {
                        "order": "desc"
                      }
                    ]
                  ]
                },
                "_source": [
                  "license.*"
                ],
                "query": {
                  "bool": {
                    "filter": [
                      {
                        "term": {
                          "cluster_uuid": "{{ctx.metadata.xpack.cluster_uuid}}"
                        }
                      ]
                    }
                  }
                }
              }
            }
          }
        ]
      }
    }
  }
}

```

```

    },
    {
      "term": {
        "type": "cluster_stats"
      }
    },
    {
      "range": {
        "timestamp": {
          "gte": "now-2m"
        }
      }
    }
  ]
}
}
}
}
},
{
  "alert": {
    "search": {
      "request": {
        "indices": [
          ".monitoring-alerts-6"
        ],
        "body": {
          "size": 1,
          "terminate_after": 1,
          "query": {
            "bool": {
              "filter": {
                "term": {
                  "_id": "{{ctx.watch_id}}"
                }
              }
            }
          },
          "sort": [
            { "timestamp": { "order": "desc" } }
          ]
        }
      }
    }
  }
},

```

```

{
  "kibana_settings": {
    "search": {
      "request": {
        "indices": [
          ".monitoring-kibana-6-*"
        ],
        "body": {
          "size": 1,
          "query": {
            "bool": {
              "filter": {
                "term": {
                  "type": "kibana_settings"
                }
              }
            }
          },
          "sort": [
            {
              "timestamp": {
                "order": "desc"
              }
            }
          ]
        }
      }
    }
  },
  "condition": {
    "script": {
      "source": "if (ctx.payload.check.hits.total == 0) {return false;}def license =
ctx.payload.check.hits.hits[0]._source.license;if (license == null) {return false;}ctx.vars.fails_check = false;Instant
expiry = Instant.ofEpochMilli(license.expiry_date_in_millis);ctx.vars.expiry = expiry;if (license.status != 'active')
{ctx.vars.expired = true;ctx.vars.fails_check = true;ctx.metadata.xpack.severity = 2001;} else {Instant now =
Instant.ofEpochMilli(new Date().getTime());ctx.vars.now = now;for (int i = ctx.metadata.xpack.expires_days.length
- 1;i > -1;--i) {if (license.type == 'trial' && i < 2) {break;}Instant fromNow =
now.plusSeconds(ctx.metadata.xpack.expires_days[i] * 24 * 60 * 60);if (fromNow.isAfter(expiry))
{ctx.vars.fails_check = true;ctx.metadata.xpack.severity = i * 1000;break;}} }ctx.vars.not_resolved =
(ctx.payload.alert.hits.total == 1 && ctx.payload.alert.hits.hits[0]._source.resolved_timestamp ==
null);ctx.vars.update = ctx.vars.fails_check || ctx.vars.not_resolved;"
    }
  },
  "transform": {

```

```
"script": {
  "source": "ctx.vars.email_recipient = (ctx.payload.kibana_settings.hits.total > 0) ?
ctx.payload.kibana_settings.hits.hits[0]._source.kibana_settings.xpack.default_admin_email : null;ctx.vars.is_new =
ctx.vars.fails_check && !ctx.vars.not_resolved;ctx.vars.is_resolved = !ctx.vars.fails_check &&
ctx.vars.not_resolved;def alertMessage = null;if (ctx.vars.fails_check) { alertMessage = 'Update your license.}; if
(ctx.vars.not_resolved) { ctx.payload = ctx.payload.alert.hits.hits[0]._source;ctx.payload.metadata =
ctx.metadata.xpack;if (ctx.vars.fails_check == false) { ctx.payload.resolved_timestamp = ctx.execution_time;} }
else { ctx.payload = [ 'timestamp': ctx.execution_time, 'prefix': 'This cluster\\'s license is going to expire in
{{#relativeTime}}metadata.time{{/relativeTime}} at {{#absoluteTime}}metadata.time{{/absoluteTime}}.',
'message': alertMessage, 'metadata': ctx.metadata.xpack ];} if (ctx.vars.fails_check) { ctx.payload.metadata.time =
ctx.vars.expiry.toString();} ctx.payload.update_timestamp = ctx.execution_time;return ctx.payload;"
}
},
"actions": {
  "add_to_alerts_index": {
    "index": {
      "index": ".monitoring-alerts-6",
      "doc_type": "doc",
      "doc_id": "${monitoring.watch.unique_id}"
    }
  },
  "send_email_to_admin": {
    "condition": {
      "script": "return ctx.vars.email_recipient != null && (ctx.vars.is_new || ctx.vars.is_resolved)"
    },
    "email": {
      "to": "X-Pack Admin <{{ ctx.vars.email_recipient }}>",
      "from": "X-Pack Admin <{{ ctx.vars.email_recipient }}>",
      "subject":
"[[{{#ctx.vars.is_new}}NEW{{/ctx.vars.is_new}}]{{#ctx.vars.is_resolved}}RESOLVED{{/ctx.vars.is_resolved}}]
[{{ ctx.metadata.name }}]",
      "body": {
        "text": "[{{#ctx.vars.is_resolved}}This cluster alert has been resolved: {{/ctx.vars.is_resolved}} This cluster's
license [{{#ctx.vars.is_new}}]is going to expire on
[{{ ctx.payload.metadata.time }}]{{/ctx.vars.is_new}}[{{#ctx.vars.is_resolved}}]was going to
expire[{{ ctx.payload.metadata.time }}]{{/ctx.vars.is_resolved}}.
[{{#ctx.vars.is_new}}][{{ ctx.payload.message }}]{{/ctx.vars.is_new}}]"
      }
    }
  }
}
}
}
}
/*
*
*           Apache License
*           Version 2.0, January 2004
*           http://www.apache.org/licenses/
*
* TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION
```





\* means any form of electronic, verbal, or written communication sent  
\* to the Licensor or its representatives, including but not limited to  
\* communication on electronic mailing lists, source code control systems,  
\* and issue tracking systems that are managed by, or on behalf of, the  
\* Licensor for the purpose of discussing and improving the Work, but  
\* excluding communication that is conspicuously marked or otherwise  
\* designated in writing by the copyright owner as "Not a Contribution."

\*  
\* "Contributor" shall mean Licensor and any individual or Legal Entity  
\* on behalf of whom a Contribution has been received by Licensor and  
\* subsequently incorporated within the Work.

\*  
\* 2. Grant of Copyright License. Subject to the terms and conditions of  
\* this License, each Contributor hereby grants to You a perpetual,  
\* worldwide, non-exclusive, no-charge, royalty-free, irrevocable  
\* copyright license to reproduce, prepare Derivative Works of,  
\* publicly display, publicly perform, sublicense, and distribute the  
\* Work and such Derivative Works in Source or Object form.

\*  
\* 3. Grant of Patent License. Subject to the terms and conditions of  
\* this License, each Contributor hereby grants to You a perpetual,  
\* worldwide, non-exclusive, no-charge, royalty-free, irrevocable  
\* (except as stated in this section) patent license to make, have made,  
\* use, offer to sell, sell, import, and otherwise transfer the Work,  
\* where such license applies only to those patent claims licensable  
\* by such Contributor that are necessarily infringed by their  
\* Contribution(s) alone or by combination of their Contribution(s)  
\* with the Work to which such Contribution(s) was submitted. If You  
\* institute patent litigation against any entity (including a  
\* cross-claim or counterclaim in a lawsuit) alleging that the Work  
\* or a Contribution incorporated within the Work constitutes direct  
\* or contributory patent infringement, then any patent licenses  
\* granted to You under this License for that Work shall terminate  
\* as of the date such litigation is filed.

\*  
\* 4. Redistribution. You may reproduce and distribute copies of the  
\* Work or Derivative Works thereof in any medium, with or without  
\* modifications, and in Source or Object form, provided that You  
\* meet the following conditions:

- \*  
\* (a) You must give any other recipients of the Work or  
\* Derivative Works a copy of this License; and  
\*  
\* (b) You must cause any modified files to carry prominent notices  
\* stating that You changed the files; and  
\*  
\* (c) You must retain, in the Source form of any Derivative Works  
\* that You distribute, all copyright, patent, trademark, and

\* attribution notices from the Source form of the Work,  
\* excluding those notices that do not pertain to any part of  
\* the Derivative Works; and  
\*

\* (d) If the Work includes a "NOTICE" text file as part of its  
\* distribution, then any Derivative Works that You distribute must  
\* include a readable copy of the attribution notices contained  
\* within such NOTICE file, excluding those notices that do not  
\* pertain to any part of the Derivative Works, in at least one  
\* of the following places: within a NOTICE text file distributed  
\* as part of the Derivative Works; within the Source form or  
\* documentation, if provided along with the Derivative Works; or,  
\* within a display generated by the Derivative Works, if and  
\* wherever such third-party notices normally appear. The contents  
\* of the NOTICE file are for informational purposes only and  
\* do not modify the License. You may add Your own attribution  
\* notices within Derivative Works that You distribute, alongside  
\* or as an addendum to the NOTICE text from the Work, provided  
\* that such additional attribution notices cannot be construed  
\* as modifying the License.  
\*

\* You may add Your own copyright statement to Your modifications and  
\* may provide additional or different license terms and conditions  
\* for use, reproduction, or distribution of Your modifications, or  
\* for any such Derivative Works as a whole, provided Your use,  
\* reproduction, and distribution of the Work otherwise complies with  
\* the conditions stated in this License.  
\*

\* 5. Submission of Contributions. Unless You explicitly state otherwise,  
\* any Contribution intentionally submitted for inclusion in the Work  
\* by You to the Licensor shall be under the terms and conditions of  
\* this License, without any additional terms or conditions.  
\* Notwithstanding the above, nothing herein shall supersede or modify  
\* the terms of any separate license agreement you may have executed  
\* with Licensor regarding such Contributions.  
\*

\* 6. Trademarks. This License does not grant permission to use the trade  
\* names, trademarks, service marks, or product names of the Licensor,  
\* except as required for reasonable and customary use in describing the  
\* origin of the Work and reproducing the content of the NOTICE file.  
\*

\* 7. Disclaimer of Warranty. Unless required by applicable law or  
\* agreed to in writing, Licensor provides the Work (and each  
\* Contributor provides its Contributions) on an "AS IS" BASIS,  
\* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or  
\* implied, including, without limitation, any warranties or conditions  
\* of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A  
\* PARTICULAR PURPOSE. You are solely responsible for determining the

\* appropriateness of using or redistributing the Work and assume any  
\* risks associated with Your exercise of permissions under this License.

\*

\* 8. Limitation of Liability. In no event and under no legal theory,  
\* whether in tort (including negligence), contract, or otherwise,  
\* unless required by applicable law (such as deliberate and grossly  
\* negligent acts) or agreed to in writing, shall any Contributor be  
\* liable to You for damages, including any direct, indirect, special,  
\* incidental, or consequential damages of any character arising as a  
\* result of this License or out of the use or inability to use the  
\* Work (including but not limited to damages for loss of goodwill,  
\* work stoppage, computer failure or malfunction, or any and all  
\* other commercial damages or losses), even if such Contributor  
\* has been advised of the possibility of such damages.

\*

\* 9. Accepting Warranty or Additional Liability. While redistributing  
\* the Work or Derivative Works thereof, You may choose to offer,  
\* and charge a fee for, acceptance of support, warranty, indemnity,  
\* or other liability obligations and/or rights consistent with this  
\* License. However, in accepting such obligations, You may act only  
\* on Your own behalf and on Your sole responsibility, not on behalf  
\* of any other Contributor, and only if You agree to indemnify,  
\* defend, and hold each Contributor harmless for any liability  
\* incurred by, or claims asserted against, such Contributor by reason  
\* of your accepting any such warranty or additional liability.

\*

\* END OF TERMS AND CONDITIONS

\*

\* APPENDIX: How to apply the Apache License to your work.

\*

\* To apply the Apache License to your work, attach the following  
\* boilerplate notice, with the fields enclosed by brackets "[]"  
\* replaced with your own identifying information. (Don't include  
\* the brackets!) The text should be enclosed in the appropriate  
\* comment syntax for the file format. We also recommend that a  
\* file or class name and description of purpose be included on the  
\* same "printed page" as the copyright notice for easier  
\* identification within third-party archives.

\*

\* Copyright 2007 Kasper B. Graversen

\*

\* Licensed under the Apache License, Version 2.0 (the "License");  
\* you may not use this file except in compliance with the License.  
\* You may obtain a copy of the License at

\*

\* <http://www.apache.org/licenses/LICENSE-2.0>

\*

\* Unless required by applicable law or agreed to in writing, software

\* distributed under the License is distributed on an "AS IS" BASIS,  
\* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
\* See the License for the specific language governing permissions and  
\* limitations under the License.

\*/

/\*

\* Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one  
\* or more contributor license agreements. Licensed under the Elastic License;  
\* you may not use this file except in compliance with the Elastic License.

\*/

```
package org.elasticsearch.license;
```

```
import org.elasticsearch.ElasticsearchSecurityException;
import org.elasticsearch.action.support.PlainActionFuture;
import org.elasticsearch.client.transport.TransportClient;
import org.elasticsearch.cluster.ClusterState;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.unit.TimeValue;
import org.elasticsearch.common.xcontent.XContentType;
import org.elasticsearch.license.License.OperationMode;
import org.elasticsearch.rest.RestStatus;
import org.elasticsearch.test.junit.annotations.TestLogging;
import org.elasticsearch.transport.Transport;
import org.elasticsearch.xpack.core.TestXPackTransportClient;
import org.elasticsearch.xpack.core.XPackField;
import org.elasticsearch.xpack.core.ml.action.CloseJobAction;
import org.elasticsearch.xpack.core.ml.action.DeleteDatafeedAction;
import org.elasticsearch.xpack.core.ml.action.DeleteJobAction;
import org.elasticsearch.xpack.core.ml.action.GetDatafeedsStatsAction;
import org.elasticsearch.xpack.core.ml.action.GetJobsStatsAction;
import org.elasticsearch.xpack.core.ml.action.OpenJobAction;
import org.elasticsearch.xpack.core.ml.action.PutDatafeedAction;
import org.elasticsearch.xpack.core.ml.action.PutJobAction;
import org.elasticsearch.xpack.core.ml.action.StartDatafeedAction;
import org.elasticsearch.xpack.core.ml.action.StopDatafeedAction;
import org.elasticsearch.xpack.core.ml.client.MachineLearningClient;
import org.elasticsearch.xpack.core.ml.datafeed.DatafeedState;
import org.elasticsearch.xpack.core.ml.job.config.JobState;
import org.elasticsearch.persistent.PersistentTasksCustomMetaData;
import org.elasticsearch.xpack.ml.LocalStateMachineLearning;
import org.elasticsearch.xpack.ml.support.BaseMlIntegTestCase;
import org.junit.Before;

import java.util.Collections;

import static org.hamcrest.Matchers.containsString;
import static org.hamcrest.Matchers.hasItem;
import static org.hamcrest.Matchers.is;
```

```

@TestLogging("org.elasticsearch.xpack.ml.action:DEBUG")
public class MachineLearningLicensingTests extends BaseMIIIntegTestCase {

    @Before
    public void resetLicensing() {
        enableLicensing();

        ensureStableCluster(1);
        ensureYellow();
    }

    public void testMachineLearningPutJobActionRestricted() throws Exception {
        String jobId = "testmachinelearningputjobactionrestricted";
        // Pick a license that does not allow machine learning
        License.OperationMode mode = randomInvalidLicenseType();
        enableLicensing(mode);
        assertMLAllowed(false);
        // test that license restricted apis do not work
        Settings settings = internalCluster().transportClient().settings();
        try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
            client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress());
            PlainActionFuture<PutJobAction.Response> listener = PlainActionFuture.newFuture();
            new MachineLearningClient(client).putJob(new PutJobAction.Request(createJob(jobId)), listener);
            listener.actionGet();
            fail("put job action should not be enabled!");
        } catch (ElasticsearchSecurityException e) {
            assertThat(e.status(), is(RestStatus.FORBIDDEN));
            assertThat(e.getMessage(), containsString("non-compliant"));
            assertThat(e.getMetadata(LicenseUtils.EXPIRED_FEATURE_METADATA),
                hasItem(XPackField.MACHINE_LEARNING));
        }

        // Pick a license that does allow machine learning
        mode = randomValidLicenseType();
        enableLicensing(mode);
        assertMLAllowed(true);
        // test that license restricted apis do now work
        try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
            client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress());
            PlainActionFuture<PutJobAction.Response> listener = PlainActionFuture.newFuture();
            new MachineLearningClient(client).putJob(new PutJobAction.Request(createJob(jobId)), listener);
            PutJobAction.Response response = listener.actionGet();
            assertNotNull(response);
        }
    }
}

```

```

public void testMachineLearningOpenJobActionRestricted() throws Exception {
    String jobId = "testmachinelearningopenjobactionrestricted";
    assertMLAllowed(true);
    // test that license restricted apis do now work
    Settings settings = internalCluster().transportClient().settings();
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
        client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress());
        PlainActionFuture<PutJobAction.Response> putJobListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).putJob(new PutJobAction.Request(createJob(jobId)), putJobListener);
        PutJobAction.Response response = putJobListener.actionGet();
        assertNotNull(response);
    }

    // Pick a license that does not allow machine learning
    License.OperationMode mode = randomInvalidLicenseType();
    enableLicensing(mode);
    assertMLAllowed(false);
    // test that license restricted apis do not work
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
        client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress());
        PlainActionFuture<OpenJobAction.Response> listener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).openJob(new OpenJobAction.Request(jobId), listener);
        listener.actionGet();
        fail("open job action should not be enabled!");
    } catch (ElasticsearchSecurityException e) {
        assertThat(e.status(), is(RestStatus.FORBIDDEN));
        assertThat(e.getMessage(), containsString("non-compliant"));
        assertThat(e.getMetadata(LicenseUtils.EXPIRED_FEATURE_METADATA),
            hasItem(XPackField.MACHINE_LEARNING));
    }

    // Pick a license that does allow machine learning
    mode = randomValidLicenseType();
    enableLicensing(mode);
    assertMLAllowed(true);

    // now that the license is invalid, the job should get closed:
    assertBusy(() -> {
        JobState jobState = getJobStats(jobId).getState();
        assertEquals(JobState.CLOSED, jobState);
    });

    // test that license restricted apis do now work
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
        client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress());

```

```

    });
    PlainActionFuture<OpenJobAction.Response> listener = PlainActionFuture.newFuture();
    new MachineLearningClient(client).openJob(new OpenJobAction.Request(jobId), listener);
    OpenJobAction.Response response = listener.actionGet();
    assertNotNull(response);
}
}

public void testMachineLearningPutDatafeedActionRestricted() throws Exception {
    String jobId = "testmachinelearningputdatafeedactionrestricted";
    String datafeedId = jobId + "-datafeed";
    assertMLAllowed(true);
    // test that license restricted apis do now work
    Settings settings = internalCluster().transportClient().settings();
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
    client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
    ());
        PlainActionFuture<PutJobAction.Response> putJobListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).putJob(new PutJobAction.Request(createJob(jobId)), putJobListener);
        PutJobAction.Response putJobResponse = putJobListener.actionGet();
        assertNotNull(putJobResponse);
    }

    // Pick a license that does not allow machine learning
    License.OperationMode mode = randomInvalidLicenseType();
    enableLicensing(mode);
    assertMLAllowed(false);
    // test that license restricted apis do not work
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
    client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
    ());
        PlainActionFuture<PutDatafeedAction.Response> listener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).putDatafeed(
            new PutDatafeedAction.Request(createDatafeed(datafeedId, jobId, Collections.singletonList(jobId))),
listener);
        listener.actionGet();
        fail("put datafeed action should not be enabled!");
    } catch (ElasticsearchSecurityException e) {
        assertThat(e.status(), is(RestStatus.FORBIDDEN));
        assertThat(e.getMessage(), containsString("non-compliant"));
        assertThat(e.getMetadata(LicenseUtils.EXPIRED_FEATURE_METADATA),
hasItem(XPackField.MACHINE_LEARNING));
    }

    // Pick a license that does allow machine learning
    mode = randomValidLicenseType();
    enableLicensing(mode);
    assertMLAllowed(true);
}
}

```

```

// test that license restricted apis do now work
try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
    PlainActionFuture<PutDatafeedAction.Response> listener = PlainActionFuture.newFuture();
    new MachineLearningClient(client).putDatafeed(
        new PutDatafeedAction.Request(createDatafeed(datafeedId, jobId, Collections.singletonList(jobId))),
listener);
    PutDatafeedAction.Response response = listener.actionGet();
    assertNotNull(response);
}
}

public void testAutoCloseJobWithDatafeed() throws Exception {
    String jobId = "testautoclosejobwithdatafeed";
    String datafeedId = jobId + "-datafeed";
    assertMLAllowed(true);
    String datafeedIndex = jobId + "-data";
    prepareCreate(datafeedIndex).addMapping("type", "{\"type\":{\"properties\":{\"time\":{\"type\":\"date\"}}}}",
        XContentType.JSON).get();
    Settings settings = internalCluster().transportClient().settings();
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
        // put job
        PlainActionFuture<PutJobAction.Response> putJobListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).putJob(new PutJobAction.Request(createJob(jobId)), putJobListener);
        PutJobAction.Response putJobResponse = putJobListener.actionGet();
        assertNotNull(putJobResponse);
        // put datafeed
        PlainActionFuture<PutDatafeedAction.Response> putDatafeedListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).putDatafeed(
            new PutDatafeedAction.Request(createDatafeed(datafeedId, jobId,
                Collections.singletonList(datafeedIndex))), putDatafeedListener);
        PutDatafeedAction.Response putDatafeedResponse = putDatafeedListener.actionGet();
        assertNotNull(putDatafeedResponse);
        // open job
        PlainActionFuture<OpenJobAction.Response> openJobListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).openJob(new OpenJobAction.Request(jobId), openJobListener);
        OpenJobAction.Response openJobResponse = openJobListener.actionGet();
        assertNotNull(openJobResponse);
        // start datafeed
        PlainActionFuture<StartDatafeedAction.Response> listener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).startDatafeed(new StartDatafeedAction.Request(datafeedId, 0L),
listener);
        listener.actionGet();
    }
}

```



```

if (randomBoolean()) {
    enableLicensing(randomInvalidLicenseType());
} else {
    disableLicensing();
}
assertMLAllowed(false);

// now that the license is invalid, the job should be closed and datafeed stopped:
assertBusy(() -> {
    JobState jobState = getJobStats(jobId).getState();
    assertEquals(JobState.CLOSED, jobState);

    DatafeedState datafeedState = getDatafeedStats(datafeedId).getDatafeedState();
    assertEquals(DatafeedState.STOPPED, datafeedState);

    ClusterState state = client().admin().cluster().prepareState().get().getState();
    PersistentTasksCustomMetadata tasks = state.metaData().custom(PersistentTasksCustomMetadata.TYPE);
    assertEquals(0, tasks.taskMap().size());
});

enableLicensing(randomValidLicenseType());
assertMLAllowed(true);

try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
    // open job
    PlainActionFuture<OpenJobAction.Response> openJobListener = PlainActionFuture.newFuture();
    new MachineLearningClient(client).openJob(new OpenJobAction.Request(jobId), openJobListener);
    OpenJobAction.Response openJobResponse = openJobListener.actionGet();
    assertNotNull(openJobResponse);
    // start datafeed
    PlainActionFuture<StartDatafeedAction.Response> listener = PlainActionFuture.newFuture();
    new MachineLearningClient(client).startDatafeed(new StartDatafeedAction.Request(datafeedId, 0L),
listener);
    listener.actionGet();
}

assertBusy(() -> {
    JobState jobState = getJobStats(jobId).getState();
    assertEquals(JobState.OPENED, jobState);

    DatafeedState datafeedState = getDatafeedStats(datafeedId).getDatafeedState();
    assertEquals(DatafeedState.STARTED, datafeedState);

    ClusterState state = client().admin().cluster().prepareState().get().getState();
    PersistentTasksCustomMetadata tasks = state.metaData().custom(PersistentTasksCustomMetadata.TYPE);
    assertEquals(2, tasks.taskMap().size());
}

```

```

});

if (randomBoolean()) {
    enableLicensing(randomInvalidLicenseType());
} else {
    disableLicensing();
}
}
assertMLAllowed(false);

// now that the license is invalid, the job should be closed and datafeed stopped:
assertBusy(() -> {
    JobState jobState = getJobStats(jobId).getState();
    assertEquals(JobState.CLOSED, jobState);

    DatafeedState datafeedState = getDatafeedStats(datafeedId).getDatafeedState();
    assertEquals(DatafeedState.STOPPED, datafeedState);

    ClusterState state = client().admin().cluster().prepareState().get().getState();
    PersistentTasksCustomMetaData tasks = state.metaData().custom(PersistentTasksCustomMetaData.TYPE);
    assertEquals(0, tasks.taskMap().size());
});
}

public void testMachineLearningStartDatafeedActionRestricted() throws Exception {
    String jobId = "testmachinelearningstartdatafeedactionrestricted";
    String datafeedId = jobId + "-datafeed";
    assertMLAllowed(true);
    String datafeedIndex = jobId + "-data";
    prepareCreate(datafeedIndex).addMapping("type", "{\"type\":{\"properties\":{\"time\":{\"type\":\"date\"}}}}",
        XContentType.JSON).get();
    // test that license restricted apis do now work
    Settings settings = internalCluster().transportClient().settings();
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
        client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress());
    }

    PlainActionFuture<PutJobAction.Response> putJobListener = PlainActionFuture.newFuture();
    new MachineLearningClient(client).putJob(new PutJobAction.Request(createJob(jobId)), putJobListener);
    PutJobAction.Response putJobResponse = putJobListener.actionGet();
    assertNotNull(putJobResponse);

    PlainActionFuture<PutDatafeedAction.Response> putDatafeedListener = PlainActionFuture.newFuture();
    new MachineLearningClient(client).putDatafeed(
        new PutDatafeedAction.Request(createDatafeed(datafeedId, jobId,
            Collections.singletonList(datafeedIndex))), putDatafeedListener);
    PutDatafeedAction.Response putDatafeedResponse = putDatafeedListener.actionGet();
    assertNotNull(putDatafeedResponse);

    PlainActionFuture<OpenJobAction.Response> openJobListener = PlainActionFuture.newFuture();
    new MachineLearningClient(client).openJob(new OpenJobAction.Request(jobId), openJobListener);
    OpenJobAction.Response openJobResponse = openJobListener.actionGet();
}

```

```

    assertNotNull(openJobResponse);
}

// Pick a license that does not allow machine learning
License.OperationMode mode = randomInvalidLicenseType();
enableLicensing(mode);
assertMLAllowed(false);

// now that the license is invalid, the job should get closed:
assertBusy() -> {
    JobState jobState = getJobStats(jobId).getState();
    assertEquals(JobState.CLOSED, jobState);
    ClusterState state = client().admin().cluster().prepareState().get().getState();
    PersistentTasksCustomMetadata tasks = state.metaData().custom(PersistentTasksCustomMetadata.TYPE);
    assertEquals(0, tasks.taskMap().size());
});

// test that license restricted apis do not work
try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress());
    PlainActionFuture<StartDatafeedAction.Response> listener = PlainActionFuture.newFuture();
    new MachineLearningClient(client).startDatafeed(new StartDatafeedAction.Request(datafeedId, 0L),
listener);
    listener.actionGet();
    fail("start datafeed action should not be enabled!");
} catch (ElasticsearchSecurityException e) {
    assertEquals(403, e.status());
    assertEquals("non-compliant", e.getMessage());
    assertEquals("hasItem(XPackField.MACHINE_LEARNING)", e.getMessage());
}

// Pick a license that does allow machine learning
mode = randomValidLicenseType();
enableLicensing(mode);
assertMLAllowed(true);

// test that license restricted apis do now work
try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress());
    // re-open job now that the license is valid again
    PlainActionFuture<OpenJobAction.Response> openJobListener = PlainActionFuture.newFuture();
    new MachineLearningClient(client).openJob(new OpenJobAction.Request(jobId), openJobListener);
    OpenJobAction.Response openJobResponse = openJobListener.actionGet();
    assertNotNull(openJobResponse);

    PlainActionFuture<StartDatafeedAction.Response> listener = PlainActionFuture.newFuture();

```

```

        new MachineLearningClient(client).startDatafeed(new StartDatafeedAction.Request(datafeedId, 0L),
listener);
        StartDatafeedAction.Response response = listener.actionGet();
        assertNotNull(response);
    }
}

public void testMachineLearningStopDatafeedActionNotRestricted() throws Exception {
    String jobId = "testmachinelearningstopdatafeedactionnotrestricted";
    String datafeedId = jobId + "-datafeed";
    assertMLAllowed(true);
    String datafeedIndex = jobId + "-data";
    prepareCreate(datafeedIndex).addMapping("type", "{\"type\":{\\"properties\\":{\\"time\\":{\\"type\\":\\"date\\"}}}}",
        XContentType.JSON).get();
    // test that license restricted apis do now work
    Settings settings = internalCluster().transportClient().settings();
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
        PlainActionFuture<PutJobAction.Response> putJobListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).putJob(new PutJobAction.Request(createJob(jobId)), putJobListener);
        PutJobAction.Response putJobResponse = putJobListener.actionGet();
        assertNotNull(putJobResponse);
        PlainActionFuture<PutDatafeedAction.Response> putDatafeedListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).putDatafeed(
            new PutDatafeedAction.Request(createDatafeed(datafeedId, jobId,
                Collections.singletonList(datafeedIndex))), putDatafeedListener);
        PutDatafeedAction.Response putDatafeedResponse = putDatafeedListener.actionGet();
        assertNotNull(putDatafeedResponse);
        PlainActionFuture<OpenJobAction.Response> openJobListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).openJob(new OpenJobAction.Request(jobId), openJobListener);
        OpenJobAction.Response openJobResponse = openJobListener.actionGet();
        assertNotNull(openJobResponse);
        PlainActionFuture<StartDatafeedAction.Response> startDatafeedListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).startDatafeed(
            new StartDatafeedAction.Request(datafeedId, 0L), startDatafeedListener);
        StartDatafeedAction.Response startDatafeedResponse = startDatafeedListener.actionGet();
        assertNotNull(startDatafeedResponse);
    }

    boolean invalidLicense = randomBoolean();
    if (invalidLicense) {
        enableLicensing(randomInvalidLicenseType());
    } else {
        enableLicensing(randomValidLicenseType());
    }

    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {

```

```

client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
PlainActionFuture<StopDatafeedAction.Response> listener = PlainActionFuture.newFuture();
new MachineLearningClient(client).stopDatafeed(new StopDatafeedAction.Request(datafeedId), listener);
if (invalidLicense) {
    // the stop datafeed due to invalid license happens async, so check if the datafeed turns into stopped state:
    assertBusy(() -> {
        GetDatafeedsStatsAction.Response response =
            new MachineLearningClient(client)
                .getDatafeedsStats(new GetDatafeedsStatsAction.Request(datafeedId)).actionGet();
        assertEquals(DatafeedState.STOPPED, response.getResponse().results().get(0).getDatafeedState());
    });
} else {
    listener.actionGet();
}

if (invalidLicense) {
    // the close due to invalid license happens async, so check if the job turns into closed state:
    assertBusy(() -> {
        GetJobsStatsAction.Response response =
            new MachineLearningClient(client).getJobsStats(new
GetJobsStatsAction.Request(jobId)).actionGet();
        assertEquals(JobState.CLOSED, response.getResponse().results().get(0).getState());
    });
}
}

public void testMachineLearningCloseJobActionNotRestricted() throws Exception {
    String jobId = "testmachinelearningclosejobactionnotrestricted";
    assertMLAllowed(true);
    // test that license restricted apis do now work
    Settings settings = internalCluster().transportClient().settings();
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
        PlainActionFuture<PutJobAction.Response> putJobListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).putJob(new PutJobAction.Request(createJob(jobId)), putJobListener);
        PutJobAction.Response putJobResponse = putJobListener.actionGet();
        assertNotNull(putJobResponse);
        PlainActionFuture<OpenJobAction.Response> openJobListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).openJob(new OpenJobAction.Request(jobId), openJobListener);
        OpenJobAction.Response openJobResponse = openJobListener.actionGet();
        assertNotNull(openJobResponse);
    }

    boolean invalidLicense = randomBoolean();
    if (invalidLicense) {

```

```

        enableLicensing(randomInvalidLicenseType());
    } else {
        enableLicensing(randomValidLicenseType());
    }

    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
        PlainActionFuture<CloseJobAction.Response> listener = PlainActionFuture.newFuture();
        CloseJobAction.Request request = new CloseJobAction.Request(jobId);
        request.setCloseTimeout(TimeValue.timeValueSeconds(20));
        if (invalidLicense) {
            // the close due to invalid license happens async, so check if the job turns into closed state:
            assertBusy(() -> {
                GetJobsStatsAction.Response response =
                    new MachineLearningClient(client).getJobsStats(new
GetJobsStatsAction.Request(jobId)).actionGet();
                assertEquals(JobState.CLOSED, response.getResponse().results().get(0).getState());
            });
        } else {
            new MachineLearningClient(client).closeJob(request, listener);
            listener.actionGet();
        }
    }
}

public void testMachineLearningDeleteJobActionNotRestricted() throws Exception {
    String jobId = "testmachinelearningclosejobactionnotrestricted";
    assertMLAllowed(true);
    // test that license restricted apis do now work
    Settings settings = internalCluster().transportClient().settings();
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
        PlainActionFuture<PutJobAction.Response> putJobListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).putJob(new PutJobAction.Request(createJob(jobId)), putJobListener);
        PutJobAction.Response putJobResponse = putJobListener.actionGet();
        assertNotNull(putJobResponse);
    }

    // Pick a random license
    License.OperationMode mode = randomLicenseType();
    enableLicensing(mode);

    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
        PlainActionFuture<DeleteJobAction.Response> listener = PlainActionFuture.newFuture();

```

```

        new MachineLearningClient(client).deleteJob(new DeleteJobAction.Request(jobId), listener);
        listener.actionGet();
    }
}

public void testMachineLearningDeleteDatafeedActionNotRestricted() throws Exception {
    String jobId = "testmachinelearningdeletedatafeedactionnotrestricted";
    String datafeedId = jobId + "-datafeed";
    assertMLAllowed(true);
    // test that license restricted apis do now work
    Settings settings = internalCluster().transportClient().settings();
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
        client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
        ());
        PlainActionFuture<PutJobAction.Response> putJobListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).putJob(new PutJobAction.Request(createJob(jobId)), putJobListener);
        PutJobAction.Response putJobResponse = putJobListener.actionGet();
        assertNotNull(putJobResponse);
        PlainActionFuture<PutDatafeedAction.Response> putDatafeedListener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).putDatafeed(
            new PutDatafeedAction.Request(createDatafeed(datafeedId, jobId,
                Collections.singletonList(jobId))), putDatafeedListener);
        PutDatafeedAction.Response putDatafeedResponse = putDatafeedListener.actionGet();
        assertNotNull(putDatafeedResponse);
    }

    // Pick a random license
    License.OperationMode mode = randomLicenseType();
    enableLicensing(mode);

    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateMachineLearning.class)) {
        client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
        ());
        PlainActionFuture<DeleteDatafeedAction.Response> listener = PlainActionFuture.newFuture();
        new MachineLearningClient(client).deleteDatafeed(new DeleteDatafeedAction.Request(datafeedId,
        listener);
        listener.actionGet();
    }
}

private static OperationMode randomInvalidLicenseType() {
    return randomFrom(License.OperationMode.GOLD, License.OperationMode.STANDARD,
    License.OperationMode.BASIC);
}

private static OperationMode randomValidLicenseType() {
    return randomFrom(License.OperationMode.TRIAL, License.OperationMode.PLATINUM);
}

```

```

private static OperationMode randomLicenseType() {
    return randomFrom(License.OperationMode.values());
}

private static void assertMLAllowed(boolean expected) {
    for (XPackLicenseState licenseState : internalCluster().getInstances(XPackLicenseState.class)) {
        assertEquals(licenseState.isMachineLearningAllowed(), expected);
    }
}

public static void disableLicensing() {
    disableLicensing(randomValidLicenseType());
}

public static void disableLicensing(License.OperationMode operationMode) {
    for (XPackLicenseState licenseState : internalCluster().getInstances(XPackLicenseState.class)) {
        licenseState.update(operationMode, false);
    }
}

public static void enableLicensing() {
    enableLicensing(randomValidLicenseType());
}

public static void enableLicensing(License.OperationMode operationMode) {
    for (XPackLicenseState licenseState : internalCluster().getInstances(XPackLicenseState.class)) {
        licenseState.update(operationMode, true);
    }
}
}
}
}
---
teardown:
- do:
  xpack.license.post:
    acknowledge: true
    body: |
      {"licenses":[{"uid":"894371dc-9t49-4997-93cb-
802e3r7fa6a8","type":"trial","issue_date_in_millis":1411948800000,"expiry_date_in_millis":1916956799999,"max
_nodes":1,"issued_to":"issuedTo","issuer":"issuer","signature":"AAAAAgAAAA0FWh0T9njItjQ2qammAAABmC
9ZN0hjZDBGYnVyRXpCOW5Bb3FjZDAxOWpSbTVoMVZwUzRxVkl1PSmkxakxZdW5IMlhlTHNoN1N2MXM
vRFk4d3JTzEx3R3RRZ0pzU3lobWJKZnQvSEFva0ppTHBkWkprZWZSqi9iNmRQnkW1SlpLN0IDalZCS095M
XRGn1iIZlpYcVVTnFrcTE2dzhJZmZrdFQRn3JQeGwxv0U0MXZ0dDJHSERiZTVLOHNzSDBYwnpoZEphZH
BEZjUrTVBxRENNsXNSWWJjZllaODdzVmEzUjNiWktNWGM5TUhQV2plaUo4Q1JOUmI4MXNuL0pSOEhQa
VB2azhmUk9QVzhFeTFoM1Q0RnJXSG53MWk2K055c28zSmRnVkf1b2JSQkFLV2VXUmVHNDZ2R3o2VE1q
bVNQS2lxOHN5bUErZINIwKzSVmZiWEtaSU9wTTJENDVvT1NCYklacUYyK2FwRW9xa0t6dldMbmMzSGtQ
c3FWOTgzZ3ZUCXmVqkt2RUZwMFJnZzlvL2d2bDRWUzh6UG5pdENGWFRreXNKNke9PQAAAQBzhvoza0
trrxhUZ1QbaTsKTna9C5KVQ6pv8yg1pnsBpZXCI8kX1SrgoFn1bXq61IvJwfw5qnmYNiH3hRhTO9EyaCBqaLk8

```



```
NXZQ6TrRkQSpEnnBwAYUkZeKXsIuBoOk4B4mzwC/r8aMAkzrTiEBtBbog+57cSaU9y37Gkdd+1jXCQrxP+jO
EUf7gnXWZvE6oeRroLvCt1fYn09k0CF8kKTbrPTSjC6igZR3uvTHyee74XQ9PRavvHax73T4UOEdQZX/P1ibS
QIWKbBRD5YQ1POYVjTayoltTnWLMxfEcAkkATJZLhpBEHST7kZWjrTS6J1dCREJc7a8Vsj/78HXvOIy" ]}]
```

---

"Installing and getting license works":

```
## current license version
```

```
- do:
```

```
  xpack.license.post:
```

```
    acknowledge: true
```

```
    body: |
```

```
      {"licenses":[{"uid":"894371dc-9t49-4997-93cb-
802e3r7fa6a8","type":"trial","issue_date_in_millis":1411948800000,"expiry_date_in_millis":1916956799999,"max
_nodes":1,"issued_to":"issuedTo","issuer":"issuer","signature":"AAAAAgAAAA0FWH0T9njItjQ2qammAAABmC
9ZN0hjZDBGYnVyRXpCOW5Bb3FjZDAxOWpSbTVoMVZwUzRxVk1PSmkxakxZdW5IMlhlTHNoN1N2MXM
vRFk4d3JTZEEx3R3RRZ0pzU3lobWJKZnQvSEFva0ppTHBkWkprZWZSQi9iNmRQNkw1SlpLN0lDalZCS095M
XRGN1IIZlpYcVVTTnFrcTE2dzhJZmZrdFQrN3JQeGwx0U0MXZ0dDJHSERiZTVLOHNzSDBYwnpoZEphZH
BEZjUrTVBxRENNSXNsWWJjZllaODdzVmEzUjNiWktNWGM5TUhQV2plaUo4Q1JOuml4MXNuL0pSOEhQa
VB2azhmUk9QVzhFeTFoM1Q0RnJXSG53MwK2K055c28zSmRnVkF1b2JSQkFLV2VXUmVHNDZ2R3o2VE1q
bVNQS2lxOHN5bUErZINIWkZSVmZIWEtaSU9wTTJENDVvT1NCYklacUYyK2FwRW9xa0t6ldMbmMzSGtQ
c3FWOTgzZ3ZUcXMvQkt2RUZwMFJnZzlvL2d2bDRWUzh6UG5pdENGWFRreXNKNkE9PQAAAQBZhvoza0
trrxhUZ1QbaTsKTna9C5KVQ6pv8yg1pnsBpZXC18kX1SrgoFn1bXq61IvJwfw5qnmYniH3hRhTO9EyaCBqaLk8
NXZQ6TrRkQSpEnnBwAYUkZeKXsIuBoOk4B4mzwC/r8aMAkzrTiEBtBbog+57cSaU9y37Gkdd+1jXCQrxP+jO
EUf7gnXWZvE6oeRroLvCt1fYn09k0CF8kKTbrPTSjC6igZR3uvTHyee74XQ9PRavvHax73T4UOEdQZX/P1ibS
QIWKbBRD5YQ1POYVjTayoltTnWLMxfEcAkkATJZLhpBEHST7kZWjrTS6J1dCREJc7a8Vsj/78HXvOIy" ]}]
```

```
- match: { license_status: "valid" }
```

```
- do:
```

```
  xpack.license.get: { }
```

```
## a license object has 11 attributes
```

```
- length: { license: 11 }
```

```
## bwc for licenses format
```

```
- do:
```

```
  xpack.license.post:
```

```
    acknowledge: true
```

```
    body: |
```

```
      {"licenses":[{"uid":"893361dc-9749-4997-93cb-
802e3d7fa4a8","type":"gold","issue_date_in_millis":1411948800000,"expiry_date_in_millis":1914278399999,"ma
x_nodes":1,"issued_to":"issued_to","issuer":"issuer","signature":"AAAAAwAAAA2T3vqdBbEtKQaBgxpAAAB
mC9ZN0hjZDBGYnVyRXpCOW5Bb3FjZDAxOWpSbTVoMVZwUzRxVk1PSmkxakxZdW5IMlhlTHNoN1N2M
XMvRFk4d3JTZEEx3R3RRZ0pzU3lobWJKZnQvSEFva0ppTHBkWkprZWZSQi9iNmRQNkw1SlpLN0lDalZCS09
5MXRGN1IIZlpYcVVTTnFrcTE2dzhJZmZrdFQrN3JQeGwx0U0MXZ0dDJHSERiZTVLOHNzSDBYwnpoZEph
ZHBEZjUrTVBxRENNSXNsWWJjZllaODdzVmEzUjNiWktNWGM5TUhQV2plaUo4Q1JOuml4MXNuL0pSOE
hQaVB2azhmUk9QVzhFeTFoM1Q0RnJXSG53MwK2K055c28zSmRnVkF1b2JSQkFLV2VXUmVHNDZ2R3o2V
E1qbVNQS2lxOHN5bUErZINIWkZSVmZIWEtaSU9wTTJENDVvT1NCYklacUYyK2FwRW9xa0t6ldMbmMzS
```

```
GtQc3FWOTgzZ3ZUcXMvQkt2RUZwMFJnZzlvL2d2bDRWUzh6UG5pdENGWFRreXNKNkE9PQAAAQB7pG
FYgawfLm9zzT80LvcLHjy1t/v2uSzCQWKdXXhrwSy4WrAH2uK/+PEiQ7aEpW5erLsyJ5KLA6OEZJDaP7r+mj
OPuLt0++15j4DMn7ybMzOPHXWbc6LETE3+pp0GZPYomwsDkZSRUegTtciR2R6z+mdnGrhOYm80y08Kvw
whdU/DHw41MK7ePo6tq73Nz49y9IDgt9fxA0t4ggEBPbnTDDbVQ25AjauY8sa0M5eg9rDDRayw1KamYWrra8
PIGX+2YjhtUeQhmlCPdlxc9wECJ7/knPss5bI3ZoXQR3fyXhjcXNnHEIsblqLrMCal3pLxs7II+KPYMa2ZYL/am4
P" ]}]}
```

```
- match: { license_status: "valid" }
```

```
- do:
  xpack.license.get: { }
```

```
- length: { license: 11 }
```

```
## license version: 1.x
```

```
- do:
  xpack.license.post:
    acknowledge: true
    body: |
```

```
    { "licenses": [ { "uid": "893361dc-9749-4997-93cb-
802e3d7fa4a8", "type": "subscription", "subscription_type": "gold", "issue_date_in_millis": 1411948800000, "feature": "
shield", "expiry_date_in_millis": 1914278399999, "max_nodes": 1, "issued_to": "issuedTo", "issuer": "issuer", "signature
": "AAAAAQAAAA0LVAYwWpSH94cyXr4zAAABmC9ZN0hjZDBGYnVyRXpCOW5Bb3FjZDAxOWpSbTVo
MVZwUzRxVklPSmkxakxZdW5IMlhITHNoN1N2MXMvRFk4d3JTZEx3R3RRZ0pzU3lobWJKZnQvSEFva0pp
THBkWkprZWZSQi9iNmRQNkw1SlpLN0lDalZCS095MXRGN1IIZlpYcVVTnFrcTE2dzhJZmZrdFQrN3JQeG
wxboU0MXZ0dDJHSERiZTVLOHNzSDBYwNpoZEphZHBEZjUrTVBxRENNSXNsWWJjZllaODdzVmEzUjNi
WktNWGM5TUhQV2plaUo4Q1JOUmI4MXNuL0pSOEhQaVB2azhmUk9QVzhFeTFoM1Q0RnJXSG53MWk2K
055c28zSmRnVkf1b2JSQkFLV2VXUmVHNDZ2R3o2VE1qbVNQS2lxOHN5bUErZlNIWkZSVmZIWEtaSU9w
TTJENDVvT1NCYklacUYyK2FwRW9xa0t6ldMbmMzSGtQc3FWOTgzZ3ZUcXMvQkt2RUZwMFJnZzlvL2d2
bDRWUzh6UG5pdENGWFRreXNKNkE9PQAAAQA4qsc/URRZVdFoLwgy9dqybYEQWLW8YLkiAyPV5XHHH
dtk-dtZiepiNEDkUXhSX2waVJlsNRF8/4kqplDfwNoD2TUM8fTgiIfiSiZYGDTGST+yW/5eAveEU5J5v1liBN27b
wkqL+V4YAa0Tcm7NKKwjScWKAHiTU3vF8chPkGfCHE0kQgVwPC9RE82pTw0s6/uR4PFLGNFfqPM0uiE5n
ucfVrtj89JQiO/KA/7ZyFbo7VTNXxZQt7T7rZWBCP9KIjptXzcWuk08Q5S+rSoJNYbFo3HGKtrCVsRz/55rceNtd
wKKXu1IwnSeir4I1/KLduQtFLy0+1th87VS8T88UT" ] } }
```

```
- match: { license_status: "valid" }
```

```
- do:
  xpack.license.get: { }
```

```
- length: { license: 11 }
```

```
## multiple licenses version: 1.x
```

```
- do:
  xpack.license.post:
    acknowledge: true
    body: |
      { "licenses": [ { "uid": "893361dc-9749-4997-93cb-
```

```
802e3d7fa4a8","type":"internal","subscription_type":"none","issue_date_in_millis":1411948800000,"feature":"shield","expiry_date_in_millis":1440892799999,"max_nodes":1,"issued_to":"issuedTo","issuer":"issuer","signature":"AAAAAQA AAAA04Q4ky3rFyyWLFkytEAAABmC9ZN0hjZDBGYnVyRXpCOW5Bb3FjZDAxOWpSbTVoMVZwUzRxVk1PSmkxakxZdW5IMlhlTHNoN1N2MXMvRfK4d3JTZE3R3RRZ0pzU3lobWJKZnQvSEFva0ppTHBkVwKprZWZSQi9iNmRQNkw1SlpLN0iDalZCS095MXRGN1IIZlpYcVVTnFrcTE2dzhJZmZrdFQrN3JQeGwxb0U0MXZ0dDJHSERiZTVLOHNzSDBYwnpZephZHBEZjUrTVBxRENNSXNsWWJjZllaODdzVmEzUjNiWktNWGM5TUhQV2plaUo4Q1JOUml4MXNuL0pSOEhQaVB2azhmUk9QVzhFeTFoM1Q0RnJXSG53MWk2K055c28zSmRnVkf1b2JSQkFLV2VXUmVHNDZ2R3o2VE1qbVNQS2lxOHN5bUErZINIWkZSVmZiWEtaSU9wTTJENDVvT1NCYklacUYyK2FwRW9xa0t6ldMbmMzSGtQc3FWOTgzZ3ZUcXMvQkt2RUZwMFJnZzlvL2d2bDRWUzh6UG5pdENGWFRreXNKNkE9PQAAABQbXmVUmN4h2E4R4TQMijahTxQj4LPQO4f1M79UxX/XkDIGcH+J5pRHx08OtTRPsFL1IED+h+PIXx307Vo+PNDsOxrWvoYZeYBkOLAO3ny9vhQga+52jYhMxIuFrT9xbcSCSNpMhGojgOIPU2WgiopVdVcimo1+Gk8VtkIPB1wPwFzfOjOnPgp/Icx3WYpfkeAUUOyWUYiFIBAE4bnz84iF+XwLKBgYk6aHF25ECBtdb/Uruhcm9+jEFpOIEUtCouvvk9C+NJZ4OickV4xpRgaRG2x9PONH8ZN0QGhGYhJGbisocXuDmlSlyVxqxfMu3n/r7/jdsEJSjAlSrLDOu6H"}, {"uid":"893361dc-9749-4997-93cb-
```

```
802e3dofh7aa","type":"internal","subscription_type":"none","issue_date_in_millis":1443484800000,"feature":"watcher","expiry_date_in_millis":1914278399999,"max_nodes":1,"issued_to":"issuedTo","issuer":"issuer","signature":"AAAAAQA AAAA0Sc90guRIaQEmgLvMnAAABmC9ZN0hjZDBGYnVyRXpCOW5Bb3FjZDAxOWpSbTVoMVZwUzRxVk1PSmkxakxZdW5IMlhlTHNoN1N2MXMvRfK4d3JTZE3R3RRZ0pzU3lobWJKZnQvSEFva0ppTHBkVwKprZWZSQi9iNmRQNkw1SlpLN0iDalZCS095MXRGN1IIZlpYcVVTnFrcTE2dzhJZmZrdFQrN3JQeGwxb0U0MXZ0dDJHSERiZTVLOHNzSDBYwnpZephZHBEZjUrTVBxRENNSXNsWWJjZllaODdzVmEzUjNiWktNWGM5TUhQV2plaUo4Q1JOUml4MXNuL0pSOEhQaVB2azhmUk9QVzhFeTFoM1Q0RnJXSG53MWk2K055c28zSmRnVkf1b2JSQkFLV2VXUmVHNDZ2R3o2VE1qbVNQS2lxOHN5bUErZINIWkZSVmZiWEtaSU9wTTJENDVvT1NCYklacUYyK2FwRW9xa0t6ldMbmMzSGtQc3FWOTgzZ3ZUcXMvQkt2RUZwMFJnZzlvL2d2bDRWUzh6UG5pdENGWFRreXNKNkE9PQAAABQC94dju0pnDZR3Uuypi0ic3aQJ+nvVqe+U8u79Dga5n1qLjcHDh7HvIBJEkF+tnVPlo/PXV/x7BZSwVY1PVERit+6rYix1yuHEgqwxmx/VdRICjCaZM6tk0Ob4dZCPv6Ebn2Mmk89KHC/PwiLPqF6QfV/Pkpa8k2A3ORJmvYSDvXhe6tCs8dq4ebrsFxqrZjwWh5CZSpzqqZBFXIngDv2N0hHhpGlueRszD0JJ5dfEL5ZA1DDOrgO9OJVeJSHyRqe1L5QRUNdXPVfS+EAG0Dd1cNdJ/sMpYCPnVjBw6iq2/YgM3cuztsXVBY7ij4WnoP3ce7Zjs9TwHn+IqzftC6"} ] }
```

```
- match: { license_status: "valid" }
```

```
- do:
```

```
  xpack.license.get: { }
```

```
- length: { license: 11 }
```

```
- match: { license.uid: "893361dc-9749-4997-93cb-802e3dofh7aa" }
```

```
---
```

```
"Should throw 404 after license deletion":
```

```
- do:
```

```
  xpack.license.delete: { }
```

```
- match: { acknowledged: true }
```

```
- do:
```

```
  xpack.license.get: { }
```

```
  catch: missing
```

```
---
```

"Should install a feature type license":

```
# VERSION_NO_FEATURE_TYPE license version
- do:
  xpack.license.post:
    acknowledge: true
    body: |
      {"license": {"uid": "893361dc-9749-4997-93cb-802e3d7fa4a8", "type": "gold", "issue_date_in_millis": 1411948800000, "expiry_date_in_millis": 1914278399999, "max_nodes": 1, "issued_to": "issued_to", "issuer": "issuer", "signature": "AAAAAgAAAA3U8+YmnmvWC+CWsV/mRAAABmC9ZN0hjZDBGYnVyRXpCOW5Bb3FjZDAxOWpSbTVoMVZwUzRxVk1PSmkxakxZdW5IMlhlTHNoN1N2MXMvRFk4d3JTZE3R3RRZ0pzU3lobWJKZnQvSEFva0ppTHBkWkprZWZSQi9iNmRQNkw1SlpLN0IDalZCS095MXRGN1IIZlpYcVVTnFrcTE2dzhJZmZrdFQrN3JQeGwxb0U0MXZ0dDJHSERiZTVLOHNzSDBYwnpoZEphZHBEZjUrTVBxRENNSXNsWWJjZllaODdzVmEzUjNiWktNWGM5TUhQV2plaUo4Q1JOUml4MXNuL0pSOEhQaVB2azhmUk9QVzhFeTFoM1Q0RnJXSG53MWk2K055c28zSmRnVkf1b2JSQkFLV2VXUmVHNDZ2R3o2VE1qbVNQS2lxOHN5bUeRZINIWkZSVmZIWETA9wTTJENDVvT1NCYklacUYyK2FwRW9xa0t6dldMbmMzSGtQc3FWOTgzZ3ZUCXmVQkt2RUZwMFJnZzlvL2d2bDRWUzh6UG5pdENGWFRreXNKNkE9PQAAQBe8GfzDm6T537Iuuvejtb3xK5dvg0K5NQapv+rczWcQFxcCuzbF8plkgetP1aAGZP4uRESDQPMIOCSx4d0UqqAm9f7GbBQ3I93P+PogInPFeEH9NvOmaAQovmxVM9SE6DsDqLX4cXSO+bgWpXPTd2LmpoQc1fXd6BZ8GeuyYpVHVkP9hVU0tAYjw6HzYOE7+zuO1oJYOxElqy66AnIfkvHrvni+flym3tE7tDTgsDRaz7W3iBhaqiSntEqabEkvHdPHQdSR99XGaEvnHO1paK01/35iZF6OXHsF7CCj+558GRXiVxzueOe7TsGSS8g7YjZwV9bRCyU7oB4B/nidgI"}}
```

```
- match: { license_status: "valid" }
```

```
- do:
  xpack.license.get: { }
```

```
- length: { license: 11 }
```

---

"Cannot start basic":

```
- do:
  catch: bad_request
  xpack.license.post:
    acknowledge: true
    body: |
      {"license": {"uid": "893361dc-9749-4997-93cb-802e3d7fa4a8", "type": "basic", "issue_date_in_millis": 1411948800000, "expiry_date_in_millis": 1914278399999, "max_nodes": 1, "issued_to": "issuedTo", "issuer": "issuer", "signature": "AAAAAgAAAA0IKPZ0a7aZquUltho/AAABmC9ZN0hjZDBGYnVyRXpCOW5Bb3FjZDAxOWpSbTVoMVZwUzRxVk1PSmkxakxZdW5IMlhlTHNoN1N2MXMvRFk4d3JTZE3R3RRZ0pzU3lobWJKZnQvSEFva0ppTHBkWkprZWZSQi9iNmRQNkw1SlpLN0IDalZCS095MXRGN1IIZlpYcVVTnFrcTE2dzhJZmZrdFQrN3JQeGwxb0U0MXZ0dDJHSERiZTVLOHNzSDBYwnpoZEphZHBEZjUrTVBxRENNSXNsWWJjZllaODdzVmEzUjNiWktNWGM5TUhQV2plaUo4Q1JOUml4MXNuL0pSOEhQaVB2azhmUk9QVzhFeTFoM1Q0RnJXSG53MWk2K055c28zSmRnVkf1b2JSQkFLV2VXUmVHNDZ2R3o2VE1qbVNQS2lxOHN5bUeRZINIWkZSVmZIWETA9wTTJENDVvT1NCYklacUYyK2FwRW9xa0t6dldMbmMzSGtQc3FWOTgzZ3ZUCXmVQkt2RUZwMFJnZzlvL2d2bDRWUzh6UG5pdENGWFRreXNKNkE9PQAAQAALuQ44S3IG6SzolcXVJ6Z4CIXORDrYQ+wdLceey0XdujTslAOj+k+vNgo6wauc7Uswi01esHu4lb5IgpvKy7RRCbh5bj/z2
```

ubu2qMJqopp9BQyD7VQjVfqmG6seUMJwJ1a5Avvm9r41YPSPerii3bKK2e1l6jK6N8ibCvnTyY/XkYGCJrBWT  
SJePDbg6ErbyodrZ37x1StLbPwCNAkmweyHjDJnvYnbeZZO7A3NmubXZjW7Ttf8/YwQyE00PqMcl7fVPY3hk  
KpAeHf8aaJbqkKYbqZuER3EWJX7ZvLVb1dNdNg8aXRn7YrkQcYwWgptYQpfV+D7yEJ4j5muAEoler"}}

- match: { error.root\_cause.0.reason: 'Installing basic licenses is no longer allowed. Use the POST  
/\_xpack/license/start\_basic API to install a basic license that does not expire.' }

---

"Should fail gracefully when body content is not provided":

- do:

catch: bad\_request  
xpack.license.post:  
acknowledge: true

- match: { error.root\_cause.0.reason: 'The license must be provided in the request body' }

---

"Current license is trial means not eligible to start trial":

- do:

xpack.license.get\_trial\_status: { }

- match: { eligible\_to\_start\_trial: false }

- do:

xpack.license.post\_start\_basic:  
acknowledge: true

- match: { basic\_was\_started: true }

- do:

xpack.license.get\_trial\_status: { }

- match: { eligible\_to\_start\_trial: false }

- do:

catch: forbidden  
xpack.license.post\_start\_trial:  
acknowledge: true

- match: { trial\_was\_started: false }

- match: { error\_message: "Operation failed: Trial was already activated." }

---

"Trial license cannot be basic":

- do:

catch: bad\_request  
xpack.license.post\_start\_trial:  
type: "basic"  
acknowledge: true

```

---
"Can start basic license if do not already have basic":
- do:
  xpack.license.get_basic_status: {}

- match: { eligible_to_start_basic: true }

- do:
  xpack.license.post_start_basic:
    acknowledge: true

- match: { basic_was_started: true }
- match: { acknowledged: true }

- do:
  xpack.license.get_basic_status: {}

- match: { eligible_to_start_basic: false }

- do:
  catch: forbidden
  xpack.license.post_start_basic: {}

- match: { basic_was_started: false }
- match: { acknowledged: true }
- match: { error_message: "Operation failed: Current license is basic." }
---
"Must acknowledge to start basic":
- do:
  xpack.license.post_start_basic: {}

- match: { basic_was_started: false }
- match: { acknowledged: false }
- match: { error_message: "Operation failed: Needs acknowledgement." }
{
  "xpack.license.delete": {
    "documentation": "https://www.elastic.co/guide/en/x-pack/current/license-management.html",
    "methods": ["DELETE"],
    "url": {
      "path": "/_xpack/license",
      "paths": ["/_xpack/license"],
      "parts": {}
    },
  },
  "body": null
}
{
  "xpack.license.get": {

```

```

"documentation": "https://www.elastic.co/guide/en/x-pack/current/license-management.html",
"methods": ["GET"],
"url": {
  "path": "/_xpack/license",
  "paths": ["/_xpack/license"],
  "parts" : {
  },
  "params": {
    "local": {
      "type" : "boolean",
      "description" : "Return local information, do not retrieve the state from master node (default: false)"
    }
  }
},
"body": null
}
}
{
"xpack.license.post_start_basic": {
  "documentation": "https://www.elastic.co/guide/en/x-pack/current/license-management.html",
  "methods": ["POST"],
  "url": {
    "path": "/_xpack/license/start_basic",
    "paths": ["/_xpack/license/start_basic"],
    "parts" : {
    },
    "params": {
      "acknowledge": {
        "type" : "boolean",
        "description" : "whether the user has acknowledged acknowledge messages (default: false)"
      }
    }
  },
  "body": null
}
}
{
"xpack.license.get_trial_status": {
  "documentation": "https://www.elastic.co/guide/en/x-pack/current/license-management.html",
  "methods": ["GET"],
  "url": {
    "path": "/_xpack/license/trial_status",
    "paths": ["/_xpack/license/trial_status"],
    "parts" : {
    },
    "params": {
    }
  },
}
}

```

```

"body": null
}
}
{
"xpack.license.post": {
  "documentation": "https://www.elastic.co/guide/en/x-pack/current/license-management.html",
  "methods": ["PUT", "POST"],
  "url": {
    "path": "/_xpack/license",
    "paths": ["/_xpack/license"],
    "parts": {
    },
    "params": {
      "acknowledge": {
        "type": "boolean",
        "description": "whether the user has acknowledged acknowledge messages (default: false)"
      }
    }
  },
  "body": {
    "description": "licenses to be installed"
  }
}
}
{
"xpack.license.post_start_trial": {
  "documentation": "https://www.elastic.co/guide/en/x-pack/current/license-management.html",
  "methods": ["POST"],
  "url": {
    "path": "/_xpack/license/start_trial",
    "paths": ["/_xpack/license/start_trial"],
    "parts": {
    },
    "params": {
      "type": {
        "type": "string",
        "description": "The type of trial license to generate (default: \"trial\")"
      },
      "acknowledge": {
        "type": "boolean",
        "description": "whether the user has acknowledged acknowledge messages (default: false)"
      }
    }
  },
  "body": null
}
}
}

```



```
{
  "xpack.license.get_basic_status": {
    "documentation": "https://www.elastic.co/guide/en/x-pack/current/license-management.html",
    "methods": ["GET"],
    "url": {
      "path": "/_xpack/license/basic_status",
      "paths": ["/_xpack/license/basic_status"],
      "parts": {
      },
      "params": {
      }
    },
    "body": null
  }
}
```

Copyright (c) 2004-2017 QOS.ch

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Dropwizard

Copyright 2010-2013 Coda Hale and Yammer, Inc., 2014-2016 Dropwizard Team

This product includes software developed by Coda Hale and Yammer, Inc.

Apache Log4j SLF4J Binding

Copyright 1999-2017 The Apache Software Foundation

This product includes software developed at

The Apache Software Foundation (<http://www.apache.org/>).

Apache XML Security for Java

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <link rel="dns-prefetch" href="https://assets-cdn.github.com">
    <link rel="dns-prefetch" href="https://avatars0.githubusercontent.com">
    <link rel="dns-prefetch" href="https://avatars1.githubusercontent.com">
    <link rel="dns-prefetch" href="https://avatars2.githubusercontent.com">
    <link rel="dns-prefetch" href="https://avatars3.githubusercontent.com">
    <link rel="dns-prefetch" href="https://github-cloud.s3.amazonaws.com">
    <link rel="dns-prefetch" href="https://user-images.githubusercontent.com/">

    <link crossorigin="anonymous" href="https://assets-cdn.github.com/assets/frameworks-
2d2d4c150f7000385741c6b992b302689ecd172246c6428904e0813be9bceca6.css" media="all" rel="stylesheet" />
    <link crossorigin="anonymous" href="https://assets-cdn.github.com/assets/github-
0522ae8d3b3bdc841d2f91f90efd5f1fd9040d910905674cd134ced43a6dfea6.css" media="all" rel="stylesheet" />

    <link crossorigin="anonymous" href="https://assets-cdn.github.com/assets/site-
cfab053e93f0e27f4c63d4ff6b7957bd25f711667fe678e747f8a4d88c47b38d.css" media="all" rel="stylesheet" />

    <meta name="viewport" content="width=device-width">

    <title>cryptacular/NOTICE at master · vt-middleware/cryptacular · GitHub</title>
    <link rel="search" type="application/opensearchdescription+xml" href="/opensearch.xml" title="GitHub">
    <link rel="fluid-icon" href="https://github.com/fluidicon.png" title="GitHub">
    <meta property="fb:app_id" content="1401488693436528">

    <meta content="https://avatars7.githubusercontent.com/u/6122907?v=4&s=400" property="og:image" /><meta
content="GitHub" property="og:site_name" /><meta content="object" property="og:type" /><meta content="vt-
middleware/cryptacular" property="og:title" /><meta content="https://github.com/vt-middleware/cryptacular"
property="og:url" /><meta content="cryptacular - The friendly complement to the BouncyCastle crypto API for
Java." property="og:description" />
```

```
<link rel="assets" href="https://assets-cdn.github.com/">

<meta name="pjax-timeout" content="1000">

<meta name="request-id" content="E0E4:26F16:12A5AE6:1D11801:596C7978" data-pjax-transient>

<meta name="selected-link" value="repo_source" data-pjax-transient>

<meta name="google-site-verification" content="KT5gs8h0wvaagLKA VWq8bbeNwnZZK1r1XQysX3xurLU">
<meta name="google-site-verification" content="ZzhVyEFwb7w3e0-uOTltm8Jsck2F5StVihD0exw2fsA">
  <meta name="google-analytics" content="UA-3769691-2">

<meta content="collector.githubapp.com" name="octolytics-host" /><meta content="github" name="octolytics-app-id" /><meta content="https://collector.githubapp.com/github-external/browser_event" name="octolytics-event-url" /><meta content="E0E4:26F16:12A5AE6:1D11801:596C7978" name="octolytics-dimension-request_id" /><meta content="sea" name="octolytics-dimension-region_edge" /><meta content="iad" name="octolytics-dimension-region_render" />
<meta content="/<user-name>/<repo-name>/blob/show" data-pjax-transient="true" name="analytics-location" />

<meta class="js-ga-set" name="dimension1" content="Logged Out">

  <meta name="hostname" content="github.com">
<meta name="user-login" content="">

  <meta name="expected-hostname" content="github.com">
  <meta name="js-proxy-site-detection-payload"
content="N2ZhMjk0NTA4MjI1NmZhYTVINzM5NzVjZmFkOWY2NGFkNmMxYzcyMGViNzAzZGQxMGMzZmJhZDQ3YWZiZTI0OHx7InJlbW90ZV9hZGRyZXNzIjoiMTEwLjIwLjIyMC4xMzUiLCJyZXF1ZXN0X2lkIjoiRTBFNDoyNkYxNjoxMkE1QUU2OjFEMTE4MDE6NTk2Qzc5NzgiLCJ0aW1lc3RhbXAiOiE1MDAyODEyMDgsImhvc3QiOiJnaXRodWIuY29tIn0=">

  <meta name="html-safe-nonce" content="5aa226b80a18dc40894e1d405e4eb31cfca7d616">

  <meta http-equiv="x-pjax-version" content="f682644ce1bb9629b9d9d9bedf64801b">

  <link href="https://github.com/vt-middlewre/cryptacular/commits/master.atom" rel="alternate" title="Recent Commits to cryptacular:master" type="application/atom+xml">

  <meta name="description" content="cryptacular - The friendly complement to the BouncyCastle crypto API for
```

```
Java.">
<meta name="go-import" content="github.com/vt-middlewre/cryptacular git https://github.com/vt-
middlewre/cryptacular.git">

<meta content="6122907" name="octolytics-dimension-user_id" /><meta content="vt-middlewre"
name="octolytics-dimension-user_login" /><meta content="15714989" name="octolytics-dimension-repository_id"
/><meta content="vt-middlewre/cryptacular" name="octolytics-dimension-repository_nwo" /><meta
content="true" name="octolytics-dimension-repository_public" /><meta content="false" name="octolytics-
dimension-repository_is_fork" /><meta content="15714989" name="octolytics-dimension-
repository_network_root_id" /><meta content="vt-middlewre/cryptacular" name="octolytics-dimension-
repository_network_root_nwo" /><meta content="false" name="octolytics-dimension-
repository_explore_github_marketplace_ci_cta_shown" />

<link rel="canonical" href="https://github.com/vt-middlewre/cryptacular/blob/master/NOTICE" data-pjax-
transient>

<meta name="browser-stats-url" content="https://api.github.com/_private/browser/stats">

<meta name="browser-errors-url" content="https://api.github.com/_private/browser/errors">

<link rel="mask-icon" href="https://assets-cdn.github.com/pinned-octocat.svg" color="#000000">
<link rel="icon" type="image/x-icon" href="https://assets-cdn.github.com/favicon.ico">

<meta name="theme-color" content="#1e2327">

</head>

<body class="logged-out env-production page-blob">

<div class="position-relative js-header-wrapper ">
  <a href="#start-of-content" tabindex="1" class="px-2 py-4 show-on-focus js-skip-to-content">Skip to content</a>
  <div id="js-pjax-loader-bar" class="pjax-loader-bar"><div class="progress"></div></div>

  <header class="site-header js-details-container Details" role="banner">
  <div class="site-nav-container">
```

```
<a class="header-logo-invertocat" href="https://github.com/" aria-label="Homepage" data-ga-click="(Logged out)
Header, go to homepage, icon:logo-wordmark">
  <svg aria-hidden="true" class="octicon octicon-mark-github" height="32" version="1.1" viewBox="0 0 16 16"
width="32"><path fill-rule="evenodd" d="M8 0C3.58 0 0 3.58 0 8c0 3.54 2.29 6.53 5.47 7.59 4.07 5.55-.17 5.55-.38 0-
.19-.01-.82-.01-1.49-2.01 3.7-2.53-.49-2.69-.94-.09-.23-.48-.94-.82-1.13-.28-.15-.68-.52-.01-.53 6.3-.01 1.08 5.8
1.23 8.2 7.2 1.21 1.87 8.7 2.33 6.6 0.7-.52 2.8-.87 5.1-1.07-1.78-.2-3.64-.89-3.64-3.95 0-.87 3.1-1.59 8.2-2.15-.08-.2-.36-
1.02 0.8-2.12 0 0 .67-.21 2.2 8.2 6.4-.18 1.32-.27 2-.27 6.8 0 1.36 0.9 2 .27 1.53-1.04 2.2-.82 2.2-.82 4.4 1.1 1.6 1.92 0.8
2.12 5.1 5.6 8.2 1.27 8.2 2.15 0 3.07-1.87 3.75-3.65 3.95 2.9 2.5 5.4 7.3 5.4 1.48 0 1.07-.01 1.93-.01 2.2 0
.21 1.5 4.6 5.5 3.8 8.0 13 8.0 13 0 0 0 16 8c0-4.42-3.58-8-8-8z"/></svg>
</a>
```

```
<button class="btn-link float-right site-header-toggle js-details-target" type="button" aria-label="Toggle
navigation" aria-expanded="false">
  <svg aria-hidden="true" class="octicon octicon-three-bars" height="24" version="1.1" viewBox="0 0 12 16"
width="18"><path fill-rule="evenodd" d="M11.41 9H.59C0 9 0 8.59 0 8c0-.59 0-1 .59-1H11.4c.59 0 .59 4.1 5.9 1 0
.59 0 1-.59 1h.01zm0-4H.59C0 5 0 4.59 0 4c0-.59 0-1 .59-1H11.4c.59 0 .59 4.1 5.9 1 0 .59 0 1-.59 1h.01zM.59
11H11.4c.59 0 .59 4.1 5.9 1 0 .59 0 1-.59 1H.59C0 13 0 12.59 0 12c0-.59 0-1 .59-1z"/></svg>
</button>
```

```
<div class="site-header-menu">
  <nav class="site-header-nav">
    <a href="/features" class="js-selected-navigation-item nav-item" data-ga-click="Header, click, Nav menu -
item:features" data-selected-links="/features /features/code-review /features/project-management
/features/integrations /features">
      Features
    </a>
    <a href="/business" class="js-selected-navigation-item nav-item" data-ga-click="Header, click, Nav menu -
item:business" data-selected-links="/business /business/security /business/customers /business">
      Business
    </a>
    <a href="/explore" class="js-selected-navigation-item nav-item" data-ga-click="Header, click, Nav menu -
item:explore" data-selected-links="/explore /trending /trending/developers /stars /integrations
/integrations/feature/code /integrations/feature/collaborate /integrations/feature/ship showcases showcases_search
showcases_landing /explore">
      Explore
    </a>
    <a href="/marketplace" class="js-selected-navigation-item nav-item" data-ga-click="Header, click, Nav
menu - item:marketplace" data-selected-links="/marketplace">
      Marketplace
    </a>
    <a href="/pricing" class="js-selected-navigation-item nav-item" data-ga-click="Header, click, Nav menu -
item:pricing" data-selected-links="/pricing /pricing/developer /pricing/team /pricing/business-hosted
/pricing/business-enterprise /pricing">
      Pricing
    </a>
  </nav>
```

```
<div class="site-header-actions">
  <div class="header-search scoped-search site-scoped-search js-site-search" role="search">
    <!-- "" --><!-- </textarea></xmp> --></option></form><form accept-charset="UTF-8" action="/vt-
middleware/cryptacular/search" class="js-site-search-form" data-scoped-search-url="/vt-
middleware/cryptacular/search" data-unscooped-search-url="/search" method="get"><div
style="margin:0;padding:0;display:inline"><input name="utf8" type="hidden" value="#x2713;" /></div>
```

```
<label class="form-control header-search-wrapper js-chromeless-input-container">
  <a href="/vt-middlewre/cryptacular/blob/master/NOTICE" class="header-search-scope no-underline">This
repository</a>
  <input type="text"
    class="form-control header-search-input js-site-search-focus js-site-search-field is-clearable"
    data-hotkey="s"
    name="q"
    value=""
    placeholder="Search"
    aria-label="Search this repository"
    data-unscoed-placeholder="Search GitHub"
    data-scoped-placeholder="Search"
    autocapitalize="off">
  <input type="hidden" class="js-site-search-type-field" name="type" >
</label>
</form></div>
```

```
  <a class="text-bold site-header-link" href="/login?return_to=%2Fvt-
middleware%2Fcryptacular%2Fblob%2Fmaster%2FNOTICE" data-ga-click="(Logged out) Header, clicked Sign
in, text:sign-in">Sign in</a>
  <span class="text-gray">or</span>
  <a class="text-bold site-header-link" href="/join?source=header-repo" data-ga-click="(Logged out) Header,
clicked Sign up, text:sign-up">Sign up</a>
</div>
</div>
</div>
<div id="start-of-content" class="show-on-focus"></div>
<div id="js-flash-container">
</div>
```

```
</div>
```

```
<div id="start-of-content" class="show-on-focus"></div>
```

```
<div id="js-flash-container">
</div>
```

```
<div role="main">
```

```
  <div itemscope itemtype="http://schema.org/SoftwareSourceCode">
```

```
  <div id="js-repo-pjax-container" data-pjax-container>
```

<div class="pagehead repohead instapaper\_ignore readability-menu experiment-repo-nav">

<div class="container repohead-details-container">

<ul class="pagehead-actions">

<li>

<a href="/login?return\_to=%2Fvt-middleware%2Fcryptacular"

class="btn btn-sm btn-with-count tooltiped tooltiped-n"

aria-label="You must be signed in to watch a repository" rel="nofollow">

<svg aria-hidden="true" class="octicon octicon-eye" height="16" version="1.1" viewBox="0 0 16 16" width="16"><path fill-rule="evenodd" d="M8.06 2C3 2 0 8 8 8 8.06 6C13 14 16 8 16 8 8 3 6 7.94 6zM8 12c-2.2 0-4 1.78-4 4 0-2.2 1.8 4 4 2.22 0 4 1.8 4 0 2.22-1.78 4 4 4zm2-4c0 1.11-.89 2 2-1.11 0-2-.89-2 0-1.11.89 2 2 1.11 0 2 .89 2 2z"/></svg>

Watch

</a>

<a class="social-count" href="/vt-middleware/cryptacular/watchers"

aria-label="9 users are watching this repository">

9

</a>

</li>

<li>

<a href="/login?return\_to=%2Fvt-middleware%2Fcryptacular"

class="btn btn-sm btn-with-count tooltiped tooltiped-n"

aria-label="You must be signed in to star a repository" rel="nofollow">

<svg aria-hidden="true" class="octicon octicon-star" height="16" version="1.1" viewBox="0 0 14 16" width="14"><path fill-rule="evenodd" d="M14 6l-4.9-.64L7 1 4.9 5.36 0 6l3.6 3.26L2.67 14 7 11.67 11.33 14l-.93-4.74z"/></svg>

Star

</a>

<a class="social-count js-social-count" href="/vt-middleware/cryptacular/stargazers"

aria-label="15 users starred this repository">

15

</a>

</li>

<li>

<a href="/login?return\_to=%2Fvt-middleware%2Fcryptacular"

class="btn btn-sm btn-with-count tooltiped tooltiped-n"

aria-label="You must be signed in to fork a repository" rel="nofollow">

<svg aria-hidden="true" class="octicon octicon-repo-forked" height="16" version="1.1" viewBox="0 0 10 16" width="10"><path fill-rule="evenodd" d="M8 1a1.993 1.993 0 0 0 1 3.72V6L5 8 3 6V4.72A1.993 1.993 0 0 0 2 1a1.993 1.993 0 0 0 1 3.72V6.513 3v1.78A1.993 1.993 0 0 0 5 15a1.993 1.993 0 0 0 1 3.72V9.513 3V4.72A1.993 1.993 0 0 0 8 1zm2 4.2C1.34 4.2 3.65 8 3c0-.65 55-1.2 1.2-1.2 65 0 1.2 55 1.2 1.2 0 .65-.55 1.2-1.2 1.2zm3 10c-.66 0-1.2-.55-1.2-1.2 0-.65 55-1.2 1.2-1.2 65 0 1.2 55 1.2 1.2 0 .65-.55 1.2-1.2 1.2zm3-10c-.66 0-1.2-.55-1.2-1.2 0-

```

.65.55-1.2 1.2-1.2.65 0 1.2.55 1.2 1.2 0 .65-.55 1.2-1.2 1.2z"/></svg>
  Fork
</a>

<a href="/vt-middlewre/cryptacular/network" class="social-count"
  aria-label="1 user forked this repository">
  1
</a>
</li>
</ul>

  <h1 class="public ">
  <svg aria-hidden="true" class="octicon octicon-repo" height="16" version="1.1" viewBox="0 0 12 16"
  width="12"><path fill-rule="evenodd" d="M4 9H3V8h1v1zm0-3H3v1h1V6zm0-2H3v1h1V4zm0-
  2H3v1h1V2zm8-1v12c0 .55-.45 1-1 1H6v2l-1.5-1.5L3 16v-2H1c-.55 0-1-.45-1-1V1c0-.55.45-1 1-1h10c.55 0 1 .45
  1 1zm-1 10H1v2h2v-1h3v1h5v-2zm0-10H2v9h9V1z"/></svg>
  <span class="author" itemprop="author"><a href="/vt-middlewre" class="url fn" rel="author">vt-
  middlewre</a></span><!--
  --><span class="path-divider"></span><!--
  --><strong itemprop="name"><a href="/vt-middlewre/cryptacular" data-pjax="#js-repo-pjax-
  container">cryptacular</a></strong>

</h1>

</div>
<div class="container">

<nav class="reonav js-repo-nav js-sidenav-container-pjax"
  itemscope
  itemtype="http://schema.org/BreadcrumbList"
  role="navigation"
  data-pjax="#js-repo-pjax-container">

  <span itemscope itemtype="http://schema.org/ListItem" itemprop="itemListElement">
  <a href="/vt-middlewre/cryptacular" class="js-selected-navigation-item selected reonav-item" data-hotkey="g
  c" data-selected-links="repo_source repo_downloads repo_commits repo_releases repo_tags repo_branches /vt-
  middlewre/cryptacular" itemprop="url">
  <svg aria-hidden="true" class="octicon octicon-code" height="16" version="1.1" viewBox="0 0 14 16"
  width="14"><path fill-rule="evenodd" d="M9.5 3L8 4.5 11.5 8 8 11.5 9.5 13 14 8 9.5 3zm-5 0L0 8l4.5 5L6 11.5
  2.5 8 6 4.5 4.5 3z"/></svg>
  <span itemprop="name">Code</span>
  <meta itemprop="position" content="1">
</a> </span>

  <span itemscope itemtype="http://schema.org/ListItem" itemprop="itemListElement">
  <a href="/vt-middlewre/cryptacular/issues" class="js-selected-navigation-item reonav-item" data-hotkey="g i"
  data-selected-links="repo_issues repo_labels repo_milestones /vt-middlewre/cryptacular/issues" itemprop="url">
  <svg aria-hidden="true" class="octicon octicon-issue-opened" height="16" version="1.1" viewBox="0 0 14 16"

```



```

width="14"><path fill-rule="evenodd" d="M7 2.3c3.14 0 5.7 2.56 5.7 5.7s-2.56 5.7-5.7 5.7A5.71 5.71 0 0 1 1.3
8c0-3.14 2.56-5.7 5.7-5.7zM7 1C3.14 1 0 4.14 0 8s3.14 7 7 7-3.14 7-7-3.14-7-7zm1 3H6v5h2V4zm0
6H6v2h2v-2z"/></svg>
  <span itemprop="name">Issues</span>
  <span class="Counter">4</span>
  <meta itemprop="position" content="2">
</a> </span>

<span itemscope itemtype="http://schema.org/ListItem" itemprop="itemListElement">
  <a href="/vt-middleware/cryptacular/pulls" class="js-selected-navigation-item reponav-item" data-hotkey="g p"
data-selected-links="repo_pulls /vt-middleware/cryptacular/pulls" itemprop="url">
    <svg aria-hidden="true" class="octicon octicon-git-pull-request" height="16" version="1.1" viewBox="0 0 12
16" width="12"><path fill-rule="evenodd" d="M11 11.28V5c-.03-.78-.34-1.47-.94-2.06C9.46 2.35 8.78 2.03 8
2H7V0L4 3l3 3V4h1c.27.02.48.11.69.31.21.2.34.23.42.31.69v6.28A1.993 1.993 0 0 0 10 15a1.993 1.993 0 0 0 1-
3.72zm-1 2.92c-.66 0-1.2-.55-1.2-1.2 0-.65.55-1.2 1.2-1.2.65 0 1.2.55 1.2 1.2 0 .65-.55 1.2-1.2 1.2zM4 3c0-1.11-
.89-2-2-2a1.993 1.993 0 0 0-1 3.72v6.56A1.993 1.993 0 0 0 2 15a1.993 1.993 0 0 0 1-3.72V4.72c.59-.34 1-.98 1-
1.72zm-.8 10c0 .66-.55 1.2-1.2 1.2-.65 0-1.2-.55-1.2-1.2 0-.65.55-1.2 1.2-1.2.65 0 1.2.55 1.2 1.2zM2 4.2C1.34 4.2.8
3.65.8 3c0-.65.55-1.2 1.2-1.2.65 0 1.2.55 1.2 1.2 0 .65-.55 1.2-1.2 1.2z"/></svg>
    <span itemprop="name">Pull requests</span>
    <span class="Counter">1</span>
    <meta itemprop="position" content="3">
</a> </span>

  <a href="/vt-middleware/cryptacular/projects" class="js-selected-navigation-item reponav-item" data-selected-
links="repo_projects new_repo_project repo_project /vt-middleware/cryptacular/projects">
    <svg aria-hidden="true" class="octicon octicon-project" height="16" version="1.1" viewBox="0 0 15 16"
width="15"><path fill-rule="evenodd" d="M10 12h3V2h-3v10zm-4-2h3V2H6v8zm-4 4h3V2H2v12zm-1
1h13V1H1v14zM14 0H1a1 1 0 0 0-1 1v14a1 1 0 0 0 1 1h13a1 1 0 0 0 1-1V1a1 1 0 0 0-1-1z"/></svg>
    Projects
    <span class="Counter">0</span>
</a>

<div class="reponav-dropdown js-menu-container">
  <button type="button" class="btn-link reponav-item reponav-dropdown js-menu-target " data-no-toggle aria-
expanded="false" aria-haspopup="true">
    Insights
    <svg aria-hidden="true" class="octicon octicon-triangle-down v-align-middle text-gray" height="11"
version="1.1" viewBox="0 0 12 16" width="8"><path fill-rule="evenodd" d="M0 5l6 6 6-6z"/></svg>
  </button>
  <div class="dropdown-menu-content js-menu-content">
    <div class="dropdown-menu dropdown-menu-sw">
      <a class="dropdown-item" href="/vt-middleware/cryptacular/pulse" data-skip-pjax>
        <svg aria-hidden="true" class="octicon octicon-pulse" height="16" version="1.1" viewBox="0 0 14 16"
width="14"><path fill-rule="evenodd" d="M11.5 8L8.8 5.4 6.6 8.5 5.5 1.6 2.38 8H0v2h3.6l9-1.8.9 5.4L9 8.5l1.6
1.5H14V8z"/></svg>
        Pulse
      </a>
    </div>
  </div>

```

```

    <a class="dropdown-item" href="/vt-middlewre/cryptacular/graphs" data-skip-pjax>
      <svg aria-hidden="true" class="octicon octicon-graph" height="16" version="1.1" viewBox="0 0 16 16"
width="16"><path fill-rule="evenodd" d="M16 14v1H0V0h1v14h15zM5 13H3V8h2v5zm4 0H7V3h2v10zm4 0h-
2V6h2v7z"/></svg>
      Graphs
    </a>
  </div>
</div>
</nav>

</div>
</div>

<div class="container new-discussion-timeline experiment-repo-nav">
  <div class="repository-content">

    <a href="/vt-middlewre/cryptacular/blob/c26911e3cd28497ce9daa3ce682e09cb2d1d8688/NOTICE" class="d-
none js-permalink-shortcut" data-hotkey="y">Permalink</a>

    <!-- blob contrib key: blob_contributors:v21:f5054b9e46039e0ad937c69e6151b7d4 -->

    <div class="file-navigation js-zeroclipboard-container">

<div class="select-menu branch-select-menu js-menu-container js-select-menu float-left">
  <button class=" btn btn-sm select-menu-button js-menu-target css-truncate" data-hotkey="w"

    type="button" aria-label="Switch branches or tags" aria-expanded="false" aria-haspopup="true">
    <i>Branch:</i>
    <span class="js-select-button css-truncate-target">master</span>
  </button>

<div class="select-menu-modal-holder js-menu-content js-navigation-container" data-pjax>

  <div class="select-menu-modal">
    <div class="select-menu-header">
      <svg aria-label="Close" class="octicon octicon-x js-menu-close" height="16" role="img" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M7.48 8l3.75-1.48 1.48L6 9.48l-3.75 3.75-
1.48-1.48L4.52 8 .77 4.25l1.48-1.48L6 5.52l3.75-3.75 1.48 1.48z"/></svg>
      <span class="select-menu-title">Switch branches/tags</span>
    </div>

    <div class="select-menu-filters">
      <div class="select-menu-text-filter">
        <input type="text" aria-label="Filter branches/tags" id="context-commitish-filter-field" class="form-control
js-filterable-field js-navigation-enable" placeholder="Filter branches/tags">
      </div>

```

```

<div class="select-menu-tabs">
  <ul>
    <li class="select-menu-tab">
      <a href="#" data-tab-filter="branches" data-filter-placeholder="Filter branches/tags" class="js-select-menu-tab" role="tab">Branches</a>
    </li>
    <li class="select-menu-tab">
      <a href="#" data-tab-filter="tags" data-filter-placeholder="Find a tag" class="js-select-menu-tab" role="tab">Tags</a>
    </li>
  </ul>
</div>
</div>

```

```

<div class="select-menu-list select-menu-tab-bucket js-select-menu-tab-bucket" data-tab-filter="branches" role="menu">

```

```

<div data-filterable-for="context-commitish-filter-field" data-filterable-type="substring">

```

```

  <a class="select-menu-item js-navigation-item js-navigation-open "
    href="/vt-middleware/cryptacular/blob/ISSUE-31+32/NOTICE"
    data-name="ISSUE-31+32"
    data-skip-pjax="true"
    rel="nofollow">
    <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
    <span class="select-menu-item-text css-truncate-target js-select-menu-filter-text">
      ISSUE-31+32
    </span>
  </a>
  <a class="select-menu-item js-navigation-item js-navigation-open "
    href="/vt-middleware/cryptacular/blob/gh-pages/NOTICE"
    data-name="gh-pages"
    data-skip-pjax="true"
    rel="nofollow">
    <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
    <span class="select-menu-item-text css-truncate-target js-select-menu-filter-text">
      gh-pages
    </span>
  </a>
  <a class="select-menu-item js-navigation-item js-navigation-open selected"
    href="/vt-middleware/cryptacular/blob/master/NOTICE"
    data-name="master"
    data-skip-pjax="true"
    rel="nofollow">
    <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"

```

```

viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
  <span class="select-menu-item-text css-truncate-target js-select-menu-filter-text">
    master
  </span>
</a>
<a class="select-menu-item js-navigation-item js-navigation-open "
  href="/vt-middlewre/cryptacular/blob/v1.1/NOTICE"
  data-name="v1.1"
  data-skip-pjax="true"
  rel="nofollow">
  <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
  <span class="select-menu-item-text css-truncate-target js-select-menu-filter-text">
    v1.1
  </span>
</a>
</div>

  <div class="select-menu-no-results">Nothing to show</div>
</div>

<div class="select-menu-list select-menu-tab-bucket js-select-menu-tab-bucket" data-tab-filter="tags">
  <div data-filterable-for="context-commitish-filter-field" data-filterable-type="substring">

    <a class="select-menu-item js-navigation-item js-navigation-open "
      href="/vt-middlewre/cryptacular/tree/v1.2.1/NOTICE"
      data-name="v1.2.1"
      data-skip-pjax="true"
      rel="nofollow">
      <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
      <span class="select-menu-item-text css-truncate-target" title="v1.2.1">
        v1.2.1
      </span>
    </a>
    <a class="select-menu-item js-navigation-item js-navigation-open "
      href="/vt-middlewre/cryptacular/tree/v1.2.0/NOTICE"
      data-name="v1.2.0"
      data-skip-pjax="true"
      rel="nofollow">
      <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
      <span class="select-menu-item-text css-truncate-target" title="v1.2.0">
        v1.2.0
      </span>
    </a>
    <a class="select-menu-item js-navigation-item js-navigation-open "

```

```

href="/vt-middleware/cryptacular/tree/v1.1.2/NOTICE"
data-name="v1.1.2"
data-skip-pjax="true"
rel="nofollow">
  <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
  <span class="select-menu-item-text css-truncate-target" title="v1.1.2">
    v1.1.2
  </span>
</a>
<a class="select-menu-item js-navigation-item js-navigation-open "
href="/vt-middleware/cryptacular/tree/v1.1.1/NOTICE"
data-name="v1.1.1"
data-skip-pjax="true"
rel="nofollow">
  <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
  <span class="select-menu-item-text css-truncate-target" title="v1.1.1">
    v1.1.1
  </span>
</a>
<a class="select-menu-item js-navigation-item js-navigation-open "
href="/vt-middleware/cryptacular/tree/v1.1.0/NOTICE"
data-name="v1.1.0"
data-skip-pjax="true"
rel="nofollow">
  <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
  <span class="select-menu-item-text css-truncate-target" title="v1.1.0">
    v1.1.0
  </span>
</a>
<a class="select-menu-item js-navigation-item js-navigation-open "
href="/vt-middleware/cryptacular/tree/v1.0/NOTICE"
data-name="v1.0"
data-skip-pjax="true"
rel="nofollow">
  <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
  <span class="select-menu-item-text css-truncate-target" title="v1.0">
    v1.0
  </span>
</a>
<a class="select-menu-item js-navigation-item js-navigation-open "
href="/vt-middleware/cryptacular/tree/v1.0-RC6/NOTICE"
data-name="v1.0-RC6"
data-skip-pjax="true"
rel="nofollow">

```

```

    <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
    <span class="select-menu-item-text css-truncate-target" title="v1.0-RC6">
      v1.0-RC6
    </span>
  </a>
  <a class="select-menu-item js-navigation-item js-navigation-open "
    href="/vt-middleware/cryptacular/tree/v1.0-RC4/NOTICE"
    data-name="v1.0-RC4"
    data-skip-pjax="true"
    rel="nofollow">
    <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
    <span class="select-menu-item-text css-truncate-target" title="v1.0-RC4">
      v1.0-RC4
    </span>
  </a>
  <a class="select-menu-item js-navigation-item js-navigation-open "
    href="/vt-middleware/cryptacular/tree/v1.0-RC3/NOTICE"
    data-name="v1.0-RC3"
    data-skip-pjax="true"
    rel="nofollow">
    <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
    <span class="select-menu-item-text css-truncate-target" title="v1.0-RC3">
      v1.0-RC3
    </span>
  </a>
  <a class="select-menu-item js-navigation-item js-navigation-open "
    href="/vt-middleware/cryptacular/tree/v1.0-RC2/NOTICE"
    data-name="v1.0-RC2"
    data-skip-pjax="true"
    rel="nofollow">
    <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
    <span class="select-menu-item-text css-truncate-target" title="v1.0-RC2">
      v1.0-RC2
    </span>
  </a>
  <a class="select-menu-item js-navigation-item js-navigation-open "
    href="/vt-middleware/cryptacular/tree/v1.0-RC1/NOTICE"
    data-name="v1.0-RC1"
    data-skip-pjax="true"
    rel="nofollow">
    <svg aria-hidden="true" class="octicon octicon-check select-menu-item-icon" height="16" version="1.1"
viewBox="0 0 12 16" width="12"><path fill-rule="evenodd" d="M12 5l-8 8-4-4 1.5-1.5L4 10l6.5-6.5z"/></svg>
    <span class="select-menu-item-text css-truncate-target" title="v1.0-RC1">
      v1.0-RC1

```

```
</span>
</a>
</div>

<div class="select-menu-no-results">Nothing to show</div>
</div>

</div>
</div>
</div>

<div class="BtnGroup float-right">
  <a href="/vt-middleware/cryptacular/find/master"
    class="js-pjax-capture-input btn btn-sm BtnGroup-item"
    data-pjax
    data-hotkey="t">
    Find file
  </a>
  <button aria-label="Copy file path to clipboard" class="js-zeroclipboard btn btn-sm BtnGroup-item tooltip
  tooltiped-s" data-copied-hint="Copied!" type="button">Copy path</button>
</div>
<div class="breadcrumb js-zeroclipboard-target">
  <span class="repo-root js-repo-root"><span class="js-path-segment"><a href="/vt-
  middleware/cryptacular"><span>cryptacular</span></a></span></span><span class="separator"></span><strong
  class="final-path">NOTICE</strong>
</div>
</div>

<div class="commit-tease">
  <span class="float-right">
    <a class="commit-tease-sha" href="/vt-
  middleware/cryptacular/commit/6dd6f199ac3ecc3b4c5aef9e04be3bbe265a30a1" data-pjax>
      6dd6f19
    </a>
    <relative-time datetime="2017-07-06T22:28:36Z">Jul 7, 2017</relative-time>
  </span>
</div>
  
  <a href="/dfish3r" class="user-mention" rel="contributor">dfish3r</a>
  <a href="/vt-middleware/cryptacular/commit/6dd6f199ac3ecc3b4c5aef9e04be3bbe265a30a1"
  class="message" data-pjax="true" title="Update year in notice.">Update year in notice.</a>
</div>

<div class="commit-tease-contributors">
  <button type="button" class="btn-link muted-link contributors-toggle" data-facebox="#blob_contributors_box">
```

```

        <strong>1</strong>
        contributor
    </button>

</div>

<div id="blob_contributors_box" style="display:none">
    <h2 class="facebox-header" data-facebox-id="facebox-header">Users who have contributed to this file</h2>
    <ul class="facebox-user-list" data-facebox-id="facebox-description">
        <li class="facebox-user-list-item">
            
            <a href="/dfish3r">dfish3r</a>
        </li>
    </ul>
</div>
</div>

<div class="file">
    <div class="file-header">
<div class="file-actions">

    <div class="BtnGroup">
        <a href="/vt-middleware/cryptacular/raw/master/NOTICE" class="btn btn-sm BtnGroup-item" id="raw-
url">Raw</a>
        <a href="/vt-middleware/cryptacular/blame/master/NOTICE" class="btn btn-sm js-update-url-with-hash
BtnGroup-item" data-hotkey="b">Blame</a>
        <a href="/vt-middleware/cryptacular/commits/master/NOTICE" class="btn btn-sm BtnGroup-item"
rel="nofollow">History</a>
    </div>

    <button type="button" class="btn-octicon disabled tooltiped tooltiped-nw"
        aria-label="You must be signed in to make or propose changes">
        <svg aria-hidden="true" class="octicon octicon-pencil" height="16" version="1.1" viewBox="0 0 14 16"
width="14"><path fill-rule="evenodd" d="M0 12v3h3l8-8-3-3-8 8zm3 2H1v-2h1v1h1v1zm10.3-9.3L12 6 9 3l1.3-
1.3a.996.996 0 0 1 1.41 0l1.59 1.59c.39.39.39 1.02 0 1.41z"/></svg>
    </button>
    <button type="button" class="btn-octicon btn-octicon-danger disabled tooltiped tooltiped-nw"
        aria-label="You must be signed in to make or propose changes">
        <svg aria-hidden="true" class="octicon octicon-trashcan" height="16" version="1.1" viewBox="0 0 12 16"
width="12"><path fill-rule="evenodd" d="M11 2H9c0-.55-.45-1-1-1H5c-.55 0-1 .45-1 1H2c-.55 0-1 .45-1 1v1c0
.55.45 1 1 1v9c0 .55.45 1 1 1h7c.55 0 1-.45 1-1V5c.55 0 1-.45 1-1V3c0-.55-.45-1-1-1zm-1
12H3V5h1v8h1V5h1v8h1V5h1v8h1V5h1v9zm1-10H2V3h9v1z"/></svg>
    </button>
</div>

<div class="file-info">

```



```

7 lines (5 sloc)
<span class="file-info-divider"></span>
165 Bytes
</div>
</div>

<div itemprop="text" class="blob-wrapper data type-text">
  <table class="highlight tab-size js-file-line-container" data-tab-size="8">
    <tr>
      <td id="L1" class="blob-num js-line-number" data-line-number="1"></td>
      <td id="LC1" class="blob-code blob-code-inner js-file-line">Cryptacular Java Library</td>
    </tr>
    <tr>
      <td id="L2" class="blob-num js-line-number" data-line-number="2"></td>
      <td id="LC2" class="blob-code blob-code-inner js-file-line">Copyright (C) 2003-2017 Virginia Tech.</td>
    </tr>
    <tr>
      <td id="L3" class="blob-num js-line-number" data-line-number="3"></td>
      <td id="LC3" class="blob-code blob-code-inner js-file-line">All rights reserved.</td>
    </tr>
    <tr>
      <td id="L4" class="blob-num js-line-number" data-line-number="4"></td>
      <td id="LC4" class="blob-code blob-code-inner js-file-line">
</td>
</tr>
    <tr>
      <td id="L5" class="blob-num js-line-number" data-line-number="5"></td>
      <td id="LC5" class="blob-code blob-code-inner js-file-line">This product includes software developed at</td>
    </tr>
    <tr>
      <td id="L6" class="blob-num js-line-number" data-line-number="6"></td>
      <td id="LC6" class="blob-code blob-code-inner js-file-line">Virginia Tech (http://www.vt.edu).</td>
    </tr>
  </table>

</div>

</div>

<button type="button" data-facebox="#jump-to-line" data-facebox-class="linejump" data-hotkey="l" class="d-
none">Jump to Line</button>
<div id="jump-to-line" style="display:none">
  <!-- "" --><!-- </textarea></xmp> --></option></form><form accept-charset="UTF-8" action="" class="js-jump-
to-line-form" method="get"><div style="margin:0;padding:0;display:inline"><input name="utf8" type="hidden"
value="&#x2713;" /></div>

```

```
<input class="form-control linejump-input js-jump-to-line-field" type="text" placeholder="Jump to line&hellip;"
aria-label="Jump to line" autofocus>
  <button type="submit" class="btn">Go</button>
</form> </div>
```

```
</div>
<div class="modal-backdrop js-touch-events"></div>
</div>
```

```
</div>
</div>
```

```
</div>
```

```
<div class="container site-footer-container">
  <div class="site-footer " role="contentinfo">
    <ul class="site-footer-links float-right">
      <li><a href="https://github.com/contact" data-ga-click="Footer, go to contact, text:contact">Contact
GitHub</a></li>
      <li><a href="https://developer.github.com" data-ga-click="Footer, go to api, text:api">API</a></li>
      <li><a href="https://training.github.com" data-ga-click="Footer, go to training, text:training">Training</a></li>
      <li><a href="https://shop.github.com" data-ga-click="Footer, go to shop, text:shop">Shop</a></li>
      <li><a href="https://github.com/blog" data-ga-click="Footer, go to blog, text:blog">Blog</a></li>
      <li><a href="https://github.com/about" data-ga-click="Footer, go to about, text:about">About</a></li>
    </ul>
```

```
<a href="https://github.com" aria-label="Homepage" class="site-footer-mark" title="GitHub">
  <svg aria-hidden="true" class="octicon octicon-mark-github" height="24" version="1.1" viewBox="0 0 16 16"
width="24"><path fill-rule="evenodd" d="M8 0C3.58 0 0 3.58 0 8c0 3.54 2.29 6.53 5.47 7.59 4.07 5.55-17.55-.38 0-
.19-.01-.82-.01-1.49-.21-2.01-.37-2.53-.49-2.69-.94-.09-.23-.48-.94-.82-1.13-.28-.15-.68-.52-.01-.53 6.3-.01 1.08 5.8
1.23 8.27 1.21 1.87 8.7 2.33 6.67-.52 2.8-.87 5.1-1.07 1.78-.2 3.64-.89 3.64-3.95 0-.87 3.1-1.59 8.2-2.15-.08-.2-.36-
1.02 0.8-2.12 0 0 .67-.21 2.28-.64-.18 1.32-.27 2-.27 6.8 0 1.36 0.2 2.7 1.53-1.04 2.2-.82 2.2-.82 4.4 1.1 1.6 1.92 0.8
2.12 5.1 5.6 8.2 1.27 8.2 2.15 0 3.07-1.87 3.75-3.65 3.95 29.25 54.73 54 1.48 0 1.07-.01 1.93-.01 2.2 0
.21 1.5 46.55 38 8.013 8.013 0 0 16 8c0-4.42-3.58-8-8z"/></svg>
```

```
</a>
<ul class="site-footer-links">
  <li>&copy; 2017 <span title="0.10938s from unicorn-2925809464-f2ltq">GitHub</span>, Inc.</li>
  <li><a href="https://github.com/site/terms" data-ga-click="Footer, go to terms, text:terms">Terms</a></li>
  <li><a href="https://github.com/site/privacy" data-ga-click="Footer, go to privacy,
text:privacy">Privacy</a></li>
  <li><a href="https://github.com/security" data-ga-click="Footer, go to security,
text:security">Security</a></li>
  <li><a href="https://status.github.com/" data-ga-click="Footer, go to status, text:status">Status</a></li>
  <li><a href="https://help.github.com" data-ga-click="Footer, go to help, text:help">Help</a></li>
</ul>
</div>
```

</div>

```
<div id="ajax-error-message" class="ajax-error-message flash flash-error">
  <svg aria-hidden="true" class="octicon octicon-alert" height="16" version="1.1" viewBox="0 0 16 16"
width="16"><path fill-rule="evenodd" d="M8.865 1.52c-.18-.31-.51-.5-.87-.5s-.69.19-.87.5L2.75 13.5c-.18.31-.
.18.69 0 1 .19.31.52.5.87.5h13.7c.36 0 .69-.19.86-.5.17-.31.18-.69.01-1L8.865 1.52zM8.995 13h-2v-2h2v2zm0-3h-
2V6h2v4z"/></svg>
  <button type="button" class="flash-close js-flash-close js-ajax-error-dismiss" aria-label="Dismiss error">
    <svg aria-hidden="true" class="octicon octicon-x" height="16" version="1.1" viewBox="0 0 12 16"
width="12"><path fill-rule="evenodd" d="M7.48 8l3.75 3.75-1.48 1.48L6 9.48l-3.75 3.75-1.48-1.48L4.52 8 .77
4.25l1.48-1.48L6 6.52l3.75-3.75 1.48 1.48z"/></svg>
  </button>
  You can't perform that action at this time.
</div>
```

```
<script crossorigin="anonymous" src="https://assets-cdn.github.com/assets/compat-
91f98c37fc84eac24836eec2567e9912742094369a04c4eba6e3cd1fa18902d9.js"></script>
<script crossorigin="anonymous" src="https://assets-cdn.github.com/assets/frameworks-
f84bb87b149685d1e6c6f057ee324f2cd496e677f5a359a8b5db853313bb83e6.js"></script>
```

```
<script async="async" crossorigin="anonymous" src="https://assets-cdn.github.com/assets/github-
13fa3aa50ac8f9fa9a7d198f0cd13b0905775d39446ad076d17d8f74a998438a.js"></script>
```

```
<div class="js-stale-session-flash stale-session-flash flash flash-warn flash-banner d-none">
  <svg aria-hidden="true" class="octicon octicon-alert" height="16" version="1.1" viewBox="0 0 16 16"
width="16"><path fill-rule="evenodd" d="M8.865 1.52c-.18-.31-.51-.5-.87-.5s-.69.19-.87.5L2.75 13.5c-.18.31-.
.18.69 0 1 .19.31.52.5.87.5h13.7c.36 0 .69-.19.86-.5.17-.31.18-.69.01-1L8.865 1.52zM8.995 13h-2v-2h2v2zm0-3h-
2V6h2v4z"/></svg>
  <span class="signed-in-tab-flash">You signed in with another tab or window. <a href="">Reload</a> to refresh
your session.</span>
  <span class="signed-out-tab-flash">You signed out in another tab or window. <a href="">Reload</a> to refresh
your session.</span>
</div>
```

```
<div class="facebox" id="facebox" style="display:none;">
```

```
<div class="facebox-popup">
```

```
<div class="facebox-content" role="dialog" aria-labelledby="facebox-header" aria-describedby="facebox-
description">
```

```
</div>
```

```
<button type="button" class="facebox-close js-facebox-close" aria-label="Close modal">
```

```
<svg aria-hidden="true" class="octicon octicon-x" height="16" version="1.1" viewBox="0 0 12 16"
width="12"><path fill-rule="evenodd" d="M7.48 8l3.75 3.75-1.48 1.48L6 9.48l-3.75 3.75-1.48-1.48L4.52 8 .77
4.25l1.48-1.48L6 6.52l3.75-3.75 1.48 1.48z"/></svg>
```

```
</button>
</div>
</div>
```

```
</body>
</html>
```

```
/*
```

```
* Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
* or more contributor license agreements. Licensed under the Elastic License;
* you may not use this file except in compliance with the Elastic License.
```

```
*/
```

```
package org.elasticsearch.xpack.security.authz.permission;
```

```
import org.elasticsearch.action.get.GetAction;
import org.elasticsearch.test.ESTestCase;
import org.elasticsearch.xpack.core.security.authz.permission.Role;
import org.elasticsearch.xpack.core.security.authz.privilege.Privilege;
import org.junit.Before;
```

```
import java.util.function.Predicate;
```

```
import static org.elasticsearch.xpack.core.security.authz.privilege.IndexPrivilege.MONITOR;
import static org.elasticsearch.xpack.core.security.authz.privilege.IndexPrivilege.READ;
import static org.hamcrest.Matchers.is;
import static org.hamcrest.Matchers.notNullValue;
```

```
public class PermissionTests extends ESTestCase {
    private Role permission;
```

```
    @Before
```

```
    public void init() {
```

```
        Role.Builder builder = Role.builder("test");
        builder.add(MONITOR, "test_*", "/foo.*");
        builder.add(READ, "baz_*foo", "/fool.*bar");
        builder.add(MONITOR, "/bar.*");
        permission = builder.build();
    }
```

```
    public void testAllowedIndicesMatcherAction() throws Exception {
```

```
        testAllowedIndicesMatcher(permission.indices().allowedIndicesMatcher(GetAction.NAME));
```

```
    }
```

```
    public void testAllowedIndicesMatcherActionCaching() throws Exception {
```

```
        Predicate<String> matcher1 = permission.indices().allowedIndicesMatcher(GetAction.NAME);
        Predicate<String> matcher2 = permission.indices().allowedIndicesMatcher(GetAction.NAME);
        assertThat(matcher1, is(matcher2));
    }
```

```

public void testBuildEmptyRole() {
    Role.Builder permission = Role.builder(new String[] { "some_role" });
    Role role = permission.build();
    assertThat(role, notNullValue());
    assertThat(role.cluster(), notNullValue());
    assertThat(role.indices(), notNullValue());
    assertThat(role.runAs(), notNullValue());
}

public void testRunAs() {
    Role permission = Role.builder("some_role")
        .runAs(new Privilege("name", "user1", "run*"))
        .build();
    assertThat(permission.runAs().check("user1"), is(true));
    assertThat(permission.runAs().check("user"), is(false));
    assertThat(permission.runAs().check("run" + randomAlphaOfLengthBetween(1, 10)), is(true));
}

// "baz_*foo", "/fool.*bar/"
private void testAllowedIndicesMatcher(Predicate<String> indicesMatcher) {
    assertThat(indicesMatcher.test("foobar"), is(false));
    assertThat(indicesMatcher.test("fool"), is(false));
    assertThat(indicesMatcher.test("fool2bar"), is(true));
    assertThat(indicesMatcher.test("baz_foo"), is(true));
    assertThat(indicesMatcher.test("barbapapa"), is(false));
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.xpack.security.authz.permission;

import org.elasticsearch.ElasticsearchParseException;
import org.elasticsearch.common.bytes.BytesArray;
import org.elasticsearch.common.xcontent.XContentType;
import org.elasticsearch.test.ESTestCase;
import org.elasticsearch.xpack.core.security.authz.RoleDescriptor;
import org.elasticsearch.xpack.core.security.authz.permission.FieldPermissions;
import org.elasticsearch.xpack.core.security.authz.permission.FieldPermissionsDefinition;

import java.util.ArrayList;
import java.util.Arrays;
import java.util.Collections;
import java.util.List;
import java.util.concurrent.CountDownLatch;

```

```

import java.util.concurrent.atomic.AtomicReferenceArray;

import static org.hamcrest.Matchers.containsString;

public class FieldPermissionsTests extends ESTestCase {

    public void testParseFieldPermissions() throws Exception {
        String q = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": [\"p3\"], \" +
            \"field_security\": { \" +
            \"grant\": [\"f1\", \"f2\", \"f3\", \"f4\"],\" +
            \"except\": [\"f3\", \"f4\"]\" +
            \"}}}\";
        RoleDescriptor rd =
            RoleDescriptor.parse("test", new ByteArray(q), false, XContentType.JSON);
        assertEquals(rd.getIndicesPrivileges()[0].getGrantedFields(),
            new String[] { "f1", "f2", "f3", "f4" });
        assertEquals(rd.getIndicesPrivileges()[0].getDeniedFields(),
            new String[] { "f3", "f4" });

        q = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": [\"p3\"], \" +
            \"field_security\": { \" +
            \"except\": [\"f3\", \"f4\"],\" +
            \"grant\": [\"f1\", \"f2\", \"f3\", \"f4\"]\" +
            \"}}}\";
        rd = RoleDescriptor.parse("test", new ByteArray(q), false, XContentType.JSON);
        assertEquals(rd.getIndicesPrivileges()[0].getGrantedFields(),
            new String[] { "f1", "f2", "f3", "f4" });
        assertEquals(rd.getIndicesPrivileges()[0].getDeniedFields(),
            new String[] { "f3", "f4" });

        q = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": [\"p3\"], \" +
            \"field_security\": { \" +
            \"grant\": [\"f1\", \"f2\"]\" +
            \"}}}\";
        rd = RoleDescriptor.parse("test", new ByteArray(q), false, XContentType.JSON);
        assertEquals(rd.getIndicesPrivileges()[0].getGrantedFields(),
            new String[] { "f1", "f2" });
        assertNull(rd.getIndicesPrivileges()[0].getDeniedFields());

        q = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": [\"p3\"], \" +
            \"field_security\": { \" +
            \"grant\": []\" +
            \"}}}\";
        rd = RoleDescriptor.parse("test", new ByteArray(q), false, XContentType.JSON);
        assertEquals(rd.getIndicesPrivileges()[0].getGrantedFields(), new String[] {});
        assertNull(rd.getIndicesPrivileges()[0].getDeniedFields());

        q = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": [\"p3\"], \" +

```

```

        "\"field_security\": {\" +
        "\"except\": [],\" +
        "\"grant\": []\" +
        \"}}}\"";
rd = RoleDescriptor.parse("test", new ByteArray(q), false, XContentType.JSON);
assertArrayEquals(rd.getIndicesPrivileges()[0].getGrantedFields(), new String[] {});
assertArrayEquals(rd.getIndicesPrivileges()[0].getDeniedFields(), new String[] {});

final String exceptWithoutGrant = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": \" +
    \" [\"p3\", \"field_security\": {\" +
    "\"except\": [\"f1\"]\" +
    \"}}}\"";
ElasticsearchParseException e = expectThrows(ElasticsearchParseException.class,
    () -> RoleDescriptor.parse("test", new ByteArray(exceptWithoutGrant), false,
        XContentType.JSON));
assertThat(e.getDetailedMessage(),
    containsString("failed to parse indices privileges for role [test]. field_security"
        + " requires grant if except is given"));

final String grantNull = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": [\"p3\",\" +
    \"field_security\": {\" +
    "\"grant\": null\" +
    \"}}}\"";
e = expectThrows(ElasticsearchParseException.class,
    () -> RoleDescriptor.parse("test", new ByteArray(grantNull), false,
        XContentType.JSON));
assertThat(e.getDetailedMessage(), containsString("failed to parse indices privileges for" +
    " role [test]. grant must not be null."));

final String exceptNull = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": \" +
    \" [\"p3\", \"field_security\": {\" +
    "\"grant\": [\"*\"]\",\" +
    "\"except\": null\" +
    \"}}}\"";
e = expectThrows(ElasticsearchParseException.class,
    () -> RoleDescriptor.parse("test", new ByteArray(exceptNull), false,
        XContentType.JSON));
assertThat(e.getDetailedMessage(),
    containsString("failed to parse indices privileges for role [test]. except must" +
        " not be null."));

final String exceptGrantNull = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": \" +
    \" [\"p3\", \"field_security\": {\" +
    "\"grant\": null,\" +
    "\"except\": null\" +
    \"}}}\"";
e = expectThrows(ElasticsearchParseException.class,
    () -> RoleDescriptor.parse("test", new ByteArray(exceptGrantNull), false,

```

```

        XContentType.JSON));
assertThat(e.getDetailedMessage(), containsString("failed to parse indices privileges " +
    "for role [test]. grant must not be null."));

final String bothFieldsMissing = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": \" +
    \"[\"p3\", \"field_security\": {\" +
    \"}}]}";
e = expectThrows(ElasticsearchParseException.class,
    () -> RoleDescriptor.parse("test", new ByteArray(bothFieldsMissing), false,
        XContentType.JSON));
assertThat(e.getDetailedMessage(), containsString("failed to parse indices privileges " +
    "for role [test]. \"field_security\" must not be empty."));

// try with two indices and mix order a little
q = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": [\"p3\", \" +
    \"field_security\": {\" +
    \"grant\": []\" +
    \"}},\" +
    \"{\"names\": \"idx3\", \"n\" +
    \"field_security\": {\"n\" +
    \"grant\": [\"*\"]\", \"n\" +
    \"except\": [\"f2\"]}],\" +
    \"privileges\": [\"p3\"]}]}";
rd = RoleDescriptor.parse("test", new ByteArray(q), false, XContentType.JSON);
assertArrayEquals(rd.getIndicesPrivileges()[0].getGrantedFields(), new String[] {});
assertNull(rd.getIndicesPrivileges()[0].getDeniedFields());
assertArrayEquals(rd.getIndicesPrivileges()[1].getGrantedFields(), new String[] {"*"});
assertArrayEquals(rd.getIndicesPrivileges()[1].getDeniedFields(), new String[] {"f2"});
}

// test old syntax for field permissions
public void testBWCFIELDPermissions() throws Exception {
    String q = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": [\"p3\", \" +
        \"fields\": [\"f1\", \"f2\"]\" +
        \"}}]";
    RoleDescriptor rd = RoleDescriptor.parse("test", new ByteArray(q), true,
        XContentType.JSON);
    assertArrayEquals(rd.getIndicesPrivileges()[0].getGrantedFields(),
        new String[]{"f1", "f2"});
    assertNull(rd.getIndicesPrivileges()[0].getDeniedFields());

    final String failingQuery = q;
    ElasticsearchParseException e = expectThrows(ElasticsearchParseException.class,
        () -> RoleDescriptor.parse("test", new ByteArray(failingQuery), false,
            XContentType.JSON));
    assertThat(e.getDetailedMessage(), containsString("[\"fields\": [...]] format has \" +
        \"changed for field permissions in role [test]\" +
        \", use [\"field_security\": {\"grant\": [...], \"except\": [...]}] instead"));
}

```



```

q = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": [\"p3\"], \" +
    \"fields\": []\" +
    \"}]}";
rd = RoleDescriptor.parse("test", new ByteArray(q), true, XContentType.JSON);
assertArrayEquals(rd.getIndicesPrivileges()[0].getGrantedFields(), new String[]{});
assertNull(rd.getIndicesPrivileges()[0].getDeniedFields());
final String failingQuery2 = q;
e = expectThrows(ElasticsearchParseException.class,
    () -> RoleDescriptor.parse("test", new ByteArray(failingQuery2), false,
        XContentType.JSON));
assertThat(e.getDetailedMessage(), containsString("[\"fields\": [...]] format has \" +
    \"changed for field permissions in role [test]\" +
    \", use [\"field_security\": {\"grant\":[...],\"except\":[...]}] instead"));

q = "{\"indices\": [ {\"names\": \"idx2\", \"privileges\": [\"p3\"], \" +
    \"fields\": null\" +
    \"}]}";
rd = RoleDescriptor.parse("test", new ByteArray(q), true, XContentType.JSON);
assertNull(rd.getIndicesPrivileges()[0].getGrantedFields());
assertNull(rd.getIndicesPrivileges()[0].getDeniedFields());
final String failingQuery3 = q;
e = expectThrows(ElasticsearchParseException.class,
    () -> RoleDescriptor.parse("test", new ByteArray(failingQuery3), false,
        XContentType.JSON));
assertThat(e.getDetailedMessage(), containsString("[\"fields\": [...]] format has \" +
    \"changed for field permissions in role [test]\" +
    \", use [\"field_security\": {\"grant\":[...],\"except\":[...]}] instead"));
}

public void testFieldPermissionsHashCodeThreadSafe() throws Exception {
    final int numThreads = scaledRandomIntBetween(4, 16);
    final FieldPermissions fieldPermissions =new FieldPermissions(
        new FieldPermissionsDefinition(new String[] { "*" }, new String[] { "foo" }));
    final CountdownLatch latch = new CountdownLatch(numThreads + 1);
    final AtomicReferenceArray<Integer> hashCodes = new AtomicReferenceArray<>(numThreads);
    List<Thread> threads = new ArrayList<>(numThreads);
    for (int i = 0; i < numThreads; i++) {
        final int threadNum = i;
        threads.add(new Thread() -> {
            latch.countDown();
            try {
                latch.await();
            } catch (InterruptedException e) {
                Thread.currentThread().interrupt();
            }
        });
        final int hashCode = fieldPermissions.hashCode();
        hashCodes.set(threadNum, hashCode);
    }
}

```

```

    });
}

for (Thread thread : threads) {
    thread.start();
}
latch.countDown();
for (Thread thread : threads) {
    thread.join();
}

final int hashCode = fieldPermissions.hashCode();
for (int i = 0; i < numThreads; i++) {
    assertEquals((Integer) hashCode, hashCodes.get(i));
}
}

public void testAllFieldIsAutomaticallyExcludedIfNotExplicitlyGranted() throws Exception {
    final FieldPermissions fieldPermissions = new FieldPermissions(
        new FieldPermissionsDefinition(new String[] { "_a*" }, new String[0]));
    assertTrue(fieldPermissions.grantsAccessTo("_animal"));
    assertFalse(fieldPermissions.grantsAccessTo("_all"));
}

public void testAllFieldIsNotExcludedIfExplicitlyGranted() throws Exception {
    final String[] grant = { "foo", "bar", "baz", "_all" };
    Collections.shuffle(Arrays.asList(grant), random());

    final FieldPermissions fieldPermissions = new FieldPermissions(
        new FieldPermissionsDefinition(grant, new String[0]));

    assertTrue(fieldPermissions.grantsAccessTo("_all"));
    assertTrue(fieldPermissions.grantsAccessTo("foo"));
    assertTrue(fieldPermissions.grantsAccessTo("bar"));
    assertTrue(fieldPermissions.grantsAccessTo("baz"));
    assertFalse(fieldPermissions.grantsAccessTo(randomAlphaOfLengthBetween(5, 8)));
}
}
/*
 * Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
 * or more contributor license agreements. Licensed under the Elastic License;
 * you may not use this file except in compliance with the Elastic License.
 */
package org.elasticsearch.license;

import org.apache.http.message.BasicHeader;
import org.elasticsearch.ElasticsearchSecurityException;
import org.elasticsearch.action.DocWriteResponse;

```

```

import org.elasticsearch.action.admin.cluster.health.ClusterHealthResponse;
import org.elasticsearch.action.admin.cluster.node.stats.NodesStatsResponse;
import org.elasticsearch.action.admin.cluster.stats.ClusterStatsIndices;
import org.elasticsearch.action.admin.cluster.stats.ClusterStatsResponse;
import org.elasticsearch.action.admin.indices.stats.IndicesStatsResponse;
import org.elasticsearch.action.index.IndexResponse;
import org.elasticsearch.client.Client;
import org.elasticsearch.client.Response;
import org.elasticsearch.client.ResponseException;
import org.elasticsearch.client.transport.NoNodeAvailableException;
import org.elasticsearch.client.transport.TransportClient;
import org.elasticsearch.cluster.routing.ShardRoutingState;
import org.elasticsearch.common.network.NetworkModule;
import org.elasticsearch.common.settings.SecureString;
import org.elasticsearch.common.settings.Settings;
import org.elasticsearch.common.util.concurrent.ThreadContext;
import org.elasticsearch.discovery.DiscoveryModule;
import org.elasticsearch.node.MockNode;
import org.elasticsearch.node.Node;
import org.elasticsearch.plugins.Plugin;
import org.elasticsearch.rest.RestStatus;
import org.elasticsearch.test.SecurityIntegTestCase;
import org.elasticsearch.test.SecuritySettingsSource;
import org.elasticsearch.test.SecuritySettingsSourceField;
import org.elasticsearch.test.discovery.TestZenDiscovery;
import org.elasticsearch.test.junit.annotations.TestLogging;
import org.elasticsearch.transport.Netty4Plugin;
import org.elasticsearch.transport.Transport;
import org.elasticsearch.xpack.core.TestXPackTransportClient;
import org.elasticsearch.xpack.core.XPackField;
import org.elasticsearch.xpack.core.security.SecurityField;
import org.elasticsearch.xpack.core.security.action.user.GetUsersResponse;
import org.elasticsearch.xpack.core.security.authc.support.UsernamePasswordToken;
import org.elasticsearch.xpack.core.security.client.SecurityClient;
import org.elasticsearch.xpack.security.LocalStateSecurity;
import org.junit.After;
import org.junit.Before;

import java.nio.file.Files;
import java.nio.file.Path;
import java.util.ArrayList;
import java.util.Arrays;
import java.util.Collection;

import static org.elasticsearch.common.xcontent.XContentFactory.jsonBuilder;
import static org.elasticsearch.test.hamcrest.ElasticsearchAssertions.assertNoFailures;
import static org.hamcrest.Matchers.containsString;
import static org.hamcrest.Matchers.greaterThanOrEqualTo;

```

```

import static org.hamcrest.Matchers.hasItem;
import static org.hamcrest.Matchers.is;
import static org.hamcrest.Matchers.notNullValue;

@TestLogging("org.elasticsearch.cluster.service:TRACE,org.elasticsearch.discovery.zen:TRACE,org.elasticsearch.
action.search:TRACE," +
    "org.elasticsearch.search:TRACE")
public class LicensingTests extends SecurityIntegTestCase {
    public static final String ROLES =
        SecuritySettingsSource.TEST_ROLE + "\n" +
        " cluster: [ all ]\n" +
        " indices:\n" +
        "   - names: *\n" +
        "     privileges: [manage]\n" +
        "   - names: /*/\n" +
        "     privileges: [write]\n" +
        "   - names: 'test'\n" +
        "     privileges: [read]\n" +
        "   - names: 'test1'\n" +
        "     privileges: [read]\n" +
        "\n" +
        "role_a:\n" +
        " indices:\n" +
        "   - names: 'a'\n" +
        "     privileges: [all]\n" +
        "\n" +
        "role_b:\n" +
        " indices:\n" +
        "   - names: 'b'\n" +
        "     privileges: [all]\n";

    public static final String USERS =
        SecuritySettingsSource.CONFIG_STANDARD_USER +
        "user_a:{plain}passwd\n" +
        "user_b:{plain}passwd\n";

    public static final String USERS_ROLES =
        SecuritySettingsSource.CONFIG_STANDARD_USER_ROLES +
        "role_a:user_a,user_b\n" +
        "role_b:user_b\n";

    @Override
    protected String configRoles() {
        return ROLES;
    }

    @Override
    protected String configUsers() {

```

```

    return USERS;
}

@Override
protected String configUsersRoles() {
    return USERS_ROLES;
}

@Override
public Settings nodeSettings(int nodeOrdinal) {
    return Settings.builder().put(super.nodeSettings(nodeOrdinal))
        .put(NetworkModule.HTTP_ENABLED.getKey(), true)
        .put(TestZenDiscovery.USE_MOCK_PINGS.getKey(), false)
        .build();
}

@Override
protected Collection<Class<? extends Plugin>> nodePlugins() {
    ArrayList<Class<? extends Plugin>> plugins = new ArrayList<>(super.nodePlugins());
    plugins.add(Netty4Plugin.class); // for http
    return plugins;
}

@Override
protected int maxNumberOfNodes() {
    return super.maxNumberOfNodes() + 1;
}

@Before
public void resetLicensing() {
    enableLicensing();
}

@After
public void cleanupSecurityIndex() {
    deleteSecurityIndex();
}

public void testEnableDisableBehaviour() throws Exception {
    IndexResponse indexResponse = index("test", "type", jsonBuilder()
        .startObject()
        .field("name", "value")
        .endObject());
    assertEquals(DocWriteResponse.Result.CREATED, indexResponse.getResult());

    indexResponse = index("test1", "type", jsonBuilder()
        .startObject()

```

```

        .field("name", "value1")
        .endObject());
assertEquals(DocWriteResponse.Result.CREATED, indexResponse.getResult());

refresh();
// wait for all replicas to be started (to make sure that there are no more cluster state updates when we disable
licensing)
assertBusy(() -> assertTrue(client().admin().cluster().prepareState().get().getState().routingTable()
    .shardsWithState(ShardRoutingState.INITIALIZING).isEmpty()));

Client client = internalCluster().transportClient();

disableLicensing();

assertElasticsearchSecurityException(() -> client.admin().indices().prepareStats().get());
assertElasticsearchSecurityException(() -> client.admin().cluster().prepareClusterStats().get());
assertElasticsearchSecurityException(() -> client.admin().cluster().prepareHealth().get());
assertElasticsearchSecurityException(() -> client.admin().cluster().prepareNodesStats().get());

enableLicensing(randomFrom(License.OperationMode.values()));

IndicesStatsResponse indicesStatsResponse = client.admin().indices().prepareStats().get();
assertNoFailures(indicesStatsResponse);

ClusterStatsResponse clusterStatsNodeResponse = client.admin().cluster().prepareClusterStats().get();
assertThat(clusterStatsNodeResponse, notNullValue());
ClusterStatsIndices indices = clusterStatsNodeResponse.getIndicesStats();
assertThat(indices, notNullValue());
assertThat(indices.getIndexCount(), greaterThanOrEqualTo(2));

ClusterHealthResponse clusterIndexHealth = client.admin().cluster().prepareHealth().get();
assertThat(clusterIndexHealth, notNullValue());

NodesStatsResponse nodeStats = client.admin().cluster().prepareNodesStats().get();
assertThat(nodeStats, notNullValue());
}

public void testRestAuthenticationByLicenseType() throws Exception {
    Response response = getRestClient().performRequest("GET", "");
    // the default of the licensing tests is basic
    assertThat(response.getStatusLine().getStatusCode(), is(200));
    ResponseException e = expectThrows(ResponseException.class,
        () -> getRestClient().performRequest("GET", "/_xpack/security/_authenticate"));
    assertThat(e.getResponse().getStatusLine().getStatusCode(), is(403));

    // generate a new license with a mode that enables auth
    License.OperationMode mode = randomFrom(License.OperationMode.GOLD,
        License.OperationMode.TRIAL,

```

```

        License.OperationMode.PLATINUM, License.OperationMode.STANDARD);
enableLicensing(mode);
e = expectThrows(ResponseException.class, () -> getRestClient().performRequest("GET", "/"));
assertThat(e.getResponse().getStatusLine().getStatusCode(), is(401));
e = expectThrows(ResponseException.class,
    () -> getRestClient().performRequest("GET", "/_xpack/security/_authenticate"));
assertThat(e.getResponse().getStatusLine().getStatusCode(), is(401));

final String basicAuthValue =
UsernamePasswordToken.basicAuthHeaderValue(SecuritySettingsSource.TEST_USER_NAME,
    new SecureString(SecuritySettingsSourceField.TEST_PASSWORD.toCharArray()));
response = getRestClient().performRequest("GET", "/", new BasicHeader("Authorization", basicAuthValue));
assertThat(response.getStatusLine().getStatusCode(), is(200));
response = getRestClient().performRequest("GET", "/_xpack/security/_authenticate",
    new BasicHeader("Authorization", basicAuthValue));
assertThat(response.getStatusLine().getStatusCode(), is(200));

}

public void testSecurityActionsByLicenseType() throws Exception {
    // security actions should not work!
    Settings settings = internalCluster().transportClient().settings();
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateSecurity.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
        new SecurityClient(client).prepareGetUsers().get();
        fail("security actions should not be enabled!");
    } catch (ElasticsearchSecurityException e) {
        assertThat(e.status(), is(RestStatus.FORBIDDEN));
        assertThat(e.getMessage(), containsString("non-compliant"));
    }

    // enable a license that enables security
    License.OperationMode mode = randomFrom(License.OperationMode.GOLD,
License.OperationMode.TRIAL,
        License.OperationMode.PLATINUM, License.OperationMode.STANDARD);
enableLicensing(mode);
    // security actions should not work!
    try (TransportClient client = new TestXPackTransportClient(settings, LocalStateSecurity.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
        GetUsersResponse response = new SecurityClient(client).prepareGetUsers().get();
        assertNotNull(response);
    }
}

public void testTransportClientAuthenticationByLicenseType() throws Exception {
    Settings.Builder builder = Settings.builder()

```

```

        .put(internalCluster().transportClient().settings());
// remove user info
builder.remove(SecurityField.USER_SETTING.getKey());
builder.remove(ThreadContext.PREFIX + "." + UsernamePasswordToken.BASIC_AUTH_HEADER);

// basic has no auth
try (TransportClient client = new TestXPackTransportClient(builder.build(), LocalStateSecurity.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
    assertGreenClusterState(client);
}

// enable a license that enables security
License.OperationMode mode = randomFrom(License.OperationMode.GOLD,
License.OperationMode.TRIAL,
    License.OperationMode.PLATINUM, License.OperationMode.STANDARD);
enableLicensing(mode);

try (TransportClient client = new TestXPackTransportClient(builder.build(), LocalStateSecurity.class)) {
client.addTransportAddress(internalCluster().getDataNodeInstance(Transport.class).boundAddress().publishAddress
());
    client.admin().cluster().prepareHealth().get();
    fail("should not have been able to connect to a node!");
} catch (NoNodeAvailableException e) {
    // expected
}
}

public void testNodeJoinWithoutSecurityExplicitlyEnabled() throws Exception {
    License.OperationMode mode = randomFrom(License.OperationMode.GOLD,
License.OperationMode.PLATINUM, License.OperationMode.STANDARD);
    enableLicensing(mode);
    ensureGreen();

    Path home = createTempDir();
    Path conf = home.resolve("config");
    Files.createDirectories(conf);
    Settings nodeSettings = Settings.builder()
        .put(nodeSettings(maxNumberOfNodes() - 1).filter(s -> "xpack.security.enabled".equals(s) == false))
        .put("node.name", "my-test-node")
        .put("network.host", "localhost")
        .put("cluster.name", internalCluster().getClusterName())
        .put("discovery.zen.minimum_master_nodes",
            internalCluster().getInstance(Settings.class).get("discovery.zen.minimum_master_nodes"))
        .put("path.home", home)
        .put(TestZenDiscovery.USE MOCK PINGS.getKey(), false)
        .put(DiscoveryModule.DISCOVERY_TYPE_SETTING.getKey(), "test-zen")
        .put(DiscoveryModule.DISCOVERY_HOSTS_PROVIDER_SETTING.getKey(), "test-zen")

```



```

        .build();
        Collection<Class<? extends Plugin>> mockPlugins = Arrays.asList(LocalStateSecurity.class,
TestZenDiscovery.TestPlugin.class);
        try (Node node = new MockNode(nodeSettings, mockPlugins)) {
            node.start();
            ensureStableCluster(cluster().size() + 1);
        }
    }

    private static void assertElasticsearchSecurityException(ThrowingRunnable runnable) {
        ElasticsearchSecurityException ee = expectThrows(ElasticsearchSecurityException.class, runnable);
        assertThat(ee.getMetadata(LicenseUtils.EXPIRED_FEATURE_METADATA),
hasItem(XPackField.SECURITY));
        assertThat(ee.status(), is(RestStatus.FORBIDDEN));
    }

    public static void disableLicensing() {
        disableLicensing(License.OperationMode.BASIC);
    }

    public static void disableLicensing(License.OperationMode operationMode) {
        for (XPackLicenseState licenseState : internalCluster().getInstances(XPackLicenseState.class)) {
            licenseState.update(operationMode, false);
        }
    }

    public static void enableLicensing() {
        enableLicensing(License.OperationMode.BASIC);
    }

    public static void enableLicensing(License.OperationMode operationMode) {
        for (XPackLicenseState licenseState : internalCluster().getInstances(XPackLicenseState.class)) {
            licenseState.update(operationMode, true);
        }
    }
}

```

Copyright (c) 2002-2016, the original author or authors.

All rights reserved.

<http://www.opensource.org/licenses/bsd-license.php>

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of JLine nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

# Jackson JSON processor

Jackson is a high-performance, Free/Open Source JSON processing library. It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has been in development since 2007. It is currently developed by a community of developers, as well as supported commercially by FasterXML.com.

## Licensing

Jackson core and extension components may be licensed under different licenses. To find the details that apply to this artifact see the accompanying LICENSE file. For more information, including possible other licensing options, contact FasterXML.com (<http://fasterxml.com>).

## Credits

A list of contributors may be found from CREDITS file, which is included in some artifacts (usually source distributions); but is always available from the source code management (SCM) system project uses. This copy of Jackson JSON processor streaming parser/generator is licensed under the Apache (Software) License, version 2.0 ("the License"). See the License for details about distribution rights, and the specific rights regarding derivative works.

You may obtain a copy of the License at:

<http://www.apache.org/licenses/LICENSE-2.0>

=====

= NOTICE file corresponding to section 4d of the Apache License Version 2.0 =

=====

This product includes software developed by  
Joda.org (<http://www.joda.org/>).

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object

form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a

file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 1999-2005 The Apache Software Foundation

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical

transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable



by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use,

reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.  
Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. **Limitation of Liability.** In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

### APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache log4j

Copyright 2007 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

[role="xpack"]

[testenv="basic"]

[[delete-license]]

=== Delete License API

This API enables you to delete licensing information.

[float]

==== Request

`DELETE /\_xpack/license`

[float]

==== Description

When your license expires, {xpack} operates in a degraded mode. For more

information, see [{xpack-ref}/license-expiration.html](#)[License Expiration].

[float]

==== Authorization

You must have `manage` cluster privileges to use this API.`

For more information, see

[{xpack-ref}/security-privileges.html](#)[Security Privileges].

[float]

==== Examples

The following example queries the info API:

[source,js]

```
-----  
DELETE _xpack/license  
-----
```

```
// CONSOLE
```

```
// TEST[skip:license testing issues]
```

When the license is successfully deleted, the API returns the following response:

[source,js]

```
-----  
{  
  "acknowledged": true  
}  
-----
```

```
// NOTCONSOLE
```

```
[role="xpack"]
```

```
[testenv="basic"]
```

```
[[get-license]]
```

```
=== Get License API
```

This API enables you to retrieve licensing information.

[float]

==== Request

```
`GET /_xpack/license`
```

[float]

==== Description

This API returns information about the type of license, when it was issued, and when it expires, for example.

For more information about the different types of licenses, see

<https://www.elastic.co/subscriptions>.

[float]

==== Query Parameters

``local``::

(boolean) Specifies whether to retrieve local information. The default value is ``false``, which means the information is retrieved from the master node.

[float]

==== Authorization

You must have ``monitor`` cluster privileges to use this API.

For more information, see

[{xpack-ref}/security-privileges.html](#)[Security Privileges].

[float]

==== Examples

The following example provides information about a basic license:

[source,js]

```
-----  
GET _xpack/license  
-----  
// CONSOLE
```

[source,js]

```
-----  
{  
  "license" : {  
    "status" : "active",  
    "uid" : "cbff45e7-c553-41f7-ae4f-9205eabd80xx",  
    "type" : "basic",  
    "issue_date" : "2018-02-22T23:12:05.550Z",  
    "issue_date_in_millis" : 1519341125550,  
    "max_nodes" : 1000,  
    "issued_to" : "test",  
    "issuer" : "elasticsearch",  
    "start_date_in_millis" : -1  
  }  
}  
-----  
// TESTRESPONSE[s/"cbff45e7-c553-41f7-ae4f-9205eabd80xx"/$body.license.uid/]  
// TESTRESPONSE[s/"basic"/$body.license.type/]
```

```
// TESTRESPONSE[s/"2018-02-22T23:12:05.550Z"/$body.license.issue_date/]
// TESTRESPONSE[s/1519341125550/$body.license.issue_date_in_millis/]
// TESTRESPONSE[s/1000/$body.license.max_nodes/]
// TESTRESPONSE[s/"test"/$body.license.issued_to/]
// TESTRESPONSE[s/"elasticsearch"/$body.license.issuer/]
[role="xpack"]
[testenv="basic"]
[[update-license]]
=== Update License API
```

This API enables you to update your license.

```
[float]
===== Request
```

```
`PUT _xpack/license`
```

```
[float]
===== Description
```

You can update your license at runtime without shutting down your nodes. License updates take effect immediately. If the license you are installing does not support all of the features that were available with your previous license, however, you are notified in the response. You must then re-submit the API request with the ``acknowledge`` parameter set to ``true``.

For more information about the different types of licenses, see <https://www.elastic.co/subscriptions>.

```
[float]
===== Query Parameters
```

```
`acknowledge`::
(boolean) Specifies whether you acknowledge the license changes. The default value is `false`.
```

```
[float]
===== Request Body
```

```
`licenses`::
(array) A sequence of one or more JSON documents containing the license information.
```

```
[float]
===== Authorization
```

If `{security}` is enabled, you need ``manage`` cluster privileges to install the

license.

If {security} is enabled and you are installing a gold or platinum license, you must enable TLS on the transport networking layer before you install the license. See <<configuring-tls>>.

[float]

==== Examples

The following example updates to a basic license:

[source,js]

```
-----  
POST _xpack/license  
{  
  "licenses": [  
    {  
      "uid": "893361dc-9749-4997-93cb-802e3d7fa4xx",  
      "type": "basic",  
      "issue_date_in_millis": 1411948800000,  
      "expiry_date_in_millis": 1914278399999,  
      "max_nodes": 1,  
      "issued_to": "issuedTo",  
      "issuer": "issuer",  
      "signature": "xx"  
    }  
  ]  
}
```

```
-----  
// CONSOLE  
// TEST[skip:license testing issues]
```

NOTE: These values are invalid; you must substitute the appropriate content from your license file.

You can alternatively use a `curl` command, for example:

[source,js]  
[source,shell]

```
-----  
curl -XPUT -u <user> 'http://<host>:<port>/_xpack/license' -H "Content-Type: application/json" -d @license.json  
-----
```

```
// NOTCONSOLE
```

On Windows machine, use the following command:

[source,shell]

```
gc .\license.json | Invoke-WebRequest -uri http://<host>:<port>/_xpack/license -Credential elastic -Method Put -
ContentType "application/json"
```

-----

In these examples,

- \* ``<user>`` is a user ID with the appropriate authority.
- \* ``<host>`` is the hostname of the {es} node (`localhost` if executing locally)
- \* ``<port>`` is the http port (defaults to `9200`)
- \* `license.json` is the license JSON file

NOTE: If your {es} node has SSL enabled on the HTTP interface, you must start your URL with `https://`

If you previously had a license with more features than the basic license, you receive the following response:

[source.js]

```
-----
{
  "acknowledged": false,
  "license_status": "valid",
  "acknowledge": {
    "message": """"This license update requires acknowledgement. To acknowledge the license, please read the
following messages and update the license again, this time with the "acknowledge=true" parameter:""",
    "watcher": [
      "Watcher will be disabled"
    ],
    "logstash": [
      "Logstash will no longer poll for centrally-managed pipelines"
    ],
    "security": [
      "The following X-Pack security functionality will be disabled: ..." ]
  }
}
```

-----

```
// NOTCONSOLE
```

To complete the update, you must re-submit the API request and set the `acknowledge` parameter to `true`. For example:

[source.js]

```
-----
POST _xpack/license?acknowledge=true
{
  "licenses": [
    {
```



```

    "uid":"893361dc-9749-4997-93cb-802e3d7fa4xx",
    "type":"basic",
    "issue_date_in_millis":1411948800000,
    "expiry_date_in_millis":1914278399999,
    "max_nodes":1,
    "issued_to":"issuedTo",
    "issuer":"issuer",
    "signature":"xx"
  }
]
}

```

```

-----
// CONSOLE
// TEST[skip:license testing issues]

```

Alternatively:

```
[source,sh]
```

```

-----
curl -XPUT -u elastic 'http://<host>:<port>/_xpack/license?acknowledge=true' -H "Content-Type: application/json"
-d @license.json

```

```

-----
// NOTCONSOLE

```

For more information about the features that are disabled when you downgrade your license, see [{xpack-ref}/license-expiration.html](#) [License Expiration].

```

[role="xpack"]
[[license-settings]]
=== {xpack} License Settings
++++
<titleabbrev>License Settings</titleabbrev>
++++

```

You can configure this licensing setting in the `elasticsearch.yml` file.

For more information, see

[{xpack-ref}/license-management.html](#) [`{xpack}` License Management].

```
`xpack.license.self_generated.type`::
```

Set to `basic` (default) to enable basic `{xpack}` features. +

+

--

If set to `trial`, the self-generated license gives access only to all the features of a x-pack for 30 days. You can later downgrade the cluster to a basic license if needed.

--

This package is free to use under the Elastic license. It contains open source and free commercial features and access to paid commercial features.

[{stack-ov}/license-management.html](#) [Start a 30-day trial] to try out all of the

paid commercial features. See the  
<https://www.elastic.co/subscriptions>[Subscriptions] page for information about  
Elastic license levels.  
== Copyright and License

This software is Copyright (c) 2013-2018 by Elasticsearch BV.

This is free software, licensed under The Apache License Version 2.0.  
== License

Copyright 2013-2018 Elasticsearch

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software  
distributed under the License is distributed on an "AS IS" BASIS,  
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
See the License for the specific language governing permissions and  
limitations under the License.

/\*

The MIT License

Copyright (c) 2004-2015 Paul R. Holser, Jr.

Permission is hereby granted, free of charge, to any person obtaining  
a copy of this software and associated documentation files (the  
"Software"), to deal in the Software without restriction, including  
without limitation the rights to use, copy, modify, merge, publish,  
distribute, sublicense, and/or sell copies of the Software, and to  
permit persons to whom the Software is furnished to do so, subject to  
the following conditions:

The above copyright notice and this permission notice shall be  
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,  
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF  
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND  
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE  
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION  
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION  
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

\*/

April 9, 2014

#### Usage Of Content

THE ECLIPSE FOUNDATION MAKES AVAILABLE SOFTWARE, DOCUMENTATION, INFORMATION AND/OR OTHER MATERIALS FOR OPEN SOURCE PROJECTS (COLLECTIVELY "CONTENT"). USE OF THE CONTENT IS GOVERNED BY THE TERMS AND CONDITIONS OF THIS AGREEMENT AND/OR THE TERMS AND CONDITIONS OF LICENSE AGREEMENTS OR NOTICES INDICATED OR REFERENCED BELOW. BY USING THE CONTENT, YOU AGREE THAT YOUR USE OF THE CONTENT IS GOVERNED BY THIS AGREEMENT AND/OR THE TERMS AND CONDITIONS OF ANY APPLICABLE LICENSE AGREEMENTS OR NOTICES INDICATED OR REFERENCED BELOW. IF YOU DO NOT AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT AND THE TERMS AND CONDITIONS OF ANY APPLICABLE LICENSE AGREEMENTS OR NOTICES INDICATED OR REFERENCED BELOW, THEN YOU MAY NOT USE THE CONTENT.

#### Applicable Licenses

Unless otherwise indicated, all Content made available by the Eclipse Foundation is provided to you under the terms and conditions of the Eclipse Public License Version 1.0 ("EPL"). A copy of the EPL is provided with this Content and is also available at <http://www.eclipse.org/legal/epl-v10.html>. For purposes of the EPL, "Program" will mean the Content.

Content includes, but is not limited to, source code, object code, documentation and other files maintained in the Eclipse Foundation source code repository ("Repository") in software modules ("Modules") and made available as downloadable archives ("Downloads").

- \* Content may be structured and packaged into modules to facilitate delivering, extending, and upgrading the Content.  
Typical modules may include plug-ins ("Plug-ins"), plug-in fragments ("Fragments"), and features ("Features").
- \* Each Plug-in or Fragment may be packaged as a sub-directory or JAR (Java ARchive) in a directory named "plugins".
- \* A Feature is a bundle of one or more Plug-ins and/or Fragments and associated material. Each Feature may be packaged as a sub-directory in a directory named "features". Within a Feature, files named "feature.xml" may contain a list of the names and version numbers of the Plug-ins and/or Fragments associated with that Feature.
- \* Features may also include other Features ("Included Features"). Within a Feature, files named "feature.xml" may contain a list of the names and version numbers of Included Features.

The terms and conditions governing Plug-ins and Fragments should be contained in files named "about.html" ("Abouts").

The terms and conditions governing Features and Included Features should be contained in files named

"license.html"

("Feature Licenses"). Abouts and Feature Licenses may be located in any directory of a Download or Module including, but not limited to the following locations:

- \* The top-level (root) directory
- \* Plug-in and Fragment directories
- \* Inside Plug-ins and Fragments packaged as JARs
- \* Sub-directories of the directory named "src" of certain Plug-ins
- \* Feature directories

Note: if a Feature made available by the Eclipse Foundation is installed using the Provisioning Technology (as defined

below), you must agree to a license ("Feature Update License") during the installation process. If the Feature contains

Included Features, the Feature Update License should either provide you with the terms and conditions governing the

Included Features or inform you where you can locate them. Feature Update Licenses may be found in the "license" property of files named "feature.properties" found within a Feature. Such Abouts, Feature Licenses, and Feature Update

Licenses contain the terms and conditions (or references to such terms and conditions) that govern your use of the associated Content in that directory.

THE ABOUTS, FEATURE LICENSES, AND FEATURE UPDATE LICENSES MAY REFER TO THE EPL OR OTHER LICENSE AGREEMENTS, NOTICES OR TERMS AND CONDITIONS. SOME OF THESE OTHER LICENSE AGREEMENTS MAY INCLUDE (BUT ARE NOT LIMITED TO):

- \* Eclipse Distribution License Version 1.0 (available at <http://www.eclipse.org/licenses/edl-v10.html>)
- \* Common Public License Version 1.0 (available at <http://www.eclipse.org/legal/cpl-v10.html>)
- \* Apache Software License 1.1 (available at <http://www.apache.org/licenses/LICENSE>)
- \* Apache Software License 2.0 (available at <http://www.apache.org/licenses/LICENSE-2.0>)
- \* Mozilla Public License Version 1.1 (available at <http://www.mozilla.org/MPL/MPL-1.1.html>)

IT IS YOUR OBLIGATION TO READ AND ACCEPT ALL SUCH TERMS AND CONDITIONS PRIOR TO USE OF THE CONTENT. If no About, Feature

License, or Feature Update License is provided, please contact the Eclipse Foundation to determine what terms and conditions govern that particular Content.

#### ### Use of Provisioning Technology

The Eclipse Foundation makes available provisioning software, examples of which include, but are not limited to, p2 and

the Eclipse Update Manager ("Provisioning Technology") for the purpose of allowing users to install software, documentation, information and/or other materials (collectively "Installable Software"). This capability is provided with the intent of allowing such users to install, extend and update Eclipse-based products. Information about packaging

Installable Software is available at [http://eclipse.org/equinox/p2/repository\\_packaging.html](http://eclipse.org/equinox/p2/repository_packaging.html) ("Specification").

You may use Provisioning Technology to allow other parties to install Installable Software. You shall be responsible for enabling the applicable license agreements relating to the Installable Software to be presented to, and accepted by, the users of the Provisioning Technology in accordance with the Specification. By using Provisioning Technology in such a manner and making it available in accordance with the Specification, you further acknowledge your agreement to, and the acquisition of all necessary rights to permit the following:

1. A series of actions may occur ("Provisioning Process") in which a user may execute the Provisioning Technology on a machine ("Target Machine") with the intent of installing, extending or updating the functionality of an Eclipse-based product.
2. During the Provisioning Process, the Provisioning Technology may cause third party Installable Software or a portion thereof to be accessed and copied to the Target Machine.
3. Pursuant to the Specification, you will provide to the user the terms and conditions that govern the use of the Installable Software ("Installable Software Agreement") and such Installable Software Agreement shall be accessed from the Target Machine in accordance with the Specification. Such Installable Software Agreement must inform the user of the terms and conditions that govern the Installable Software and must solicit acceptance by the end user in the manner prescribed in such Installable Software Agreement. Upon such indication of agreement by the user, the provisioning Technology will complete installation of the Installable Software.

#### Cryptography

Content may contain encryption software. The country in which you are currently may have restrictions on the import, possession, and use, and/or re-export to another country, of encryption software. BEFORE using any encryption software, please check the country's laws, regulations and policies concerning the import, possession, or use, and re-export of encryption software, to see if this is permitted.

Java and all Java-based trademarks are trademarks of Oracle Corporation in the United States, other countries, or both.

About This Content

May 22, 2015

#### License

The Eclipse Foundation makes available all content in this plug-in ("Content"). Unless otherwise indicated below, the

Content is provided to you under the terms and conditions of the Apache License, Version 2.0. A copy of the Apache

License, Version 2.0 is available at <http://www.apache.org/licenses/LICENSE-2.0.txt>

If you did not receive this Content directly from the Eclipse Foundation, the Content is being redistributed by another party ("Redistributor") and different terms and conditions may apply to your use of any object code in the Content. Check the Redistributors license that was provided with the Content. If no such license exists, contact the Redistributor. Unless otherwise indicated below, the terms and conditions of the Apache License, Version 2.0 still apply to any source code in the Content and such source code may be obtained at <http://www.eclipse.org>(<http://www.eclipse.org>).

```
// -----  
// Transitive dependencies of this project determined from the  
// maven pom organized by organization.  
// -----
```

Apache Extras for Apache log4j.

From: 'an unknown organization'

- geronimo-jms\_1.1\_spec org.apache.geronimo.specs:geronimo-jms\_1.1\_spec:jar:1.0

From: 'Apache Software Foundation' (<http://www.apache.org>)

- Apache Log4j (<http://logging.apache.org/log4j/1.2/>) log4j:log4j:bundle:1.2.17

License: The Apache Software License, Version 2.0 (<http://www.apache.org/licenses/LICENSE-2.0.txt>)

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
  
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
  - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
  
  - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
  
  - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
  
  - (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside



or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. **Limitation of Liability.** In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer,

and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

#### END OF TERMS AND CONDITIONS

The code for the t-digest was originally authored by Ted Dunning

A number of small but very helpful changes have been contributed by Adrien Grand (<https://github.com/jpountz>)  
Eclipse Distribution License - v 1.0

Copyright (c) 2007, Eclipse Foundation, Inc. and its licensors.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the Eclipse Foundation, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
  - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
  - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
  - (c) You must retain, in the Source form of any Derivative Works

that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A

PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright 2010-2013, Carrot Search s.c., Boznicza 11/56, Poznan, Poland

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes

of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You



meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor,

except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software  
distributed under the License is distributed on an "AS IS" BASIS,  
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
See the License for the specific language governing permissions and  
limitations under the License.

#### ACKNOWLEDGEMENT

=====

HPPC borrowed code, ideas or both from:

- \* Apache Lucene, <http://lucene.apache.org/>  
(Apache license)
- \* Fastutil, <http://fastutil.di.unimi.it/>  
(Apache license)
- \* Kolobokey, <https://github.com/OpenHFT/Kolobokey>  
(Apache license)

The code in this repository code was Written by Gil Tene, Michael Barker,  
and Matt Warren, and released to the public domain, as explained at  
<http://creativecommons.org/publicdomain/zero/1.0/>

For users of this code who wish to consume it under the "BSD" license  
rather than under the public domain or CC0 contribution text mentioned  
above, the code found under this directory is *also* provided under the  
following license (commonly referred to as the BSD 2-Clause License). This  
license does not detract from the above stated release of the code into  
the public domain, and simply represents an additional license granted by  
the Author.

-----  
\*\* Beginning of "BSD 2-Clause License" text. \*\*

Copyright (c) 2012, 2013, 2014 Gil Tene  
Copyright (c) 2014 Michael Barker  
Copyright (c) 2014 Matt Warren  
All rights reserved.

Redistribution and use in source and binary forms, with or without  
modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Elasticsearch

Copyright 2009-2018 Elasticsearch

This product includes software developed by The Apache Software Foundation (<http://www.apache.org/>).

ELASTIC LICENSE AGREEMENT

PLEASE READ CAREFULLY THIS ELASTIC LICENSE AGREEMENT (THIS "AGREEMENT"), WHICH CONSTITUTES A LEGALLY BINDING AGREEMENT AND GOVERNS ALL OF YOUR USE OF ALL OF THE ELASTIC SOFTWARE WITH WHICH THIS AGREEMENT IS INCLUDED ("ELASTIC SOFTWARE") THAT IS PROVIDED IN OBJECT CODE FORMAT, AND, IN ACCORDANCE WITH SECTION 2 BELOW, CERTAIN OF THE ELASTIC SOFTWARE THAT IS PROVIDED IN SOURCE CODE FORMAT. BY INSTALLING OR USING ANY OF THE ELASTIC SOFTWARE GOVERNED BY THIS AGREEMENT, YOU ARE ASSENTING TO THE TERMS AND CONDITIONS OF THIS AGREEMENT. IF YOU DO NOT AGREE WITH SUCH TERMS AND CONDITIONS, YOU MAY NOT INSTALL OR USE THE ELASTIC SOFTWARE GOVERNED BY THIS AGREEMENT. IF YOU ARE INSTALLING OR USING THE SOFTWARE ON BEHALF OF A LEGAL ENTITY, YOU REPRESENT AND WARRANT THAT YOU HAVE THE ACTUAL AUTHORITY TO AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT ON BEHALF OF SUCH ENTITY.

Posted Date: April 20, 2018

This Agreement is entered into by and between Elasticsearch BV ("Elastic") and You, or the legal entity on behalf of whom You are acting (as applicable, "You").

## 1. OBJECT CODE END USER LICENSES, RESTRICTIONS AND THIRD PARTY OPEN SOURCE SOFTWARE

1.1 Object Code End User License. Subject to the terms and conditions of

Section 1.2 of this Agreement, Elastic hereby grants to You, AT NO CHARGE and for so long as you are not in breach of any provision of this Agreement, a License to the Basic Features and Functions of the Elastic Software.

1.2 Reservation of Rights; Restrictions. As between Elastic and You, Elastic and its licensors own all right, title and interest in and to the Elastic Software, and except as expressly set forth in Sections 1.1, and 2.1 of this Agreement, no other license to the Elastic Software is granted to You under this Agreement, by implication, estoppel or otherwise. You agree not to: (i) reverse engineer or decompile, decrypt, disassemble or otherwise reduce any Elastic Software provided to You in Object Code, or any portion thereof, to Source Code, except and only to the extent any such restriction is prohibited by applicable law, (ii) except as expressly permitted in this Agreement, prepare derivative works from, modify, copy or use the Elastic Software Object Code or the Commercial Software Source Code in any manner; (iii) except as expressly permitted in Section 1.1 above, transfer, sell, rent, lease, distribute, sublicense, loan or otherwise transfer, Elastic Software Object Code, in whole or in part, to any third party; (iv) use Elastic Software Object Code for providing time-sharing services, any software-as-a-service, service bureau services or as part of an application services provider or other service offering (collectively, "SaaS Offering") where obtaining access to the Elastic Software or the features and functions of the Elastic Software is a primary reason or substantial motivation for users of the SaaS Offering to access and/or use the SaaS Offering ("Prohibited SaaS Offering"); (v) circumvent the limitations on use of Elastic Software provided to You in Object Code format that are imposed or preserved by any License Key, or (vi) alter or remove any Marks and Notices in the Elastic Software. If You have any question as to whether a specific SaaS Offering constitutes a Prohibited SaaS Offering, or are interested in obtaining Elastic's permission to engage in commercial or non-commercial distribution of the Elastic Software, please contact [elastic\\_license@elastic.co](mailto:elastic_license@elastic.co).

1.3 Third Party Open Source Software. The Commercial Software may contain or be provided with third party open source libraries, components, utilities and other open source software (collectively, "Open Source Software"), which Open Source Software may have applicable license terms as identified on a website designated by Elastic. Notwithstanding anything to the contrary herein, use of the Open Source Software shall be subject to the license terms and conditions applicable to such Open Source Software, to the extent required by the applicable licensor (which terms shall not restrict the license rights granted to You hereunder, but may contain additional rights). To the extent any condition of this Agreement conflicts with any license to the Open Source Software, the Open Source Software license will govern with respect to such Open Source Software only. Elastic may also separately provide you with certain open source software that is licensed by Elastic. Your use of such Elastic open source software will not be governed by this Agreement, but by the applicable open source license terms.

## 2. COMMERCIAL SOFTWARE SOURCE CODE

2.1 Limited License. Subject to the terms and conditions of Section 2.2 of this Agreement, Elastic hereby grants to You, AT NO CHARGE and for so long as you are not in breach of any provision of this Agreement, a limited, non-exclusive, non-transferable, fully paid up royalty free right and license to the Commercial Software in Source Code format, without the right to grant or authorize sublicenses, to prepare Derivative Works of the Commercial Software, provided You (i) do not hack the licensing mechanism, or otherwise circumvent the intended limitations on the use of Elastic Software to enable features other than Basic Features and Functions or those features You are entitled to as part of a Subscription, and (ii) use the resulting object code only for reasonable testing purposes.

2.2 Restrictions. Nothing in Section 2.1 grants You the right to (i) use the Commercial Software Source Code other than in accordance with Section 2.1 above, (ii) use a Derivative Work of the Commercial Software outside of a Non-production Environment, in any production capacity, on a temporary or permanent basis, or (iii) transfer, sell, rent, lease, distribute, sublicense, loan or otherwise make available the Commercial Software Source Code, in whole or in part, to any third party. Notwithstanding the foregoing, You may maintain a copy of the repository in which the Source Code of the Commercial Software resides and that copy may be publicly accessible, provided that you include this Agreement with Your copy of the repository.

## 3. TERMINATION

3.1 Termination. This Agreement will automatically terminate, whether or not You receive notice of such Termination from Elastic, if You breach any of its provisions.

3.2 Post Termination. Upon any termination of this Agreement, for any reason, You shall promptly cease the use of the Elastic Software in Object Code format and cease use of the Commercial Software in Source Code format. For the avoidance of doubt, termination of this Agreement will not affect Your right to use Elastic Software, in either Object Code or Source Code formats, made available under the Apache License Version 2.0.

3.3 Survival. Sections 1.2, 2.2, 3.3, 4 and 5 shall survive any termination or expiration of this Agreement.

## 4. DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY

4.1 Disclaimer of Warranties. TO THE MAXIMUM EXTENT PERMITTED UNDER APPLICABLE LAW, THE ELASTIC SOFTWARE IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, AND ELASTIC AND ITS LICENSORS MAKE NO WARRANTIES WHETHER EXPRESSED, IMPLIED OR STATUTORY REGARDING OR RELATING TO THE ELASTIC SOFTWARE. TO THE MAXIMUM EXTENT PERMITTED UNDER APPLICABLE LAW, ELASTIC AND ITS LICENSORS SPECIFICALLY

DISCLAIM ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT WITH RESPECT TO THE ELASTIC SOFTWARE, AND WITH RESPECT TO THE USE OF THE FOREGOING. FURTHER, ELASTIC DOES NOT WARRANT RESULTS OF USE OR THAT THE ELASTIC SOFTWARE WILL BE ERROR FREE OR THAT THE USE OF THE ELASTIC SOFTWARE WILL BE UNINTERRUPTED.

4.2 Limitation of Liability. IN NO EVENT SHALL ELASTIC OR ITS LICENSORS BE LIABLE TO YOU OR ANY THIRD PARTY FOR ANY DIRECT OR INDIRECT DAMAGES, INCLUDING, WITHOUT LIMITATION, FOR ANY LOSS OF PROFITS, LOSS OF USE, BUSINESS INTERRUPTION, LOSS OF DATA, COST OF SUBSTITUTE GOODS OR SERVICES, OR FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, IN CONNECTION WITH OR ARISING OUT OF THE USE OR INABILITY TO USE THE ELASTIC SOFTWARE, OR THE PERFORMANCE OF OR FAILURE TO PERFORM THIS AGREEMENT, WHETHER ALLEGED AS A BREACH OF CONTRACT OR TORTIOUS CONDUCT, INCLUDING NEGLIGENCE, EVEN IF ELASTIC HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

## 5. MISCELLANEOUS

This Agreement completely and exclusively states the entire agreement of the parties regarding the subject matter herein, and it supersedes, and its terms govern, all prior proposals, agreements, or other communications between the parties, oral or written, regarding such subject matter. This Agreement may be modified by Elastic from time to time, and any such modifications will be effective upon the "Posted Date" set forth at the top of the modified Agreement. If any provision hereof is held unenforceable, this Agreement will continue without said provision and be interpreted to reflect the original intent of the parties. This Agreement and any non-contractual obligation arising out of or in connection with it, is governed exclusively by Dutch law. This Agreement shall not be governed by the 1980 UN Convention on Contracts for the International Sale of Goods. All disputes arising out of or in connection with this Agreement, including its existence and validity, shall be resolved by the courts with jurisdiction in Amsterdam, The Netherlands, except where mandatory law provides for the courts at another location in The Netherlands to have jurisdiction. The parties hereby irrevocably waive any and all claims and defenses either might otherwise have in any such action or proceeding in any of such courts based upon any alleged lack of personal jurisdiction, improper venue, forum non conveniens or any similar claim or defense. A breach or threatened breach, by You of Section 2 may cause irreparable harm for which damages at law may not provide adequate relief, and therefore Elastic shall be entitled to seek injunctive relief without being required to post a bond. You may not assign this Agreement (including by operation of law in connection with a merger or acquisition), in whole or in part to any third party without the prior written consent of Elastic, which may be withheld or granted by Elastic in its sole and absolute discretion. Any assignment in violation of the preceding sentence is void. Notices to Elastic may also be sent to [legal@elastic.co](mailto:legal@elastic.co).

## 6. DEFINITIONS

The following terms have the meanings ascribed:

6.1 "Affiliate" means, with respect to a party, any entity that controls, is controlled by, or which is under common control with, such party, where "control" means ownership of at least fifty percent (50%) of the outstanding voting shares of the entity, or the contractual right to establish policy for, and manage the operations of, the entity.

6.2 "Basic Features and Functions" means those features and functions of the Elastic Software that are eligible for use under a Basic license, as set forth at <https://www.elastic.co/subscriptions>, as may be modified by Elastic from time to time.

6.3 "Commercial Software" means the Elastic Software Source Code in any file containing a header stating the contents are subject to the Elastic License or which is contained in the repository folder labeled "x-pack", unless a LICENSE file present in the directory subtree declares a different license.

6.4 "Derivative Work of the Commercial Software" means, for purposes of this Agreement, any modification(s) or enhancement(s) to the Commercial Software, which represent, as a whole, an original work of authorship.

6.5 "License" means a limited, non-exclusive, non-transferable, fully paid up, royalty free, right and license, without the right to grant or authorize sublicenses, solely for Your internal business operations to (i) install and use the applicable Features and Functions of the Elastic Software in Object Code, and (ii) permit Contractors and Your Affiliates to use the Elastic software as set forth in (i) above, provided that such use by Contractors must be solely for Your benefit and/or the benefit of Your Affiliates, and You shall be responsible for all acts and omissions of such Contractors and Affiliates in connection with their use of the Elastic software that are contrary to the terms and conditions of this Agreement.

6.6 "License Key" means a sequence of bytes, including but not limited to a JSON blob, that is used to enable certain features and functions of the Elastic Software.

6.7 "Marks and Notices" means all Elastic trademarks, trade names, logos and notices present on the Documentation as originally provided by Elastic.

6.8 "Non-production Environment" means an environment for development, testing or quality assurance, where software is not used for production purposes.

6.9 "Object Code" means any form resulting from mechanical transformation or translation of Source Code form, including but not limited to compiled object code, generated documentation, and conversions to other media types.



6.10 "Source Code" means the preferred form of computer software for making modifications, including but not limited to software source code, documentation source, and configuration files.

6.11 "Subscription" means the right to receive Support Services and a License to the Commercial Software.

Source code in this repository is variously licensed under the Apache License Version 2.0, an Apache compatible license, or the Elastic License. Outside of the "x-pack" folder, source code in a given file is licensed under the Apache License Version 2.0, unless otherwise noted at the beginning of the file or a LICENSE file present in the directory subtree declares a separate license. Within the "x-pack" folder, source code in a given file is licensed under the Elastic License, unless otherwise noted at the beginning of the file or a LICENSE file present in the directory subtree declares a separate license.

The build produces two sets of binaries - one set that falls under the Elastic License and another set that falls under Apache License Version 2.0. The binaries that contain `-oss` in the artifact name are licensed under the Apache License Version 2.0.

/\*

- \* Licensed to Elasticsearch under one or more contributor
- \* license agreements. See the NOTICE file distributed with
- \* this work for additional information regarding copyright
- \* ownership. Elasticsearch licenses this file to you under
- \* the Apache License, Version 2.0 (the "License"); you may
- \* not use this file except in compliance with the License.
- \* You may obtain a copy of the License at
- \*
- \* <http://www.apache.org/licenses/LICENSE-2.0>
- \*
- \* Unless required by applicable law or agreed to in writing,
- \* software distributed under the License is distributed on an
- \* "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY
- \* KIND, either express or implied. See the License for the
- \* specific language governing permissions and limitations
- \* under the License.

\*/

/\*

- \* Copyright Elasticsearch B.V. and/or licensed to Elasticsearch B.V. under one
- \* or more contributor license agreements. Licensed under the Elastic License;
- \* you may not use this file except in compliance with the Elastic License.

\*/

Apache HttpComponents AsyncClient  
Copyright 2010-2016 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

Apache HttpCore NIO  
Copyright 2005-2016 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).  
Apache Commons Logging  
Copyright 2003-2013 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).  
Apache HttpComponents Core  
Copyright 2005-2016 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation,

and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s)

with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.  
Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

This project contains annotations derived from JCIP-ANNOTATIONS

Copyright (c) 2005 Brian Goetz and Tim Peierls.

See <http://www.jcip.net> and the Creative Commons Attribution License

(<http://creativecommons.org/licenses/by/2.5>)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Joni is released under the MIT License.

JCodings is released under the MIT License.

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed



as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. **Limitation of Liability.** In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this

License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

\*\*\*The art of simplicity is a puzzle of complexity.\*\*\*

### ## Overview ##

[YAML](<http://yaml.org>) is a data serialization format designed for human readability and interaction with scripting languages.

SnakeYAML is a YAML processor for the Java Virtual Machine.

### ## SnakeYAML features ##

- \* a **complete** [YAML 1.1 processor](<http://yaml.org/spec/1.1/current.html>). In particular, SnakeYAML can parse all examples from the specification.
- \* Unicode support including UTF-8/UTF-16 input/output.
- \* high-level API for serializing and deserializing native Java objects.
- \* support for all types from the [YAML types repository](<http://yaml.org/type/index.html>).
- \* relatively sensible error messages.

### ## Info ##

- \* [Changes](<https://bitbucket.org/asomov/snakeyaml/wiki/Changes>)
- \* [Documentation](<https://bitbucket.org/asomov/snakeyaml/wiki/Documentation>)

### ## Contribute ##

- \* Mercurial DVCS is used to dance with the [source code](<https://bitbucket.org/asomov/snakeyaml/src>).
- \* If you find a bug in SnakeYAML, please [file a bug report](<https://bitbucket.org/asomov/snakeyaml/issues?status=new&status=open>).
- \* You may discuss SnakeYAML at [the mailing list](<http://groups.google.com/group/snakeyaml-core>).

Apache Commons Codec

Copyright 2002-2015 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

src/test/org/apache/commons/codec/language/DoubleMetaphoneTest.java  
contains test data from <http://aspell.net/test/orig/batch0.tab>.  
Copyright (C) 2002 Kevin Atkinson ([kevina@gnu.org](mailto:kevina@gnu.org))

=====

The content of package org.apache.commons.codec.language.bm has been translated

from the original php source code available at <http://stevemorse.org/phoneticinfo.htm> with permission from the original authors.

Original source copyright:

Copyright (c) 2008 Alexander Beider & Stephen P. Morse.

Apache Commons CLI

Copyright 2001-2009 The Apache Software Foundation

This product includes software developed by

The Apache Software Foundation (<http://www.apache.org/>).

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

## 1. Definitions.

1.1. Contributor. means each individual or entity that creates or contributes to the creation of Modifications.

1.2. Contributor Version. means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. Covered Software. means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. Executable. means the Covered Software in any form other than Source Code.

1.5. Initial Developer. means the individual or entity that first makes Original Software available under this License.

1.6. Larger Work. means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. License. means this document.

1.8. Licensable. means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. Modifications. means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software

or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. Original Software. means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. Patent Claims. means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. Source Code. means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. You. (or .Your.) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, .You. includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, .control. means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

## 2. License Grants.

### 2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms

of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

## 2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

## 3. Distribution Obligations.

### 3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code

form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

### 3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

### 3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

### 3.4. Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients' rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

### 3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient's rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by

the Initial Developer or such Contributor as a result of any such terms You offer.

### 3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

## 4. Versions of the License.

### 4.1. New Versions.

Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

### 4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

### 4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

## 5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN .AS IS. BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME

THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

## 6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as Participant.) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

## 7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION



OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

#### 8. U.S. GOVERNMENT END USERS.

The Covered Software is a .commercial item., as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of .commercial computer software. (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and .commercial computer software documentation. as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

#### 9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdiction.s conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys. fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

#### 10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND

## DISTRIBUTION LICENSE (CDDL)

The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

The GNU General Public License (GPL) Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc. 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

### Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and

(2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

## TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms

and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the

limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

## How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name and a brief idea of what it does.

### Copyright (C)

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

```
Gnomovision version 69, Copyright (C) year name of author
```

```
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'. This is free software, and you are welcome to redistribute it under certain conditions; type `show c' for details.
```

The hypothetical commands ``show w'` and ``show c'` should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than ``show w'` and ``show c'`; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:



Yoyodyne, Inc., hereby disclaims all copyright interest in the program `Gnomovision' (which makes passes at compilers) written by James Hacker.

signature of Ty Coon, 1 April 1989

Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

#### "CLASSPATH" EXCEPTION TO THE GPL VERSION 2

Certain source files distributed by Sun Microsystems, Inc. are subject to the following clarification and special exception to the GPL Version 2, but only where Sun has expressly included in the particular source file's header the words

"Sun designates this particular file as subject to the "Classpath" exception as provided by Sun in the License file that accompanied this code."

Linking this library statically or dynamically with other modules is making a combined work based on this library. Thus, the terms and conditions of the GNU General Public License Version 2 cover the whole combination.

As a special exception, the copyright holders of this library give you permission to link this library with independent modules to produce an executable, regardless of the license terms of these independent modules, and to copy and distribute the resulting executable under terms of your choice, provided that you also meet, for each linked independent module, the terms and conditions of the license of that module.? An independent module is a module which is not derived from or based on this library.? If you modify this library, you may extend this exception to your version of the library, but you are not obligated to do so.? If you do not wish to do so, delete this exception statement from your version.

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

## 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent

to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
  - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
  - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
  - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work,

excluding those notices that do not pertain to any part of the Derivative Works; and

- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any

risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

#### END OF TERMS AND CONDITIONS

=====

This project contains annotations in the package org.apache.http.annotation which are derived from JCIP-ANNOTATIONS  
Copyright (c) 2005 Brian Goetz and Tim Peierls.  
See <http://www.jcip.net> and the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.5>)  
Full text: <http://creativecommons.org/licenses/by/2.5/legalcode>

License

THE WORK (AS DEFINED BELOW) IS PROVIDED UNDER THE TERMS OF THIS CREATIVE COMMONS PUBLIC LICENSE ("CCPL" OR "LICENSE"). THE WORK IS PROTECTED BY COPYRIGHT AND/OR OTHER APPLICABLE LAW. ANY USE OF THE WORK OTHER THAN AS AUTHORIZED UNDER THIS LICENSE OR COPYRIGHT LAW IS PROHIBITED.

BY EXERCISING ANY RIGHTS TO THE WORK PROVIDED HERE, YOU ACCEPT AND AGREE TO BE BOUND BY THE TERMS OF THIS LICENSE. THE LICENSOR GRANTS YOU THE RIGHTS CONTAINED HERE IN CONSIDERATION OF YOUR ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

1. Definitions

"Collective Work" means a work, such as a periodical issue, anthology or encyclopedia, in which the Work in its entirety in unmodified form, along with a number of other contributions, constituting separate and independent works in themselves, are assembled into a collective whole. A work that constitutes a Collective Work will not be considered a Derivative Work (as defined below) for the purposes of this License.

"Derivative Work" means a work based upon the Work or upon the Work and other pre-existing works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which the Work may be recast, transformed, or adapted, except that a work that constitutes a Collective Work will not be considered a Derivative Work for the purpose of this License. For the avoidance of doubt, where the Work is a musical composition or sound recording, the synchronization of the Work in timed-relation with a moving image ("synching") will be considered a Derivative Work for the purpose of this License.

"Licensor" means the individual or entity that offers the Work under the terms of this License.

"Original Author" means the individual or entity who created the Work.

"Work" means the copyrightable work of authorship offered under the terms of this License.

"You" means an individual or entity exercising rights under this License who has not previously violated the terms of this License with respect to the Work, or who has received express permission from the Licensor to exercise rights under this License despite a previous violation.

2. Fair Use Rights. Nothing in this license is intended to reduce, limit, or restrict any rights arising from fair use, first sale or other limitations on the exclusive rights of the copyright owner under copyright law or other applicable laws.

3. License Grant. Subject to the terms and conditions of this License, Licensor hereby grants You a worldwide, royalty-free, non-exclusive, perpetual (for the duration of the applicable copyright) license to exercise the rights in the Work as stated below:

to reproduce the Work, to incorporate the Work into one or more Collective Works, and to reproduce the Work as incorporated in the Collective Works;

to create and reproduce Derivative Works;

to distribute copies or phonorecords of, display publicly, perform publicly, and perform publicly by means of a digital audio transmission the Work including as incorporated in Collective Works;

to distribute copies or phonorecords of, display publicly, perform publicly, and perform publicly by means of a digital audio transmission Derivative Works.

For the avoidance of doubt, where the work is a musical composition:

Performance Royalties Under Blanket Licenses. Licensor waives the exclusive right to collect, whether individually or via a performance rights society (e.g. ASCAP, BMI, SESAC), royalties for the public performance or public digital performance (e.g. webcast) of the Work.

Mechanical Rights and Statutory Royalties. Licensor waives the exclusive right to collect, whether individually or via a music rights agency or designated agent (e.g. Harry Fox Agency), royalties for any phonorecord You create from the Work ("cover version") and distribute, subject to the compulsory license created by 17 USC Section 115 of the US Copyright Act (or the equivalent in other jurisdictions).

Webcasting Rights and Statutory Royalties. For the avoidance of doubt, where the Work is a sound recording, Licensor waives the exclusive right to collect, whether individually or via a performance-rights society (e.g. SoundExchange), royalties for the public digital performance (e.g. webcast) of the Work, subject to the compulsory license created by 17 USC Section 114 of the US Copyright Act (or the equivalent in other jurisdictions).

The above rights may be exercised in all media and formats whether now known or hereafter devised. The above rights include the right to make such modifications as are technically necessary to exercise the rights in other media and formats. All rights not expressly granted by Licensor are hereby reserved.

4. Restrictions. The license granted in Section 3 above is expressly made subject to and limited by the following restrictions:

You may distribute, publicly display, publicly perform, or publicly digitally perform the Work only under the terms of this License, and You must include a copy of, or the Uniform Resource Identifier for, this License with every copy or phonorecord of the Work You distribute, publicly display, publicly perform, or publicly digitally perform. You may not offer or impose any terms on the Work that alter or restrict the terms of this License or the recipients' exercise of the rights granted hereunder. You may not sublicense the Work. You must keep intact all notices that refer to this License and to the disclaimer of warranties. You may not distribute, publicly display, publicly perform, or publicly digitally perform the Work with any technological measures that control access or use of the Work in a manner inconsistent with the terms of this License Agreement. The above applies to the Work as incorporated in a Collective Work, but this does not require the Collective Work apart from the Work itself to be made subject to the terms of this License. If You create a Collective Work, upon notice from any Licensor You must, to the extent practicable, remove from the Collective Work any credit as required by clause 4(b), as requested. If You create a Derivative Work, upon notice from any Licensor You must, to the extent practicable, remove from the Derivative Work any credit as required by clause 4(b), as requested.

If you distribute, publicly display, publicly perform, or publicly digitally perform the Work or any Derivative Works or Collective Works, You must keep intact all copyright notices for the Work and provide, reasonable to the medium or means You are utilizing: (i) the name of the Original Author (or pseudonym, if applicable) if supplied, and/or (ii) if the Original Author and/or Licensor designate another party or parties (e.g. a sponsor institute, publishing entity, journal) for attribution in Licensor's copyright notice, terms of service or by other reasonable means, the name of such party or parties; the title of the Work if supplied; to the extent reasonably practicable, the Uniform Resource Identifier, if any, that Licensor specifies to be associated with the Work, unless such URI does not refer to the copyright notice or licensing information for the Work; and in the case of a Derivative Work, a credit identifying the use of the Work in the Derivative Work (e.g., "French translation of the Work by Original Author," or "Screenplay based on original Work by Original Author"). Such credit may be implemented in any reasonable manner; provided, however, that in the case of a Derivative Work or Collective Work, at a minimum such credit will appear where any other comparable authorship credit appears and in a manner at least as prominent as such other comparable authorship credit.

5. Representations, Warranties and Disclaimer

UNLESS OTHERWISE MUTUALLY AGREED TO BY THE PARTIES IN WRITING, LICENSOR OFFERS THE WORK AS-IS AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE WORK, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, OR THE ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OF ABSENCE OF ERRORS, WHETHER OR NOT DISCOVERABLE. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES, SO SUCH EXCLUSION MAY NOT APPLY TO YOU.

6. Limitation on Liability. EXCEPT TO THE EXTENT REQUIRED BY APPLICABLE LAW, IN NO EVENT WILL LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES ARISING OUT OF THIS LICENSE OR THE

USE OF THE WORK, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

## 7. Termination

This License and the rights granted hereunder will terminate automatically upon any breach by You of the terms of this License. Individuals or entities who have received Derivative Works or Collective Works from You under this License, however, will not have their licenses terminated provided such individuals or entities remain in full compliance with those licenses. Sections 1, 2, 5, 6, 7, and 8 will survive any termination of this License.

Subject to the above terms and conditions, the license granted here is perpetual (for the duration of the applicable copyright in the Work). Notwithstanding the above, Licensor reserves the right to release the Work under different license terms or to stop distributing the Work at any time; provided, however that any such election will not serve to withdraw this License (or any other license that has been, or is required to be, granted under the terms of this License), and this License will continue in full force and effect unless terminated as stated above.

## 8. Miscellaneous

Each time You distribute or publicly digitally perform the Work or a Collective Work, the Licensor offers to the recipient a license to the Work on the same terms and conditions as the license granted to You under this License.

Each time You distribute or publicly digitally perform a Derivative Work, Licensor offers to the recipient a license to the original Work on the same terms and conditions as the license granted to You under this License.

If any provision of this License is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this License, and without further action by the parties to this agreement, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

No term or provision of this License shall be deemed waived and no breach consented to unless such waiver or consent shall be in writing and signed by the party to be charged with such waiver or consent.

This License constitutes the entire agreement between the parties with respect to the Work licensed here. There are no understandings, agreements or representations with respect to the Work not specified here. Licensor shall not be bound by any additional provisions that may appear in any communication from You. This License may not be modified without the mutual written agreement of the Licensor and You.

Apache HttpComponents Core

Copyright 2005-2014 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

This project contains annotations derived from JCIP-ANNOTATIONS  
Copyright (c) 2005 Brian Goetz and Tim Peierls. See <http://www.jcip.net>  
Apache HttpComponents Client  
Copyright 1999-2015 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>



## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of

the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
  - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
  - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
  - (c) You must retain, in the Source form of any Derivative Works

that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A

PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache License

Version 2.0, January 2004

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

1. You must give any other recipients of the Work or Derivative Works a copy of this License; and
2. You must cause any modified files to carry prominent notices stating that You changed the files; and
3. You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
4. If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

#### END OF TERMS AND CONDITIONS

Note: Other license terms may apply to certain, identified software files contained within or distributed with the accompanying software if such terms are included in the directory containing the accompanying software. Such other license terms will then apply in lieu of the terms of the software license above.

JSON processing code subject to the JSON License from JSON.org:

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

The Software shall be used for Good, not Evil.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN

AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

AWS SDK for Java

Copyright 2010-2014 Amazon.com, Inc. or its affiliates. All Rights Reserved.

This product includes software developed by Amazon Technologies, Inc (<http://www.amazon.com/>).

\*\*\*\*\*

THIRD PARTY COMPONENTS

\*\*\*\*\*

This software includes third party software subject to the following copyrights:

- XML parsing and utility functions from JetS3t - Copyright 2006-2009 James Murty.
- JSON parsing and utility functions from JSON.org - Copyright 2002 JSON.org.
- PKCS#1 PEM encoded private key parsing and utility functions from oauth.googlecode.com - Copyright 1998-2010 AOL Inc.

The licenses for these third party components are included in LICENSE.txt

Copyright (c) 2004-2014 QOS.ch

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

=====  
== NOTICE file for use with the Apache License, Version 2.0, ==  
=====

Apache JAMES Mime4j  
Copyright 2004-2010 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).



This product test suite includes data (mimetools-testmsgs folder) developed by Eryq and ZeeGee Software Inc as part of the "MIME-tools" Perl5 toolkit and licensed under the Artistic License

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain

separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the

origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software  
distributed under the License is distributed on an "AS IS" BASIS,  
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
See the License for the specific language governing permissions and  
limitations under the License.

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,  
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by  
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all  
other entities that control, are controlled by, or are under common  
control with that entity. For the purposes of this definition,  
"control" means (i) the power, direct or indirect, to cause the  
direction or management of such entity, whether by contract or  
otherwise, or (ii) ownership of fifty percent (50%) or more of the  
outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity  
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,  
including but not limited to software source code, documentation  
source, and configuration files.

"Object" form shall mean any form resulting from mechanical  
transformation or translation of a Source form, including but  
not limited to compiled object code, generated documentation,  
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a

cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise,

any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.



To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

#### APACHE POI SUBCOMPONENTS:

Apache POI includes subcomponents with separate copyright notices and license terms. Your use of these subcomponents is subject to the terms and conditions of the following licenses:

#### Office Open XML schemas (ooxml-schemas-1.1.jar)

The Office Open XML schema definitions used by Apache POI are a part of the Office Open XML ECMA Specification (ECMA-376, [1]). As defined in section 9.4 of the ECMA bylaws [2], this specification is available to all interested parties without restriction:

9.4 All documents when approved shall be made available to all interested parties without restriction.

Furthermore, both Microsoft and Adobe have granted patent licenses to this work [3,4,5].

[1] <http://www.ecma-international.org/publications/standards/Ecma-376.htm>

[2] <http://www.ecma-international.org/memento/Ecmabylaws.htm>

[3] <http://www.microsoft.com/openspecifications/en/us/programs/osp/default.aspx>

[4] <http://www.ecma-international.org/publications/files/ECMA-ST/Ecma%20PATENT/Patent%20statements%20ok/ECMA-376%20Edition%202%20Microsoft%20Patent%20Declaration.pdf>

[5] <http://www.ecma-international.org/publications/files/ECMA-ST/Ecma%20PATENT/Patent%20statements%20ok/ECMA-376%20Adobe%20Patent%20Declaration.pdf>

JUnit test library (junit-4.11.jar)

Common Public License - v 1.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS COMMON PUBLIC LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

## 1. DEFINITIONS

"Contribution" means:

a) in the case of the initial Contributor, the initial code and documentation distributed under this Agreement, and

b) in the case of each subsequent Contributor:

i) changes to the Program, and

ii) additions to the Program;

where such changes and/or additions to the Program originate from and are distributed by that particular Contributor. A Contribution 'originates' from a Contributor if it was added to the Program by such Contributor itself or anyone acting on such Contributor's behalf. Contributions do not include additions to the Program which: (i) are separate modules of software distributed in conjunction with the Program under their own license agreement, and (ii) are not derivative works of the Program.

"Contributor" means any person or entity that distributes the Program.

"Licensed Patents " mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

"Program" means the Contributions distributed in accordance with this Agreement.

"Recipient" means anyone who receives the Program under this Agreement, including all Contributors.

## 2. GRANT OF RIGHTS

- a) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free copyright license to reproduce, prepare derivative works of, publicly display, publicly perform, distribute and sublicense the Contribution of such Contributor, if any, and such derivative works, in source code and object code form.
- b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor, if any, in source code and object code form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution. No hardware per se is licensed hereunder.
- c) Recipient understands that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.
- d) Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant the copyright license set forth in this Agreement.

## 3. REQUIREMENTS

A Contributor may choose to distribute the Program in object code form under its own license agreement, provided that:

- a) it complies with the terms and conditions of this Agreement; and
- b) its license agreement:

- i) effectively disclaims on behalf of all Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness for a particular purpose;
- ii) effectively excludes on behalf of all Contributors all liability for damages, including direct, indirect, special, incidental and consequential damages, such as lost profits;
- iii) states that any provisions which differ from this Agreement are offered by that Contributor alone and not by any other party; and
- iv) states that source code for the Program is available from such Contributor, and informs licensees how to obtain it in a reasonable manner on or through a medium customarily used for software exchange.

When the Program is made available in source code form:

- a) it must be made available under this Agreement; and
- b) a copy of this Agreement must be included with each copy of the Program.

Contributors may not remove or alter any copyright notices contained within the Program.

Each Contributor must identify itself as the originator of its Contribution, if any, in a manner that reasonably allows subsequent Recipients to identify the originator of the Contribution.

#### 4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with respect to end users, business partners and the like. While this license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the

Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense.

For example, a Contributor might include the Program in a commercial product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

#### 5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

#### 6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### 7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of

the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

If Recipient institutes patent litigation against a Contributor with respect to a patent applicable to software (including a cross-claim or counterclaim in a lawsuit), then any patent licenses granted by that Contributor to such Recipient under this Agreement shall terminate as of the date such litigation is filed. In addition, if Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed.

All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive.

Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid inconsistency the Agreement is copyrighted and may only be modified in the following manner. The Agreement Steward reserves the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the Agreement Steward has the right to modify this Agreement. IBM is the initial Agreement Steward. IBM may assign the responsibility to serve as the Agreement Steward to a suitable separate entity. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions) may always be distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to distribute the Program (including its Contributions) under the new version. Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel or otherwise. All rights in the Program not expressly granted under this Agreement are reserved.

This Agreement is governed by the laws of the State of New York and the intellectual property laws of the United States of America. No party to this Agreement will bring a legal action under this Agreement more than one year after the cause of action arose. Each party waives its rights to a jury trial in any resulting litigation.

Apache PDFBox  
Copyright 2014 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

Based on source code originally developed in the PDFBox and  
FontBox projects.

Copyright (c) 2002-2007, [www.pdfbox.org](http://www.pdfbox.org)

Based on source code originally developed in the PaDaF project.  
Copyright (c) 2010 Atos Worldline SAS

Includes the Adobe Glyph List  
Copyright 1997, 1998, 2002, 2007, 2010 Adobe Systems Incorporated.

Includes the Zapf Dingbats Glyph List  
Copyright 2002, 2010 Adobe Systems Incorporated.

Includes OSXAdapter  
Copyright (C) 2003-2007 Apple, Inc., All Rights Reserved  
Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,  
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by  
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all  
other entities that control, are controlled by, or are under common  
control with that entity. For the purposes of this definition,  
"control" means (i) the power, direct or indirect, to cause the  
direction or management of such entity, whether by contract or  
otherwise, or (ii) ownership of fifty percent (50%) or more of the  
outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity  
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,

including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,



worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf

of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

THIS PRODUCT ALSO INCLUDES THIRD PARTY SOFTWARE REDISTRIBUTED UNDER THE FOLLOWING LICENSES:

Apache Commons Logging,

The Apache Software License, Version 1.1 (commons-logging-1.1.1.jar)

The Apache Software License, Version 1.1

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The end-user documentation included with the redistribution, if any, must include the following acknowledgment:  
"This product includes software developed by the Apache Software Foundation (<http://www.apache.org/>)."  
Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear.
4. The names "Apache" and "Apache Software Foundation" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact [apache@apache.org](mailto:apache@apache.org).
5. Products derived from this software may not be called "Apache", nor may "Apache" appear in their name, without prior written permission of the Apache Software Foundation.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES

OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE APACHE SOFTWARE FOUNDATION OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Test messages from the Perl-MIME-Tools project,

The "Artistic License"

Preamble

The intent of this document is to state the conditions under which a Package may be copied, such that the Copyright Holder maintains some semblance of artistic control over the development of the package, while giving the users of the package the right to use and distribute the Package in a more-or-less customary fashion, plus the right to make reasonable modifications.

Definitions:

"Package" refers to the collection of files distributed by the Copyright Holder, and derivatives of that collection of files created through textual modification.

"Standard Version" refers to such a Package if it has not been modified, or has been modified in accordance with the wishes of the Copyright Holder as specified below.

"Copyright Holder" is whoever is named in the copyright or copyrights for the package.

"You" is you, if you're thinking about copying or distributing this Package.

"Reasonable copying fee" is whatever you can justify on the basis of media cost, duplication charges, time of people involved, and so on. (You will not be required to justify it to the Copyright Holder, but only to the computing community at large as a market that must bear the fee.)

"Freely Available" means that no fee is charged for the item

itself, though there may be fees involved in handling the item.

It also means that recipients of the item may redistribute it under the same conditions they received it.

1. You may make and give away verbatim copies of the source form of the Standard Version of this Package without restriction, provided that you duplicate all of the original copyright notices and associated disclaimers.
2. You may apply bug fixes, portability fixes and other modifications derived from the Public Domain or from the Copyright Holder. A Package modified in such a way shall still be considered the Standard Version.
3. You may otherwise modify your copy of this Package in any way, provided that you insert a prominent notice in each changed file stating how and when you changed that file, and provided that you do at least ONE of the following:
  - a) place your modifications in the Public Domain or otherwise make them Freely Available, such as by posting said modifications to Usenet or an equivalent medium, or placing the modifications on a major archive site such as uunet.uu.net, or by allowing the Copyright Holder to include your modifications in the Standard Version of the Package.
  - b) use the modified Package only within your corporation or organization.
  - c) rename any non-standard executables so the names do not conflict with standard executables, which must also be provided, and provide a separate manual page for each non-standard executable that clearly documents how it differs from the Standard Version.
  - d) make other distribution arrangements with the Copyright Holder.
4. You may distribute the programs of this Package in object code or executable form, provided that you do at least ONE of the following:
  - a) distribute a Standard Version of the executables and library files, together with instructions (in the manual page or equivalent) on where to get the Standard Version.
  - b) accompany the distribution with the machine-readable source of the Package with your modifications.
  - c) give non-standard executables non-standard names, and clearly document the differences in manual pages (or equivalent), together with instructions on where to get the Standard Version.
  - d) make other distribution arrangements with the Copyright Holder.

5. You may charge a reasonable copying fee for any distribution of this Package. You may charge any fee you choose for support of this Package. You may not charge a fee for this Package itself. However, you may distribute this Package in aggregate with other (possibly commercial) programs as part of a larger (possibly commercial) software distribution provided that you do not advertise this Package as a product of your own. You may embed this Package's interpreter within an executable of yours (by linking); this shall be construed as a mere form of aggregation, provided that the complete Standard Version of the interpreter is so embedded.

6. The scripts and library files supplied as input to or produced as output from the programs of this Package do not automatically fall under the copyright of this Package, but belong to whoever generated them, and may be sold commercially, and may be aggregated with this Package. If such scripts or library files are aggregated with this Package via the so-called "undump" or "unexec" methods of producing a binary executable image, then distribution of such an image shall neither be construed as a distribution of this Package nor shall it fall under the restrictions of Paragraphs 3 and 4, provided that you do not represent such an executable image as a Standard Version of this Package.

7. C subroutines (or comparably compiled subroutines in other languages) supplied by you and linked into this Package in order to emulate subroutines and variables of the language defined by this Package shall not be considered part of this Package, but are the equivalent of input as in Paragraph 6, provided these subroutines do not change the language in any way that would cause it to fail the regression tests for the language.

8. Aggregation of this Package with a commercial distribution is always permitted provided that the use of this Package is embedded; that is, when no overt attempt is made to make this Package's interfaces visible to the end user of the commercial distribution. Such use shall not be construed as a distribution of this Package.

9. The name of the Copyright Holder may not be used to endorse or promote products derived from this software without specific prior written permission.

10. THIS PACKAGE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The End

Licensing of XZ for Java

=====

All the files in this package have been written by Lasse Collin and/or Igor Pavlov. All these files have been put into the public domain. You can do whatever you want with these files.

This software is provided "as is", without any warranty.  
Apache Tika  
Copyright 2015 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

Copyright 1993-2010 University Corporation for Atmospheric Research/Unidata  
This software contains code derived from UCAR/Unidata's NetCDF library.

Tika-server component uses CDDL-licensed dependencies: jersey (<http://jersey.java.net/>) and Grizzly (<http://grizzly.java.net/>)

Tika-parsers component uses CDDL/LGPL dual-licensed dependency: jhighlight (<https://github.com/codelibs/jhighlight>)

OpenCSV: Copyright 2005 Bytecode Pty Ltd. Licensed under the Apache License, Version 2.0

IPTC Photo Metadata descriptions Copyright 2010 International Press Telecommunications Council.  
Apache Commons Collections  
Copyright 2001-2015 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

```
=====
== NOTICE file corresponding to section 4(d) of the Apache License, ==
== Version 2.0, in this case for the Apache XmlBeans distribution. ==
=====
```

This product includes software developed by  
The Apache Software Foundation (<http://www.apache.org/>).

Portions of this software were originally based on the following:  
- software copyright (c) 2000-2003, BEA Systems, <<http://www.bea.com/>>.

Aside from contributions to the Apache XMLBeans project, this software also includes:

- one or more source files from the Apache Xerces-J and Apache Axis products, Copyright (c) 1999-2003 Apache Software Foundation
- W3C XML Schema documents Copyright 2001-2003 (c) World Wide Web Consortium (Massachusetts Institute of Technology, European Research

Consortium for Informatics and Mathematics, Keio University)

- resolver.jar from Apache Xml Commons project,  
Copyright (c) 2001-2003 Apache Software Foundation
- Piccolo XML Parser for Java from <http://piccolo.sourceforge.net/>,  
Copyright 2002 Yuval Oren under the terms of the Apache Software License 2.0
- JSR-173 Streaming API for XML from <http://sourceforge.net/projects/xmlpullparser/>,  
Copyright 2005 BEA under the terms of the Apache Software License 2.0  
The MIT License (MIT)

Copyright (c) 2000 - 2013 The Legion of the Bouncy Castle Inc.  
(<http://www.bouncycastle.org>)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

MOZILLA PUBLIC LICENSE  
Version 1.1

-----

## 1. Definitions.

1.0.1. "Commercial Use" means distribution or otherwise making the Covered Code available to a third party.

1.1. "Contributor" means each entity that creates or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original Code, prior Modifications used by a Contributor, and the Modifications made by that particular Contributor.



1.3. "Covered Code" means the Original Code or Modifications or the combination of the Original Code and Modifications, in each case including portions thereof.

1.4. "Electronic Distribution Mechanism" means a mechanism generally accepted in the software development community for the electronic transfer of data.

1.5. "Executable" means Covered Code in any form other than Source Code.

1.6. "Initial Developer" means the individual or entity identified as the Initial Developer in the Source Code notice required by Exhibit A.

1.7. "Larger Work" means a work which combines Covered Code or portions thereof with code not governed by the terms of this License.

1.8. "License" means this document.

1.8.1. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. When Covered Code is released as a series of files, a Modification is:

A. Any addition to or deletion from the contents of a file containing Original Code or previous Modifications.

B. Any new file that contains any part of the Original Code or previous Modifications.

1.10. "Original Code" means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code, and which, at the time of its release under this License is not already Covered Code governed by this License.

1.10.1. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.11. "Source Code" means the preferred form of the Covered Code for making modifications to it, including all modules it contains, plus any associated interface definition files, scripts used to control compilation and installation of an Executable, or source code

differential comparisons against either the Original Code or another well known, available Covered Code of the Contributor's choice. The Source Code can be in a compressed or archival form, provided the appropriate decompression or de-archiving software is widely available for no charge.

1.12. "You" (or "Your") means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License or a future version of this License issued under Section 6.1. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

## 2. Source Code License.

### 2.1. The Initial Developer Grant.

The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property claims:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer to use, reproduce, modify, display, perform, sublicense and distribute the Original Code (or portions thereof) with or without Modifications, and/or as part of a Larger Work; and

(b) under Patents Claims infringed by the making, using or selling of Original Code, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Code (or portions thereof).

(c) the licenses granted in this Section 2.1(a) and (b) are effective on the date Initial Developer first distributes Original Code under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: 1) for code that You delete from the Original Code; 2) separate from the Original Code; or 3) for infringements caused by: i) the modification of the Original Code or ii) the combination of the Original Code with other software or devices.

### 2.2. Contributor Grant.

Subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor, to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof) either on an unmodified basis, with other Modifications, as Covered Code and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: 1) Modifications made by that Contributor (or portions thereof); and 2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) the licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first makes Commercial Use of the Covered Code.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: 1) for any code that Contributor has deleted from the Contributor Version; 2) separate from the Contributor Version; 3) for infringements caused by: i) third party modifications of Contributor Version or ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or 4) under Patent Claims infringed by Covered Code in the absence of Modifications made by that Contributor.

### 3. Distribution Obligations.

#### 3.1. Application of License.

The Modifications which You create or to which You contribute are governed by the terms of this License, including without limitation Section 2.2. The Source Code version of Covered Code may be distributed only under the terms of this License or a future version of this License released under Section 6.1, and You must include a copy of this License with every copy of the Source Code You distribute. You may not offer or impose any terms on any Source Code version that alters or restricts the applicable version of this License or the recipients' rights hereunder. However, You may include an additional document offering the additional rights described in Section 3.5.

#### 3.2. Availability of Source Code.

Any Modification which You create or to which You contribute must be made available in Source Code form under the terms of this License

either on the same media as an Executable version or via an accepted Electronic Distribution Mechanism to anyone to whom you made an Executable version available; and if made available via Electronic Distribution Mechanism, must remain available for at least twelve (12) months after the date it initially became available, or at least six (6) months after a subsequent version of that particular Modification has been made available to such recipients. You are responsible for ensuring that the Source Code version remains available even if the Electronic Distribution Mechanism is maintained by a third party.

### 3.3. Description of Modifications.

You must cause all Covered Code to which You contribute to contain a file documenting the changes You made to create that Covered Code and the date of any change. You must include a prominent statement that the Modification is derived, directly or indirectly, from Original Code provided by the Initial Developer and including the name of the Initial Developer in (a) the Source Code, and (b) in any notice in an Executable version or related documentation in which You describe the origin or ownership of the Covered Code.

### 3.4. Intellectual Property Matters

#### (a) Third Party Claims.

If Contributor has knowledge that a license under a third party's intellectual property rights is required to exercise the rights granted by such Contributor under Sections 2.1 or 2.2, Contributor must include a text file with the Source Code distribution titled "LEGAL" which describes the claim and the party making the claim in sufficient detail that a recipient will know whom to contact. If Contributor obtains such knowledge after the Modification is made available as described in Section 3.2, Contributor shall promptly modify the LEGAL file in all copies Contributor makes available thereafter and shall take other steps (such as notifying appropriate mailing lists or newsgroups) reasonably calculated to inform those who received the Covered Code that new knowledge has been obtained.

#### (b) Contributor APIs.

If Contributor's Modifications include an application programming interface and Contributor has knowledge of patent licenses which are reasonably necessary to implement that API, Contributor must also include this information in the LEGAL file.

#### (c) Representations.

Contributor represents that, except as disclosed pursuant to Section 3.4(a) above, Contributor believes that Contributor's Modifications are Contributor's original creation(s) and/or Contributor has sufficient rights to grant the rights conveyed by this License.

### 3.5. Required Notices.

You must duplicate the notice in Exhibit A in each file of the Source Code. If it is not possible to put such notice in a particular Source Code file due to its structure, then You must include such notice in a location (such as a relevant directory) where a user would be likely to look for such a notice. If You created one or more Modification(s) You may add your name as a Contributor to the notice described in Exhibit A. You must also duplicate this License in any documentation for the Source Code where You describe recipients' rights or ownership rights relating to Covered Code. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Code. However, You may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear than any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

### 3.6. Distribution of Executable Versions.

You may distribute Covered Code in Executable form only if the requirements of Section 3.1-3.5 have been met for that Covered Code, and if You include a notice stating that the Source Code version of the Covered Code is available under the terms of this License, including a description of how and where You have fulfilled the obligations of Section 3.2. The notice must be conspicuously included in any notice in an Executable version, related documentation or collateral in which You describe recipients' rights relating to the Covered Code. You may distribute the Executable version of Covered Code or ownership rights under a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable version does not attempt to limit or alter the recipient's rights in the Source Code version from the rights set forth in this License. If You distribute the Executable version under a different license You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or any Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

### 3.7. Larger Works.

You may create a Larger Work by combining Covered Code with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the

requirements of this License are fulfilled for the Covered Code.

#### 4. Inability to Comply Due to Statute or Regulation.

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Code due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be included in the LEGAL file described in Section 3.4 and must be included with all distributions of the Source Code. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

#### 5. Application of this License.

This License applies to code to which the Initial Developer has attached the notice in Exhibit A and to related Covered Code.

#### 6. Versions of the License.

##### 6.1. New Versions.

Netscape Communications Corporation ("Netscape") may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.

##### 6.2. Effect of New Versions.

Once Covered Code has been published under a particular version of the License, You may always continue to use it under the terms of that version. You may also choose to use such Covered Code under the terms of any subsequent version of the License published by Netscape. No one other than Netscape has the right to modify the terms applicable to Covered Code created under this License.

##### 6.3. Derivative Works.

If You create or use a modified version of this License (which you may only do in order to apply it to code which is not already Covered Code governed by this License), You must (a) rename Your license so that the phrases "Mozilla", "MOZILLAPL", "MOZPL", "Netscape", "MPL", "NPL" or any confusingly similar phrase do not appear in your license (except to note that your license differs from this License) and (b) otherwise make it clear that Your version of the license contains terms which differ from the Mozilla Public License and Netscape Public License. (Filling in the name of the Initial Developer, Original Code or Contributor in the notice described in Exhibit A shall not of themselves be deemed to be modifications of this License.)

## 7. DISCLAIMER OF WARRANTY.

COVERED CODE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED CODE IS FREE OF DEFECTS, MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED CODE IS WITH YOU. SHOULD ANY COVERED CODE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED CODE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

## 8. TERMINATION.

8.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. All sublicenses to the Covered Code which are properly granted shall survive any termination of this License. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

8.2. If You initiate litigation by asserting a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You file such action is referred to as "Participant") alleging that:

(a) such Participant's Contributor Version directly or indirectly infringes any patent, then any and all rights granted by such Participant to You under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively, unless if within 60 days after receipt of notice You either: (i) agree in writing to pay Participant a mutually agreeable reasonable royalty for Your past and future use of Modifications made by such Participant, or (ii) withdraw Your litigation claim with respect to the Contributor Version against such Participant. If within 60 days of notice, a reasonable royalty and payment arrangement are not mutually agreed upon in writing by the parties or the litigation claim is not withdrawn, the rights granted by Participant to You under Sections 2.1 and/or 2.2 automatically terminate at the expiration of the 60 day notice period specified above.

(b) any software, hardware, or device, other than such Participant's Contributor Version, directly or indirectly infringes any patent, then any rights granted to You by such Participant under Sections 2.1(b) and 2.2(b) are revoked effective as of the date You first made, used,

sold, distributed, or had made, Modifications made by that Participant.

8.3. If You assert a patent infringement claim against Participant alleging that such Participant's Contributor Version directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license.

8.4. In the event of termination under Sections 8.1 or 8.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or any distributor hereunder prior to termination shall survive termination.

## 9. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED CODE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

## 10. U.S. GOVERNMENT END USERS.

The Covered Code is a "commercial item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of "commercial computer software" and "commercial computer software documentation," as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Code with only those rights set forth herein.

## 11. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be



unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by California law provisions (except to the extent applicable law, if any, provides otherwise), excluding its conflict-of-law provisions. With respect to disputes in which at least one party is a citizen of, or an entity chartered or registered to do business in the United States of America, any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California, with venue lying in Santa Clara County, California, with the losing party responsible for costs, including without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License.

## 12. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

## 13. MULTIPLE-LICENSED CODE.

Initial Developer may designate portions of the Covered Code as "Multiple-Licensed". "Multiple-Licensed" means that the Initial Developer permits you to utilize portions of the Covered Code under Your choice of the NPL or the alternative licenses, if any, specified by the Initial Developer in the file described in Exhibit A.

### EXHIBIT A -Mozilla Public License.

``The contents of this file are subject to the Mozilla Public License Version 1.1 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at <http://www.mozilla.org/MPL/>

Software distributed under the License is distributed on an "AS IS" basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governing rights and limitations under the License.

The Original Code is \_\_\_\_\_.

The Initial Developer of the Original Code is \_\_\_\_\_.

Portions created by \_\_\_\_\_ are Copyright (C) \_\_\_\_\_  
\_\_\_\_\_. All Rights Reserved.

Contributor(s): \_\_\_\_\_.

Alternatively, the contents of this file may be used under the terms of the \_\_\_\_\_ license (the "[\_\_\_\_\_] License"), in which case the provisions of [\_\_\_\_\_] License are applicable instead of those above. If you wish to allow use of your version of this file only under the terms of the [\_\_\_\_\_] License and not to allow others to use your version of this file under the MPL, indicate your decision by deleting the provisions above and replace them with the notice and other provisions required by the [\_\_\_\_\_] License. If you do not delete the provisions above, a recipient may use your version of this file under either the MPL or the [\_\_\_\_\_] License."

[NOTE: The text of this Exhibit A may differ slightly from the text of the notices in the Source Code files of the Original Code. You should use the text of this Exhibit A rather than the text found in the Original Code Source Code for Your Modifications.]

Copyright (c) 2006-2007, www.jempbox.org

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of fontbox; nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache Commons Compress

Copyright 2002-2015 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

The files in the package `org.apache.commons.compress.archivers.sevenz`  
were derived from the LZMA SDK, version 9.20 (C/ and CPP/7zip/),  
which has been placed in the public domain:

"LZMA SDK is placed in the public domain." (<http://www.7-zip.org/sdk.html>)

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,  
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by  
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all  
other entities that control, are controlled by, or are under common  
control with that entity. For the purposes of this definition,  
"control" means (i) the power, direct or indirect, to cause the  
direction or management of such entity, whether by contract or  
otherwise, or (ii) ownership of fifty percent (50%) or more of the  
outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity  
exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications,  
including but not limited to software source code, documentation  
source, and configuration files.

"Object" form shall mean any form resulting from mechanical  
transformation or translation of a Source form, including but  
not limited to compiled object code, generated documentation,  
and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or  
Object form, made available under the License, as indicated by a  
copyright notice that is included in or attached to the work  
(an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate

as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify

the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include

the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

#### APACHE TIKA SUBCOMPONENTS

Apache Tika includes a number of subcomponents with separate copyright notices and license terms. Your use of these subcomponents is subject to the terms and conditions of the following licenses.

MIME type information from file-4.26.tar.gz (<http://www.darwinsys.com/file/>)

Copyright (c) Ian F. Darwin 1986, 1987, 1989, 1990, 1991, 1992, 1994, 1995.  
Software written by Ian F. Darwin and others;  
maintained 1994- Christos Zoulas.

This software is not subject to any export provision of the United States Department of Commerce, and may be exported to any country or planet.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice immediately at the beginning of the file, without modification, this list of conditions, and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND

ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Charset detection code from ICU4J (<http://site.icu-project.org/>)

Copyright (c) 1995-2009 International Business Machines Corporation and others

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

Parsing functionality provided by the NetCDF Java Library (<http://www.unidata.ucar.edu/software/netcdf-java/>)

Copyright 1993-2010 University Corporation for Atmospheric Research/Unidata



Portions of this software were developed by the Unidata Program at the University Corporation for Atmospheric Research.

Access and use of this software shall impose the following obligations and understandings on the user. The user is granted the right, without any fee or cost, to use, copy, modify, alter, enhance and distribute this software, and any derivative works thereof, and its supporting documentation for any purpose whatsoever, provided that this entire notice appears in all copies of the software, derivative works and supporting documentation. Further, UCAR requests that the user credit UCAR/Unidata in any publications that result from the use of this software or in any product that includes this software, although this is not an obligation. The names UCAR and/or Unidata, however, may not be used in any advertising or publicity to endorse or promote any products or commercial entity unless specific written permission is obtained from UCAR/Unidata. The user also understands that UCAR/Unidata is not obligated to provide the user with any support, consulting, training or assistance of any kind with regard to the use, operation and performance of this software nor to provide the user with any updates, revisions, new versions or "bug fixes."

THIS SOFTWARE IS PROVIDED BY UCAR/UNIDATA "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL UCAR/UNIDATA BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE ACCESS, USE OR PERFORMANCE OF THIS SOFTWARE.

IPTC Photo Metadata descriptions are taken from the IPTC Photo Metadata Standard, July 2010, Copyright 2010 International Press Telecommunications Council.

1. The Specifications and Materials are licensed for use only on the condition that you agree to be bound by the terms of this license. Subject to this and other licensing requirements contained herein, you may, on a non-exclusive basis, use the Specifications and Materials.
2. The IPTC openly provides the Specifications and Materials for voluntary use by individuals, partnerships, companies, corporations, organizations and any other entity for use at the entity's own risk. This disclaimer, license and release is intended to apply to the IPTC, its officers, directors, agents, representatives, members, contributors, affiliates, contractors, or co-venturers acting jointly or severally.
3. The Document and translations thereof may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the copyright and license notices and references to the IPTC appearing in the Document and the terms of this Specifications License Agreement are included on all such copies and derivative works. Further, upon the receipt of written permission from the IPTC, the Document may be modified for the purpose of developing applications that use IPTC Specifications or as required to translate the Document into languages other than English.

4. Any use, duplication, distribution, or exploitation of the Document and Specifications and Materials in any manner is at your own risk.
5. NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE REGARDING THE ACCURACY, ADEQUACY, COMPLETENESS, LEGALITY, RELIABILITY OR USEFULNESS OF ANY INFORMATION CONTAINED IN THE DOCUMENT OR IN ANY SPECIFICATION OR OTHER PRODUCT OR SERVICE PRODUCED OR SPONSORED BY THE IPTC. THE DOCUMENT AND THE INFORMATION CONTAINED HEREIN AND INCLUDED IN ANY SPECIFICATION OR OTHER PRODUCT OR SERVICE OF THE IPTC IS PROVIDED ON AN "AS IS" BASIS. THE IPTC DISCLAIMS ALL WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY ACTUAL OR ASSERTED WARRANTY OF NON-INFRINGEMENT OF PROPRIETARY RIGHTS, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER THE IPTC NOR ITS CONTRIBUTORS SHALL BE HELD LIABLE FOR ANY IMPROPER OR INCORRECT USE OF INFORMATION. NEITHER THE IPTC NOR ITS CONTRIBUTORS ASSUME ANY RESPONSIBILITY FOR ANYONE'S USE OF INFORMATION PROVIDED BY THE IPTC. IN NO EVENT SHALL THE IPTC OR ITS CONTRIBUTORS BE LIABLE TO ANYONE FOR DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO, COMPENSATORY DAMAGES, LOST PROFITS, LOST DATA OR ANY FORM OF SPECIAL, INCIDENTAL, INDIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES OF ANY KIND WHETHER BASED ON BREACH OF CONTRACT OR WARRANTY, TORT, PRODUCT LIABILITY OR OTHERWISE.
6. The IPTC takes no position regarding the validity or scope of any Intellectual Property or other rights that might be claimed to pertain to the implementation or use of the technology described in the Document or the extent to which any license under such rights might or might not be available. The IPTC does not represent that it has made any effort to identify any such rights. Copies of claims of rights made available for publication, assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of the Specifications and Materials, can be obtained from the Managing Director of the IPTC.
7. By using the Specifications and Materials including the Document in any manner or for any purpose, you release the IPTC from all liabilities, claims, causes of action, allegations, losses, injuries, damages, or detriments of any nature arising from or relating to the use of the Specifications, Materials or any portion thereof. You further agree not to file a lawsuit, make a claim, or take any other formal or informal legal action against the IPTC, resulting from your acquisition, use, duplication, distribution, or exploitation of the Specifications, Materials or any portion thereof. Finally, you hereby agree that the IPTC is not liable for any direct, indirect, special or consequential damages arising from or relating to your acquisition, use, duplication, distribution, or exploitation of the Specifications, Materials or any portion thereof.
8. Specifications and Materials may be downloaded or copied provided that ALL copies retain the ownership, copyright and license notices.
9. Materials may not be edited, modified, or presented in a context that creates a misleading or false impression or statement as to the positions, actions, or statements of the IPTC.
10. The name and trademarks of the IPTC may not be used in advertising, publicity, or in relation to products or services and their names without the specific, written prior permission of the IPTC. Any permitted use of the trademarks of the IPTC, whether registered or not, shall be accompanied by an appropriate mark and attribution, as agreed with the IPTC.
11. Specifications may be extended by both members and non-members to provide additional functionality (Extension Specifications) provided that there is a clear recognition of the IPTC IP and its ownership in the Extension Specifications and the related documentation and provided that the extensions are clearly identified and provided that a perpetual license is granted by the creator of the Extension Specifications for other members and non-members to use the Extension Specifications and to continue extensions of the Extension Specifications. The IPTC does not waive any of its rights in the Specifications and Materials in this context. The Extension Specifications may be considered the intellectual property of their creator. The IPTC expressly disclaims any

responsibility for damage caused by an extension to the Specifications.

12. Specifications and Materials may be included in derivative work of both members and non-members provided that there is a clear recognition of the IPTC IP and its ownership in the derivative work and its related documentation. The IPTC does not waive any of its rights in the Specifications and Materials in this context. Derivative work in its entirety may be considered the intellectual property of the creator of the work .The IPTC expressly disclaims any responsibility for damage caused when its IP is used in a derivative context.

13. This Specifications License Agreement is perpetual subject to your conformance to the terms of this Agreement. The IPTC may terminate this Specifications License Agreement immediately upon your breach of this Agreement and, upon such termination you will cease all use, duplication, distribution, and/or exploitation in any manner of the Specifications and Materials.

14. This Specifications License Agreement reflects the entire agreement of the parties regarding the subject matter hereof and supersedes all prior agreements or representations regarding such matters, whether written or oral. To the extent any portion or provision of this Specifications License Agreement is found to be illegal or unenforceable, then the remaining provisions of this Specifications License Agreement will remain in full force and effect and the illegal or unenforceable provision will be construed to give it such effect as it may properly have that is consistent with the intentions of the parties.

15. This Specifications License Agreement may only be modified in writing signed by an authorized representative of the IPTC.

16. This Specifications License Agreement is governed by the law of United Kingdom, as such law is applied to contracts made and fully performed in the United Kingdom. Any disputes arising from or relating to this Specifications License Agreement will be resolved in the courts of the United Kingdom. You consent to the jurisdiction of such courts over you and covenant not to assert before such courts any objection to proceeding in such forums.

JUnRAR (<https://github.com/edmund-wagner/junrar/>)

JUnRAR is based on the UnRAR tool, and covered by the same license  
It was formerly available from <http://java-unrar.svn.sourceforge.net/>

```
*****  *****  *****  UnRAR - free utility for RAR archives
**  **  **  **  **  **  ~~~~~
*****  *****  *****  License for use and distribution of
**  **  **  **  **  **  ~~~~~
**  **  **  **  **  **  FREE portable version
~~~~~
```

The source code of UnRAR utility is freeware. This means:

1. All copyrights to RAR and the utility UnRAR are exclusively owned by the author - Alexander Roshal.
2. The UnRAR sources may be used in any software to handle RAR archives without limitations free of charge, but cannot be used to re-create the RAR compression algorithm, which is proprietary. Distribution of modified UnRAR sources in separate form or as a part of other software is permitted, provided that it is clearly stated in the documentation and source comments that the code may

not be used to develop a RAR (WinRAR) compatible archiver.

3. The UnRAR utility may be freely distributed. It is allowed to distribute UnRAR inside of other software packages.
4. THE RAR ARCHIVER AND THE UnRAR UTILITY ARE DISTRIBUTED "AS IS". NO WARRANTY OF ANY KIND IS EXPRESSED OR IMPLIED. YOU USE AT YOUR OWN RISK. THE AUTHOR WILL NOT BE LIABLE FOR DATA LOSS, DAMAGES, LOSS OF PROFITS OR ANY OTHER KIND OF LOSS WHILE USING OR MISUSING THIS SOFTWARE.
5. Installing and using the UnRAR utility signifies acceptance of these terms and conditions of the license.
6. If you don't agree with terms of the license you must remove UnRAR files from your storage devices and cease to use the utility.

Thank you for your interest in RAR and UnRAR. Alexander L. Roshal

Sqlite (bundled in org.xerial's sqlite-jdbc)

This product bundles Sqlite, which is in the Public Domain. For details see: <https://www.sqlite.org/copyright.html>

Apache POI

Copyright 2003-2015 The Apache Software Foundation

This product includes software developed by

The Apache Software Foundation (<http://www.apache.org/>).

This product contains parts that were originally based on software from BEA.

Copyright (c) 2000-2003, BEA Systems, <<http://www.bea.com/>>.

This product contains W3C XML Schema documents. Copyright 2001-2003 (c) World Wide Web Consortium (Massachusetts Institute of Technology, European Research Consortium for Informatics and Mathematics, Keio University)

This product contains the Piccolo XML Parser for Java

(<http://piccolo.sourceforge.net/>). Copyright 2002 Yuval Oren.

This product contains the chunks\_parse\_cmds.tbl file from the vsdump program.

Copyright (C) 2006-2007 Valek Filippov (frob@df.ru)

This product contains parts of the eID Applet project

(<http://eid-applet.googlecode.com>). Copyright (c) 2009-2014

FedICT (federal ICT department of Belgium), e-Contract.be BVBA (<https://www.e-contract.be>),

Bart Hanssens from FedICT

The MIT License (MIT)

Copyright (c) 2000 - 2013 The Legion of the Bouncy Castle Inc.  
(<http://www.bouncycastle.org>)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation

source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable

(except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and

may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify,



defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

## EXTERNAL COMPONENTS

Apache PDFBox includes a number of components with separate copyright notices and license terms. Your use of these components is subject to the terms and conditions of the following licenses.

Contributions made to the original PDFBox and FontBox projects:

Copyright (c) 2002-2007, [www.pdfbox.org](http://www.pdfbox.org)  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of pdfbox; nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Adobe Font Metrics (AFM) for PDF Core 14 Fonts

This file and the 14 PostScript(R) AFM files it accompanies may be used, copied, and distributed for any purpose and without charge, with or without modification, provided that all copyright notices are retained; that the AFM files are not distributed without this file; that all modifications to this file or any of the AFM files are prominently noted in the modified file(s); and that this paragraph is not modified. Adobe Systems has no responsibility or obligation to support the use of the AFM files.

CMaps for PDF Fonts (<http://opensource.adobe.com/wiki/display/cmap/Downloads>)

Copyright 1990-2009 Adobe Systems Incorporated.  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of Adobe Systems Incorporated nor the names of its contributors may be used to endorse or promote products derived from this

software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

PaDaF PDF/A preflight (<http://sourceforge.net/projects/padaf>)

Copyright 2010 Atos Worldline SAS

Licensed by Atos Worldline SAS under one or more contributor license agreements. See the NOTICE file distributed with this work for additional information regarding copyright ownership. Atos Worldline SAS licenses this file to You under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

OSXAdapter

Version: 2.0

Disclaimer: IMPORTANT: This Apple software is supplied to you by Apple Inc. ("Apple") in consideration of your agreement to the following terms, and your use, installation, modification or redistribution of this Apple software constitutes acceptance of these terms. If you do not agree with these terms, please do not use, install, modify or redistribute this Apple software.

In consideration of your agreement to abide by the following terms, and subject to these terms, Apple grants you a personal, non-exclusive license, under Apple's copyrights in this original Apple software (the "Apple Software"), to use, reproduce, modify and redistribute the Apple

Software, with or without modifications, in source and/or binary forms; provided that if you redistribute the Apple Software in its entirety and without modifications, you must retain this notice and the following text and disclaimers in all such redistributions of the Apple Software. Neither the name, trademarks, service marks or logos of Apple Inc. may be used to endorse or promote products derived from the Apple Software without specific prior written permission from Apple. Except as expressly stated in this notice, no other rights or licenses, express or implied, are granted by Apple herein, including but not limited to any patent rights that may be infringed by your derivative works or by other works in which the Apple Software may be incorporated.

The Apple Software is provided by Apple on an "AS IS" basis. APPLE MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REGARDING THE APPLE SOFTWARE OR ITS USE AND OPERATION ALONE OR IN COMBINATION WITH YOUR PRODUCTS.

IN NO EVENT SHALL APPLE BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) ARISING IN ANY WAY OUT OF THE USE, REPRODUCTION, MODIFICATION AND/OR DISTRIBUTION OF THE APPLE SOFTWARE, HOWEVER CAUSED AND WHETHER UNDER THEORY OF CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, EVEN IF APPLE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (C) 2003-2007 Apple, Inc., All Rights Reserved  
Apache Commons Logging  
Copyright 2003-2014 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).  
Apache Commons IO  
Copyright 2002-2014 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).  
This software is Copyright (c) 2013 by MaxMind, Inc.

This is free software, licensed under the Apache License, Version 2.0.  
This software is Copyright (c) 2014 by MaxMind, Inc.

This is free software, licensed under the Apache License, Version 2.0.  
Copyright (c) 2007-2009, JSR305 expert group  
All rights reserved.

<http://www.opensource.org/licenses/bsd-license.php>

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- \* Neither the name of the JSR305 expert group nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed

as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. **Limitation of Liability.** In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this



License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache Commons Lang  
Copyright 2001-2014 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

This product includes software from the Spring Framework,  
under the Apache License 2.0 (see: `StringUtils.containsWhitespace()`)  
Copyright (c) 2004-2014 QOS.ch  
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish,

distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Apache Commons Codec

Copyright 2002-2014 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

`src/test/org/apache/commons/codec/language/DoubleMetaphoneTest.java`  
contains test data from <http://aspell.net/test/orig/batch0.tab>.  
Copyright (C) 2002 Kevin Atkinson ([kevina@gnu.org](mailto:kevina@gnu.org))

=====

The content of package `org.apache.commons.codec.language.bm` has been translated from the original php source code available at <http://stevemorse.org/phoneticinfo.htm> with permission from the original authors.

Original source copyright:

Copyright (c) 2008 Alexander Beider & Stephen P. Morse.

Apache Commons Lang

Copyright 2001-2015 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

This product includes software from the Spring Framework,  
under the Apache License 2.0 (see: `StringUtils.containsWhitespace()`)

Copyright (c) <YEAR>, <OWNER>

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0 1.

Definitions.

- 1.1. Contributor means each individual or entity that creates or contributes to the creation of Modifications.
- 1.2. Contributor Version means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.
- 1.3. Covered Software means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.
- 1.4. Executable means the Covered Software in any form other than Source Code.
- 1.5. Initial Developer means the individual or entity that first makes Original Software available under this License.
- 1.6. Larger Work means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.
- 1.7. License means this document.
- 1.8. Licensable means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.
- 1.9. Modifications means the Source Code and Executable form of any of the following: A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications; B. Any new file that contains any part of the Original Software or previous Modification; or C. Any new file that is contributed or otherwise made available under the terms of this License.
- 1.10. Original Software means the Source Code and Executable form of computer software code that is originally released under this License.
- 1.11. Patent Claims means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. Source Code means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. You (or Your) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, You includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

## 2. License Grants.

2.1. The Initial Developer Grant. Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof);

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License;

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant. Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version,

or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

### 3. Distribution Obligations.

3.1. Availability of Source Code. Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications. The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices. You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms. You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions. You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipients rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works. You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

### 4. Versions of the License.

4.1. New Versions. Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as

provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions. You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions. When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY. COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN AS IS BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

## 6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as Participant) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY. UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE

INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTYS NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS. The Covered Software is a commercial item, as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of commercial computer software (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and commercial computer software documentation as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS. This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdictions conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS. As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

Apache HTrace (incubating) is Apache 2.0 Licensed. See below for licensing of dependencies that are NOT Apache Licensed.

Apache License  
Version 2.0, January 2004

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally



submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or

implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
  
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

### APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Units, a string formatting go library, is Copyright (c) 2014 Alec Thomas and MIT licensed: <https://github.com/alecthomas/units/blob/master/COPYING>

D3, a javascript library for manipulating data, used by htrace-hbase is Copyright 2010-2014, Michael Bostock and BSD licensed: <https://github.com/mbostock/d3/blob/master/LICENSE>

Bootstrap, an html, css, and javascript framework, is Copyright (c) 2011-2015 Twitter, Inc and MIT licensed: <https://github.com/twbs/bootstrap/blob/master/LICENSE>

underscore, a javascript library of functional programming helpers, is (c) 2009-2014 Jeremy Ashkenas, DocumentCloud and Investigative Reporters & Editors and an MIT license: <https://github.com/jashkenas/underscore/blob/master/LICENSE>

jquery, a javascript library, is Copyright jQuery Foundation and other contributors, <https://jquery.org/>. The software consists of voluntary contributions made by many individuals. For exact contribution history, see the revision history available at <https://github.com/jquery/jquery>  
It is MIT licensed:  
<https://github.com/jquery/jquery/blob/master/LICENSE.txt>

backbone, is a javascript library, that is Copyright (c) 2010-2014 Jeremy Ashkenas, DocumentCloud. It is MIT licensed: <https://github.com/jashkenas/backbone/blob/master/LICENSE>

moment.js is a front end time conversion project.  
It is (c) 2011-2014 Tim Wood, Iskren Chernev, Moment.js contributors and shared under the MIT license:  
<https://github.com/moment/moment/blob/develop/LICENSE>

CMP is an implementation of the MessagePack serialization format in C. It is licensed under the MIT license:  
<https://github.com/camgunz/cmp/blob/master/LICENSE>

go-codec is an implementation of several serialization and deserialization codecs in Go. It is licensed under the MIT license:  
<https://github.com/ugorji/go/blob/master/LICENSE>

This product includes software developed by The Apache Software Foundation (<http://www.apache.org/>).  
Apache Commons Collections  
Copyright 2001-2015 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).  
Apache HTrace  
Copyright 2015 The Apache Software Foundation

This product includes software developed at The Apache Software Foundation (<http://www.apache.org/>).

In addition, this product includes software dependencies. See the accompanying LICENSE.txt for a listing of dependencies that are NOT Apache licensed (with pointers to their licensing)

Apache HTrace includes an Apache Thrift connector to Zipkin. Zipkin is a distributed tracing system that is Apache 2.0 Licensed.  
Copyright 2012 Twitter, Inc.

Our Owl logo we took from <http://www.clker.com/clipart-13653.html>.  
It is public domain/free.  
Apache Commons Configuration  
Copyright 2001-2015 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or

otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual,

worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents

of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.



9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Copyright 2006 Envoi Solutions LLC

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)Version 1.1

#### 1. Definitions.

1.1. "Contributor" means each individual or entity that creates or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. "Covered Software" means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. "Executable" means the Covered Software in any form other than Source Code.

1.5. "Initial Developer" means the individual or entity that first makes Original Software available under this License.

1.6. "Larger Work" means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. "License" means this document.

1.8. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. "Original Software" means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. "Source Code" means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. "You" (or "Your") means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, "You" includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

## 2. License Grants.

### 2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

## 2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

## 3. Distribution Obligations.

### 3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

### 3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

### 3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial

Developer.

### 3.4. Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients' rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

### 3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipient's rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

### 3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

## 4. Versions of the License.

### 4.1. New Versions.

Oracle is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

### 4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

### 4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

## 5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

## 6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as "Participant") alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. If You assert a patent infringement claim against Participant alleging that the Participant Software directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license.

6.4. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

## 7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF

SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

#### 8. U.S. GOVERNMENT END USERS.

The Covered Software is a "commercial item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of "commercial computer software" (as that term is defined at 48 C.F.R. ? 252.227-7014(a)(1)) and "commercial computer software documentation" as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

#### 9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdiction's conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

#### 10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

-----  
NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)

The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara

County, California.

The GNU General Public License (GPL) Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc. 59 Temple Place, Suite 330, Boston, MA 02111-1307  
USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

## TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.



Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not

responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

**NO WARRANTY**

**11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM**

"AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name and a brief idea of what it does.

Copyright (C)

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author

Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'. This is free software, and

you are welcome to redistribute it under certain conditions; type ``show c'` for details.

The hypothetical commands ``show w'` and ``show c'` should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than ``show w'` and ``show c'`; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program ``Gnomovision'` (which makes passes at compilers) written by James Hacker.

signature of Ty Coon, 1 April 1989  
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

#### "CLASSPATH" EXCEPTION TO THE GPL VERSION 2

Certain source files distributed by Oracle are subject to the following clarification and special exception to the GPL Version 2, but only where Oracle has expressly included in the particular source file's header the words "Oracle designates this particular file as subject to the "Classpath" exception as provided by Oracle in the License file that accompanied this code."

Linking this library statically or dynamically with other modules is making a combined work based on this library. Thus, the terms and conditions of the GNU General Public License Version 2 cover the whole combination.

As a special exception, the copyright holders of this library give you permission to link this library with independent modules to produce an executable, regardless of the license terms of these independent modules, and to copy and distribute the resulting executable under terms of your choice, provided that you also meet, for each linked independent module, the terms and conditions of the license of that module. An independent module is a module which is not derived from or based on this library. If you modify this library, you may extend this exception to your version of the library, but you are not obligated to do so. If you do not wish to do so, delete this exception statement from your version.

ICU4J, (under lucene/analysis/icu) is licensed under an MIT style license  
(modules/analysis/icu/lib/icu4j-LICENSE-BSD\_LIKE.txt) and Copyright (c) 1995-2012  
International Business Machines Corporation and others  
ICU License - ICU 1.8.1 and later

#### COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1995-2012 International Business Machines Corporation and others

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

All trademarks and registered trademarks mentioned herein are the property of their respective owners.

Format: <https://www.debian.org/doc/packaging-manuals/copyright-format/1.0/>

Copyright: Elasticsearch B.V. <info@elastic.co>

License: \${license.name}

\${license.text}

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition,

"control" means (i) the power, direct or indirect, to cause the

direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of

this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and

wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor



has been advised of the possibility of such damages.

9. **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

### APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

### ELASTIC LICENSE AGREEMENT

PLEASE READ CAREFULLY THIS ELASTIC LICENSE AGREEMENT (THIS "AGREEMENT"), WHICH CONSTITUTES A LEGALLY BINDING AGREEMENT AND GOVERNS ALL OF YOUR USE OF ALL OF THE ELASTIC SOFTWARE WITH WHICH THIS AGREEMENT IS INCLUDED ("ELASTIC SOFTWARE") THAT IS PROVIDED IN OBJECT CODE FORMAT, AND, IN ACCORDANCE WITH SECTION 2 BELOW, CERTAIN OF THE ELASTIC SOFTWARE THAT IS PROVIDED IN SOURCE CODE FORMAT. BY INSTALLING OR USING ANY OF THE ELASTIC SOFTWARE GOVERNED BY THIS AGREEMENT, YOU ARE ASSENTING TO THE TERMS AND CONDITIONS OF THIS AGREEMENT. IF YOU DO NOT AGREE

WITH SUCH TERMS AND CONDITIONS, YOU MAY NOT INSTALL OR USE THE ELASTIC SOFTWARE GOVERNED BY THIS AGREEMENT. IF YOU ARE INSTALLING OR USING THE SOFTWARE ON BEHALF OF A LEGAL ENTITY, YOU REPRESENT AND WARRANT THAT YOU HAVE THE ACTUAL AUTHORITY TO AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT ON BEHALF OF SUCH ENTITY.

Posted Date: April 20, 2018

This Agreement is entered into by and between Elasticsearch BV ("Elastic") and You, or the legal entity on behalf of whom You are acting (as applicable, "You").

## 1. OBJECT CODE END USER LICENSES, RESTRICTIONS AND THIRD PARTY OPEN SOURCE SOFTWARE

1.1 Object Code End User License. Subject to the terms and conditions of Section 1.2 of this Agreement, Elastic hereby grants to You, AT NO CHARGE and for so long as you are not in breach of any provision of this Agreement, a License to the Basic Features and Functions of the Elastic Software.

1.2 Reservation of Rights; Restrictions. As between Elastic and You, Elastic and its licensors own all right, title and interest in and to the Elastic Software, and except as expressly set forth in Sections 1.1, and 2.1 of this Agreement, no other license to the Elastic Software is granted to You under this Agreement, by implication, estoppel or otherwise. You agree not to: (i) reverse engineer or decompile, decrypt, disassemble or otherwise reduce any Elastic Software provided to You in Object Code, or any portion thereof, to Source Code, except and only to the extent any such restriction is prohibited by applicable law, (ii) except as expressly permitted in this Agreement, prepare derivative works from, modify, copy or use the Elastic Software Object Code or the Commercial Software Source Code in any manner; (iii) except as expressly permitted in Section 1.1 above, transfer, sell, rent, lease, distribute, sublicense, loan or otherwise transfer, Elastic Software Object Code, in whole or in part, to any third party; (iv) use Elastic Software Object Code for providing time-sharing services, any software-as-a-service, service bureau services or as part of an application services provider or other service offering (collectively, "SaaS Offering") where obtaining access to the Elastic Software or the features and functions of the Elastic Software is a primary reason or substantial motivation for users of the SaaS Offering to access and/or use the SaaS Offering ("Prohibited SaaS Offering"); (v) circumvent the limitations on use of Elastic Software provided to You in Object Code format that are imposed or preserved by any License Key, or (vi) alter or remove any Marks and Notices in the Elastic Software. If You have any question as to whether a specific SaaS Offering constitutes a Prohibited SaaS Offering, or are interested in obtaining Elastic's permission to engage in commercial or non-commercial distribution of the Elastic Software, please contact [elastic\\_license@elastic.co](mailto:elastic_license@elastic.co).

1.3 Third Party Open Source Software. The Commercial Software may contain or be provided with third party open source libraries, components, utilities and other open source software (collectively, "Open Source Software"), which Open Source Software may have applicable license terms as identified on a website designated by Elastic. Notwithstanding anything to the contrary herein, use of the Open Source Software shall be subject to the license terms and conditions applicable to such Open Source Software, to the extent required by the applicable licensor (which terms shall not restrict the license rights granted to You hereunder, but may contain additional rights). To the extent any condition of this Agreement conflicts with any license to the Open Source Software, the Open Source Software license will govern with respect to such Open Source Software only. Elastic may also separately provide you with certain open source software that is licensed by Elastic. Your use of such Elastic open source software will not be governed by this Agreement, but by the applicable open source license terms.

## 2. COMMERCIAL SOFTWARE SOURCE CODE

2.1 Limited License. Subject to the terms and conditions of Section 2.2 of this Agreement, Elastic hereby grants to You, AT NO CHARGE and for so long as you are not in breach of any provision of this Agreement, a limited, non-exclusive, non-transferable, fully paid up royalty free right and license to the Commercial Software in Source Code format, without the right to grant or authorize sublicenses, to prepare Derivative Works of the Commercial Software, provided You (i) do not hack the licensing mechanism, or otherwise circumvent the intended limitations on the use of Elastic Software to enable features other than Basic Features and Functions or those features You are entitled to as part of a Subscription, and (ii) use the resulting object code only for reasonable testing purposes.

2.2 Restrictions. Nothing in Section 2.1 grants You the right to (i) use the Commercial Software Source Code other than in accordance with Section 2.1 above, (ii) use a Derivative Work of the Commercial Software outside of a Non-production Environment, in any production capacity, on a temporary or permanent basis, or (iii) transfer, sell, rent, lease, distribute, sublicense, loan or otherwise make available the Commercial Software Source Code, in whole or in part, to any third party. Notwithstanding the foregoing, You may maintain a copy of the repository in which the Source Code of the Commercial Software resides and that copy may be publicly accessible, provided that you include this Agreement with Your copy of the repository.

## 3. TERMINATION

3.1 Termination. This Agreement will automatically terminate, whether or not You receive notice of such Termination from Elastic, if You breach any of its provisions.

3.2 Post Termination. Upon any termination of this Agreement, for any reason,

You shall promptly cease the use of the Elastic Software in Object Code format and cease use of the Commercial Software in Source Code format. For the avoidance of doubt, termination of this Agreement will not affect Your right to use Elastic Software, in either Object Code or Source Code formats, made available under the Apache License Version 2.0.

3.3 Survival. Sections 1.2, 2.2, 3.3, 4 and 5 shall survive any termination or expiration of this Agreement.

#### 4. DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY

4.1 Disclaimer of Warranties. TO THE MAXIMUM EXTENT PERMITTED UNDER APPLICABLE LAW, THE ELASTIC SOFTWARE IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, AND ELASTIC AND ITS LICENSORS MAKE NO WARRANTIES WHETHER EXPRESSED, IMPLIED OR STATUTORY REGARDING OR RELATING TO THE ELASTIC SOFTWARE. TO THE MAXIMUM EXTENT PERMITTED UNDER APPLICABLE LAW, ELASTIC AND ITS LICENSORS SPECIFICALLY DISCLAIM ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT WITH RESPECT TO THE ELASTIC SOFTWARE, AND WITH RESPECT TO THE USE OF THE FOREGOING. FURTHER, ELASTIC DOES NOT WARRANT RESULTS OF USE OR THAT THE ELASTIC SOFTWARE WILL BE ERROR FREE OR THAT THE USE OF THE ELASTIC SOFTWARE WILL BE UNINTERRUPTED.

4.2 Limitation of Liability. IN NO EVENT SHALL ELASTIC OR ITS LICENSORS BE LIABLE TO YOU OR ANY THIRD PARTY FOR ANY DIRECT OR INDIRECT DAMAGES, INCLUDING, WITHOUT LIMITATION, FOR ANY LOSS OF PROFITS, LOSS OF USE, BUSINESS INTERRUPTION, LOSS OF DATA, COST OF SUBSTITUTE GOODS OR SERVICES, OR FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, IN CONNECTION WITH OR ARISING OUT OF THE USE OR INABILITY TO USE THE ELASTIC SOFTWARE, OR THE PERFORMANCE OF OR FAILURE TO PERFORM THIS AGREEMENT, WHETHER ALLEGED AS A BREACH OF CONTRACT OR TORTIOUS CONDUCT, INCLUDING NEGLIGENCE, EVEN IF ELASTIC HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### 5. MISCELLANEOUS

This Agreement completely and exclusively states the entire agreement of the parties regarding the subject matter herein, and it supersedes, and its terms govern, all prior proposals, agreements, or other communications between the parties, oral or written, regarding such subject matter. This Agreement may be modified by Elastic from time to time, and any such modifications will be effective upon the "Posted Date" set forth at the top of the modified Agreement. If any provision hereof is held unenforceable, this Agreement will continue without said provision and be interpreted to reflect the original intent of the parties. This Agreement and any non-contractual obligation arising out of or in connection with it, is governed exclusively by Dutch law. This Agreement shall not be governed by the 1980 UN Convention on Contracts for the International Sale of Goods. All disputes arising out of or in connection with this Agreement, including its existence and validity, shall be resolved by the courts with jurisdiction in Amsterdam, The Netherlands, except

where mandatory law provides for the courts at another location in The Netherlands to have jurisdiction. The parties hereby irrevocably waive any and all claims and defenses either might otherwise have in any such action or proceeding in any of such courts based upon any alleged lack of personal jurisdiction, improper venue, forum non conveniens or any similar claim or defense. A breach or threatened breach, by You of Section 2 may cause irreparable harm for which damages at law may not provide adequate relief, and therefore Elastic shall be entitled to seek injunctive relief without being required to post a bond. You may not assign this Agreement (including by operation of law in connection with a merger or acquisition), in whole or in part to any third party without the prior written consent of Elastic, which may be withheld or granted by Elastic in its sole and absolute discretion. Any assignment in violation of the preceding sentence is void. Notices to Elastic may also be sent to legal@elastic.co.

## 6. DEFINITIONS

The following terms have the meanings ascribed:

6.1 "Affiliate" means, with respect to a party, any entity that controls, is controlled by, or which is under common control with, such party, where "control" means ownership of at least fifty percent (50%) of the outstanding voting shares of the entity, or the contractual right to establish policy for, and manage the operations of, the entity.

6.2 "Basic Features and Functions" means those features and functions of the Elastic Software that are eligible for use under a Basic license, as set forth at <https://www.elastic.co/subscriptions>, as may be modified by Elastic from time to time.

6.3 "Commercial Software" means the Elastic Software Source Code in any file containing a header stating the contents are subject to the Elastic License or which is contained in the repository folder labeled "x-pack", unless a LICENSE file present in the directory subtree declares a different license.

6.4 "Derivative Work of the Commercial Software" means, for purposes of this Agreement, any modification(s) or enhancement(s) to the Commercial Software, which represent, as a whole, an original work of authorship.

6.5 "License" means a limited, non-exclusive, non-transferable, fully paid up, royalty free, right and license, without the right to grant or authorize sublicenses, solely for Your internal business operations to (i) install and use the applicable Features and Functions of the Elastic Software in Object Code, and (ii) permit Contractors and Your Affiliates to use the Elastic software as set forth in (i) above, provided that such use by Contractors must be solely for Your benefit and/or the benefit of Your Affiliates, and You shall be responsible for all acts and omissions of such Contractors and Affiliates in connection with their use of the Elastic software that are

contrary to the terms and conditions of this Agreement.

6.6 "License Key" means a sequence of bytes, including but not limited to a JSON blob, that is used to enable certain features and functions of the Elastic Software.

6.7 "Marks and Notices" means all Elastic trademarks, trade names, logos and notices present on the Documentation as originally provided by Elastic.

6.8 "Non-production Environment" means an environment for development, testing or quality assurance, where software is not used for production purposes.

6.9 "Object Code" means any form resulting from mechanical transformation or translation of Source Code form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

6.10 "Source Code" means the preferred form of computer software for making modifications, including but not limited to software source code, documentation source, and configuration files.

6.11 "Subscription" means the right to receive Support Services and a License to the Commercial Software.

Source code in this repository is variously licensed under the Apache License Version 2.0, an Apache compatible license, or the Elastic License. Outside of the "x-pack" folder, source code in a given file is licensed under the Apache License Version 2.0, unless otherwise noted at the beginning of the file or a LICENSE file present in the directory subtree declares a separate license. Within the "x-pack" folder, source code in a given file is licensed under the Elastic License, unless otherwise noted at the beginning of the file or a LICENSE file present in the directory subtree declares a separate license.

The build produces two sets of binaries - one set that falls under the Elastic License and another set that falls under Apache License Version 2.0. The binaries that contain `-oss`` in the artifact name are licensed under the Apache License Version 2.0.

Elasticsearch

Copyright 2009-2018 Elasticsearch

This product includes software developed by The Apache Software Foundation (<http://www.apache.org/>).

## 1.29 enzyme 3.9.0

## 1.29.1 Available under license :

The MIT License (MIT)

Copyright (c) 2015 Airbnb, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.30 enzyme-adapter-react-16 1.11.2

## 1.30.1 Available under license :

The MIT License (MIT)

Copyright (c) 2015 Airbnb, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.31 enzyme-to-json 3.3.5

## 1.31.1 Available under license :

(The MIT License)

Copyright (c) 2016 Adrien Antoine [adriantoine@gmail.com](mailto:adriantoine@gmail.com)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.32 eslint 4.10.0

## 1.32.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A



PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.33 eslint-config-react-app 2.1.0

### 1.33.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.34 eslint-loader 1.9.0

### 1.34.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.35 eslint-plugin-flowtype 2.39.1

### 1.35.1 Available under license :

The 3-Clause BSD License

SPDX short identifier: BSD-3-Clause

Note: This license has also been called the "New BSD License" or "Modified BSD License". See also the 2-clause BSD License.

Copyright <YEAR> <COPYRIGHT HOLDER>

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 1.36 eslint-plugin-import 2.8.0

## 1.36.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.37 eslint-plugin-jsx-a11y 5.1.1

### 1.37.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.38 eslint-plugin-react 7.4.0

## 1.38.1 Available under license :

The MIT License (MIT)

Copyright (c) 2014 Yannick Croissant

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.39 event-stream 3.3.4

## 1.39.1 Available under license :

The MIT License (MIT)

Copyright (c) 2011 Dominic Tarr

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.40 extract-text-webpack-plugin 3.0.2

### 1.40.1 Available under license :

Copyright JS Foundation and other contributors

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.41 fastavro 0.17.9

### 1.41.1 Available under license :

fastavro is a derivative work of Apache AVRO, below is the original NOTICE.txt from the Apache Avro (<http://svn.apache.org/viewvc/avro/trunk>)

-----  
Apache Avro  
Copyright 2010 The Apache Software Foundation

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

C JSON parsing provided by Jansson and

written by Petri Lehtinen. The original software is available from <http://www.digip.org/jansson/>.

-----

## 1.42 file-loader 1.1.5

### 1.42.1 Available under license :

Copyright JS Foundation and other contributors

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.43 fs-extra 3.0.1

### 1.43.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED,

INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.44 fw-python27-jsonschema 2.6.0 :1.0

### 1.44.1 Available under license :

Copyright (c) 2013 Julian Berman

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.45 gopkg.in-natefinch-lumberjack.v2 v2.1

### 1.45.1 Available under license :

The MIT License (MIT)

Copyright (c) 2014 Nate Finch

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.46 gopkg.in/yaml.v2 v2.2.2

### 1.46.1 Available under license :

The following files were ported to Go from C files of libyaml, and thus are still covered by their original copyright and license:

- apic.go
- emitterc.go
- parserc.go
- readerc.go
- scannerc.go
- writerc.go
- yamlh.go
- yamlprivateh.go

Copyright (c) 2006 Kirill Simonov

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright 2011-2016 Canonical Ltd.

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.

You may obtain a copy of the License at



<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object

form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "{}" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a

file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright {yyyy} {name of copyright owner}

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

## 1.47 gson 2.8.5

## 1.48 html-webpack-plugin 2.29.0

### 1.48.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.49 jackson-core-asl 1.9.13

## 1.49.1 Available under license :

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

### TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

#### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes

of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You

meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor,



except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software  
distributed under the License is distributed on an "AS IS" BASIS,  
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
See the License for the specific language governing permissions and  
limitations under the License.

GNU LESSER GENERAL PUBLIC LICENSE

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.

59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies  
of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts  
as the successor of the GNU Library Public License, version 2, hence  
the version number 2.1.]

#### Preamble

The licenses for most software are designed to take away your  
freedom to share and change it. By contrast, the GNU General Public  
Licenses are intended to guarantee your freedom to share and change  
free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some  
specially designated software packages--typically libraries--of the  
Free Software Foundation and other authors who decide to use it. You  
can use it too, but we suggest you first think carefully about whether  
this license or the ordinary General Public License is the better  
strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use,  
not price. Our General Public Licenses are designed to make sure that  
you have the freedom to distribute copies of free software (and charge  
for this service if you wish); that you receive source code or can get  
it if you want it; that you can change the software and use pieces of  
it in new free programs; and that you are informed that you can do  
these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General

Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

#### GNU LESSER GENERAL PUBLIC LICENSE TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under

copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) The modified work must itself be a software library.
- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that,

in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit

modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major



components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

- a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.
- b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein.

You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library

specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### END OF TERMS AND CONDITIONS

##### How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>

Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library 'Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990

Ty Coon, President of Vice

That's all there is to it!

/\* Jackson JSON-processor.

\*

\* Copyright (c) 2007- Tatu Saloranta, tatu.saloranta@iki.fi

\*

\* Licensed under the License specified in file LICENSE, included with

\* the source code and binary code bundles.

\* You may not use this file except in compliance with the License.

\*

\* Unless required by applicable law or agreed to in writing, software

\* distributed under the License is distributed on an "AS IS" BASIS,

- \* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  - \* See the License for the specific language governing permissions and
  - \* limitations under the License.
  - \*/
- === Licensing ===

Jackson can be used for any purpose, but to (re)distribute it, distributors (such as libraries and frameworks that use Jackson) will need to choose which License they want to apply to distribution, and to use appropriate jars that enclose license documentation.  
No work needed beyond choosing the appropriate jar(s).

Currently two Open Source licenses are available for use:

- \* Apache License 2.0 (AL 2.0)
- \* Lesser/Library General Public License (LGPL 2.1)

These licenses have proven adequate to cover all current use cases.

## 1.50 jest 20.0.4

### 1.50.1 Available under license :

The 3-Clause BSD License

SPDX short identifier: BSD-3-Clause

Note: This license has also been called the "New BSD License" or "Modified BSD License". See also the 2-clause BSD License.

Copyright <YEAR> <COPYRIGHT HOLDER>

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR

ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 1.51 js-cookie 2.2.0

### 1.51.1 Available under license :

Copyright 2014 Klaus Hartl

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.52 json 20090211

### 1.52.1 Available under license :

Copyright (c) 2002 JSON.org

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

The Software shall be used for Good, not Evil.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.53 kafka-clients 1.0.0

### 1.53.1 Available under license :

Apache Kafka  
Copyright 2017 The Apache Software Foundation.

This product includes software developed at  
The Apache Software Foundation (<http://www.apache.org/>).

This distribution has a binary dependency on jersey, which is available under the CDDL License. The source code of jersey can be found at <https://github.com/jersey/jersey/>.

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

#### TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

##### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made,



use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions

for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

This distribution has a binary dependency on jersey, which is available under the CDDL License as described below.

### COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL - Version 1.1)

#### 1. Definitions.

1.1. Contributor means each individual or entity that creates or contributes to the creation of Modifications.

1.2. Contributor Version means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. Covered Software means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. Executable means the Covered Software in any form other than Source Code.

1.5. Initial Developer means the individual or entity that first makes Original Software available under this License.

1.6. Larger Work means a work which combines Covered Software or portions thereof with code not governed by

the terms of this License.

1.7. License means this document.

1.8. Licensable means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. Modifications means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. Original Software means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. Patent Claims means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. Source Code means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. You (or Your) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, You includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof).

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the

Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

## 2.2. Contributor Grant.

Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

## 3. Distribution Obligations.

### 3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

### 3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

### 3.3. Required Notices.

You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or

any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

#### 3.4. Application of Additional Terms.

You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

#### 3.5. Distribution of Executable Versions.

You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipients rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

#### 3.6. Larger Works.

You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

### 4. Versions of the License.

#### 4.1. New Versions.

Oracle is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

#### 4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

#### 4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

#### 5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN AS IS BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

#### 6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as Participant) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. If You assert a patent infringement claim against Participant alleging that the Participant Software directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license.

6.4. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

#### 7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN

INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

#### 8. U.S. GOVERNMENT END USERS.

The Covered Software is a commercial item, as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of commercial computer software (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and commercial computer software documentation as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

#### 9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdictions conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

#### 10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

#### NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL)

The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

## 1.54 linkifyjs 2.1.8



## 1.54.1 Available under license :

Copyright (c) 2018 SoapBox Innovations Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.55 LZ4 and xxHash 1.3.0

## 1.56 MarkupSafe 1.1.1

### 1.56.1 Available under license :

License

=====

```
.. include:: ../LICENSE.rst
```

Copyright 2010 Pallets

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 1.57 moment 2.24.0

### 1.57.1 Available under license :

Copyright (c) JS Foundation and other contributors

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.58 more-itertools 7.0.0

## 1.58.1 Available under license :

=====  
License  
=====

more-itertools is under the MIT License. See the LICENSE file.

Conditions for Contributors

=====

By contributing to this software project, you are agreeing to the following terms and conditions for your contributions: First, you agree your contributions are submitted under the MIT license. Second, you represent you are authorized to make the contributions and grant the license. If your employer has rights to intellectual property that includes your contributions, you represent that you have received permission to make contributions and grant the required license on behalf of that employer.

Copyright (c) 2012 Erik Rose

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.59 netaddr 0.7.19

### 1.59.1 Available under license :

Here are the copyright notices applicable to the netaddr library.

-----  
netaddr  
-----

Copyright (c) 2008 by David P. D. Moss. All rights reserved.

Released under the BSD license. See the LICENSE file for details.

-----  
IANA (Internet Assigned Numbers Authority)  
-----

netaddr is not sponsored nor endorsed by IANA.

Use of data from IANA (Internet Assigned Numbers Authority) is subject to copyright and is provided with prior written permission.

IANA data files included with netaddr are not modified in any way but are parsed and made available to end users through an API.

See README file and source code for URLs to latest copies of the relevant files.

-----  
IEEE (Institution of Electrical Engineers)  
-----

netaddr is not sponsored nor endorsed by the IEEE.

Use of data from the IEEE (Institute of Electrical and Electronics Engineers) is subject to copyright. See the following URL for details :-

<http://www.ieee.org/web/publications/rights/legal.html>

IEEE data files included with netaddr are not modified in any way but are parsed and made available to end users through an API. There is no guarantee that referenced files are not out of date.

See README file and source code for URLs to latest copies of the relevant files.

=====  
Copyright  
=====

.. include:: ../COPYRIGHT

=====  
Contributors  
=====

.. include:: ../THANKS

=====

License

=====

```
.. include:: ../LICENSE
```

Here are the licenses applicable to the use of the netaddr library.

-----

netaddr

-----

## COPYRIGHT AND LICENSE

Copyright (c) 2008 by David P. D. Moss. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- \* Neither the name of David P. D. Moss nor the names of contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

# 1.60 node-sass 4.11.0

## 1.60.1 Available under license :

Copyright (c) 2013-2016 Andrew Nesbitt

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (C) 2012-2016 by the Sass Open Source Foundation

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The following files in the spec were taken from the original Ruby Sass project which is copyright Hampton Catlin, Nathan Weizenbaum, and Chris Eppstein and under the same license.

Copyright (C) 2012 by Hampton Catlin

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The following files in the spec were taken from the original Ruby Sass project which is copyright Hampton Catlin, Nathan Weizenbaum, and Chris Eppstein and under the same license.

## 1.61 oauthlib 3.0.1

### 1.61.1 Available under license :

Copyright (c) 2019 The OAuthlib Community  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of this project nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"

AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 1.62 oauthlib 2.1.0

### 1.62.1 Available under license :

Copyright (c) 2011 Idan Gazit and contributors

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of this project nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 1.63 object-assign 4.1.1



## 1.63.1 Available under license :

The MIT License (MIT)

Copyright (c) Sindre Sorhus <sindresorhus@gmail.com> (sindresorhus.com)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.64 OpenSSH\_7.9p1 openssh 1:7.9p1

### 1.64.1 Available under license :

This package was debianized by Akira TAGOH <>tagoh@debian.org> on Sun, 10 Mar 2002 20:41:39 +0900.

It was downloaded from <<http://ftp.acc.umu.se/pub/GNOME/sources/atk/>>.

Upstream Authors:

Bill.Haneman <bill.haneman@sun.com>

Marc.Mulcahy <marc.mulcahy@sun.com>

Padraig.Obriain <padraig.obriain@sun.com>

Copyright:

Copyright 2001, 2002, 2003, 2006, 2007 Sun Microsystems Inc.

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Library General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of

MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Library General Public License for more details.

You should have received a copy of the GNU Library General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301, USA.

See /usr/share/common-licenses/LGPL-2 on your debian system.

Format: <https://www.debian.org/doc/packaging-manuals/copyright-format/1.0/>

Upstream-Name: OpenSSH

Upstream-Contact: openssh-unix-dev@mindrot.org

Source: <http://www.openssh.com/portable.html>

Comment:

The overall licence of the OpenSSH upstream code amounts to BSD-3-clause or various less restrictive licences, with the additional restrictions that derived versions must be clearly marked as such and that if derived works are incompatible with the RFC-specified protocol then they must be called by a name other than "ssh" or "Secure Shell".

Files: \*

Copyright:

1995 Tatu Ylonen <ylo@cs.hut.fi>, Espoo, Finland

Markus Friedl

Theo de Raadt

Niels Provos

Dug Song

Aaron Campbell

Damien Miller

Kevin Steves

Daniel Kouril

Wesley Griffin

Per Allansson

Nils Nordman

Simon Wilkinson

Ben Lindstrom

Tim Rice

Andre Lucas

Chris Adams

Corinna Vinschen

Cray Inc.

Denis Parker

Gert Doering

Jakob Schlyter

Jason Downs

Juha Yrjölä

Michael Stone

Networks Associates Technology, Inc.

Solar Designer  
Todd C. Miller  
Wayne Schroeder  
William Jones  
Darren Tucker  
Sun Microsystems  
The SCO Group  
Daniel Walsh  
Red Hat, Inc  
Simon Vallet / Genoscope  
Internet Software Consortium  
Reyk Floeter  
Chad Mynhier  
License: OpenSSH

Tatu Ylonen's original licence is as follows (excluding some terms about third-party code which are no longer relevant; see the LICENCE file for details):

.  
As far as I am concerned, the code I have written for this software can be used freely for any purpose. Any derived versions of this software must be clearly marked as such, and if the derived work is incompatible with the protocol description in the RFC file, it must be called by a name other than "ssh" or "Secure Shell".

.  
Note that any information and cryptographic algorithms used in this software are publicly available on the Internet and at any major bookstore, scientific library, and patent office worldwide. More information can be found e.g. at "<http://www.cs.hut.fi/crypto>".

.  
The legal status of this program is some combination of all these permissions and restrictions. Use only at your own responsibility. You will be responsible for any legal consequences yourself; I am not making any claims whether possessing or using this is legal or not in your country, and I am not taking any responsibility on your behalf.

.  
Most remaining components of the software are provided under a standard 2-term BSD licence:

.  
Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

.  
THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS" AND ANY EXPRESS OR

IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

.  
Some code is licensed under an ISC-style license, to the following copyright holders:

.  
Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

.  
THE SOFTWARE IS PROVIDED "AS IS" AND TODD C. MILLER DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL TODD C. MILLER BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Files: ssh-keyscan.\*  
Copyright: 1995, 1996 David Mazieres <dm@lcs.mit.edu>  
License: Mazieres-BSD-style  
Modification and redistribution in source and binary forms is permitted provided that due credit is given to the author and the OpenBSD project by leaving this copyright notice intact.

Files: rijndael.\*  
License: public-domain  
This code is from a reference implementation of the Rijndael cipher which has been dedicated to the public domain.

.  
@version 3.0 (December 2000)

.  
Optimised ANSI C code for the Rijndael cipher (now AES)

.  
@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>  
@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>  
@author Paulo Barreto <paulo.barreto@terra.com.br>

.  
This code is hereby placed in the public domain.

.  
THIS SOFTWARE IS PROVIDED BY THE AUTHORS "AS IS" AND ANY EXPRESS

OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Files: loginrec.c openbsd-compat/\* scp.c

Copyright:

1983, 1995-1997 Eric P. Allman

1999 Aaron Campbell

1993 by Digital Equipment Corporation

2000 Andre Lucas

1999-2010 Damien Miller

1997-2010 Todd C. Miller

1995, 1996, 1998, 1999, 2008 Theo de Raadt

2003 Constantin S. Svintsoff <kostik@iclub.nsu.ru>

1980, 1983, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995 The Regents of the University of California

License: BSD-3-clause

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Files: md5crypt.\*

Copyright: Poul-Henning Kamp

License: Beer-ware

"THE BEER-WARE LICENSE" (Revision 42):

<phk@login.dknet.dk> wrote this file. As long as you retain this notice you can do whatever you want with this stuff. If we meet some day, and you think this stuff is worth it, you can buy me a beer in return. Poul-Henning Kamp

Files: openbsd-compat/bsd-sprintf.c

Copyright: 1995 Patrick Powell

License: Powell-BSD-style

This code is based on code written by Patrick Powell (papowell@astart.com) It may be used for any purpose as long as this notice remains intact on all source code distributions

Files: openbsd-compat/sigact.\*

Copyright: 1998, 2000 Free Software Foundation, Inc.

License: Expat-with-advertising-restriction

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, distribute with modifications, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

.

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE ABOVE COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

.

Except as contained in this notice, the name(s) of the above copyright holders shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization.

Files: debian/\*

Copyright: Matthew Vernon, Colin Watson

License: BSD-2-clause

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

<OWNER> = Regents of the University of California

<ORGANIZATION> = University of California, Berkeley

<YEAR> = 1998

In the original BSD license, both occurrences of the phrase "COPYRIGHT HOLDERS AND CONTRIBUTORS" in the disclaimer read "REGENTS AND CONTRIBUTORS".

Here is the license template:

Copyright (c) <YEAR>, <OWNER>

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the <ORGANIZATION> nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS

SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 1.65 ParaNamer Core 2.7

### 1.65.1 Available under license :

BSD

LICENSE.txt

## 1.66 pluggy 0.11.0

### 1.66.1 Available under license :

The MIT License (MIT)

Copyright (c) 2015 holger krekel (rather uses bitbucket/hpk42)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.67 postcss-flexbugs-fixes 3.2.0

### 1.67.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit



persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.68 postcss-loader 2.0.8

### 1.68.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.69 promise 8.0.1

### 1.69.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated

documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.70 py 1.8.0

### 1.70.1 Available under license :

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.71 pycparser 2.18

## 1.72 pymongo 3.4.0

## 1.72.1 Available under license :

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

### TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

#### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or

Derivative Works a copy of this License; and

- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
  
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
  
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software  
distributed under the License is distributed on an "AS IS" BASIS,  
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
See the License for the specific language governing permissions and  
limitations under the License.

PyMongo uses third-party libraries or other resources that may  
be distributed under licenses different than the PyMongo software.

In the event that we accidentally failed to list a required notice,  
please bring it to our attention through any of the ways detailed here:

[mongodb-dev@googlegroups.com](mailto:mongodb-dev@googlegroups.com)

The attached notices are provided for information only.

For any licenses that require disclosure of source, sources are available at  
<https://github.com/mongodb/mongo-python-driver>.

1) License Notice for time64.c

-----

Copyright (c) 2007-2010 Michael G Schwern

This software originally derived from Paul Sheer's pivotal\_gmtime\_r.c.

The MIT License:

Permission is hereby granted, free of charge, to any person obtaining a copy  
of this software and associated documentation files (the "Software"), to deal  
in the Software without restriction, including without limitation the rights  
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell  
copies of the Software, and to permit persons to whom the Software is  
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in  
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR  
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,  
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE  
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER

LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

2) License Notice for bson-stdint-win32.h

-----

ISO C9x compliantstdint.h for Microsoft Visual Studio

Based on ISO/IEC 9899:TC2 Committee draft (May 6, 2005) WG14/N1124

Copyright (c) 2006-2013 Alexander Chemeris

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the product nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

3) License Notice for encoding\_helpers.c

-----

Portions Copyright 2001 Unicode, Inc.

Disclaimer

This source code is provided as is by Unicode, Inc. No claims are made as to fitness for any particular purpose. No warranties of any kind are expressed or implied. The recipient agrees to determine applicability of information provided. If this file has been



purchased on magnetic or optical media from Unicode, Inc., the sole remedy for any claim will be exchange of defective media within 90 days of receipt.

#### Limitations on Rights to Redistribute This Code

Unicode, Inc. hereby grants the right to freely use the information supplied in this file in the creation of products supporting the Unicode Standard, and to make copies of this file in any form for internal or external distribution as long as this notice remains attached.

4) License Notice for ssl\_match\_hostname.py

-----

Python License (Python-2.0)

Python License, Version 2 (Python-2.0)

#### PYTHON SOFTWARE FOUNDATION LICENSE VERSION 2

-----

1. This LICENSE AGREEMENT is between the Python Software Foundation ("PSF"), and the Individual or Organization ("Licensee") accessing and otherwise using this software ("Python") in source or binary form and its associated documentation.
2. Subject to the terms and conditions of this License Agreement, PSF hereby grants Licensee a nonexclusive, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use Python alone or in any derivative version, provided, however, that PSF's License Agreement and PSF's notice of copyright, i.e., "Copyright (c) 2001-2013 Python Software Foundation; All Rights Reserved" are retained in Python alone or in any derivative version prepared by Licensee.
3. In the event Licensee prepares a derivative work that is based on or incorporates Python or any part thereof, and wants to make the derivative work available to others as provided herein, then Licensee hereby agrees to include in any such work a brief summary of the changes made to Python.
4. PSF is making Python available to Licensee on an "AS IS" basis. PSF MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, PSF MAKES NO AND DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF PYTHON WILL NOT INFRINGE ANY THIRD PARTY RIGHTS.

5. PSF SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER USERS OF PYTHON FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS AS A RESULT OF MODIFYING, DISTRIBUTING, OR OTHERWISE USING PYTHON, OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

6. This License Agreement will automatically terminate upon a material breach of its terms and conditions.

7. Nothing in this License Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between PSF and Licensee. This License Agreement does not grant permission to use PSF trademarks or trade name in a trademark sense to endorse or promote products or services of Licensee, or any third party.

8. By copying, installing or otherwise using Python, Licensee agrees to be bound by the terms and conditions of this License Agreement.

## 1.73 pyOpenSSL 17.5.0

### 1.73.1 Available under license :

Apache License  
Version 2.0, January 2004  
<http://www.apache.org/licenses/>

#### TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

##### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed

as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. **Limitation of Liability.** In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this

License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[ ]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

## 1.74 python-dateutil 2.7.5

### 1.74.1 Available under license :

Copyright 2017- Paul Ganssle <paul@ganssle.io>  
Copyright 2017- dateutil contributors (see AUTHORS file)

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software

distributed under the License is distributed on an "AS IS" BASIS,  
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
See the License for the specific language governing permissions and  
limitations under the License.

The above license applies to all contributions after 2017-12-01, as well as  
all contributions that have been re-licensed (see AUTHORS file for the list of  
contributors who have re-licensed their code).

-----  
dateutil - Extensions to the standard Python datetime module.

Copyright (c) 2003-2011 - Gustavo Niemeyer <gustavo@niemeyer.net>

Copyright (c) 2012-2014 - Tomi Pievilinen <tomi.pievilainen@iki.fi>

Copyright (c) 2014-2016 - Yaron de Leeuw <me@jarondl.net>

Copyright (c) 2015- - Paul Ganssle <paul@ganssle.io>

Copyright (c) 2015- - dateutil contributors (see AUTHORS file)

All rights reserved.

Redistribution and use in source and binary forms, with or without  
modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice,  
this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice,  
this list of conditions and the following disclaimer in the documentation  
and/or other materials provided with the distribution.
- \* Neither the name of the copyright holder nor the names of its  
contributors may be used to endorse or promote products derived from  
this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS  
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT  
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR  
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR  
CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,  
EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,  
PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR  
PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF  
LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING  
NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS  
SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The above BSD License Applies to all code, even that also covered by Apache 2.0.

# 1.75 python-lxml 4.3.3

## 1.75.1 Available under license :

lxml is copyright Infracore and distributed under the BSD license (see doc/licenses/BSD.txt), with the following exceptions:

Some code, such as selftest.py, selftest2.py and src/lxml/\_elementpath.py are derived from ElementTree and cElementTree. See doc/licenses/elementtree.txt for the license text.

lxml.cssselect and lxml.html are copyright Ian Bicking and distributed under the BSD license (see doc/licenses/BSD.txt).

test.py, the test-runner script, is GPL and copyright Shuttleworth Foundation. See doc/licenses/GPL.txt. It is believed the unchanged inclusion of test.py to run the unit test suite falls under the "aggregation" clause of the GPL and thus does not affect the license of the rest of the package.

The isoschematron implementation uses several XSL and RelaxNG resources:

- \* The (XML syntax) RelaxNG schema for schematron, copyright International Organization for Standardization (see src/lxml/isoschematron/resources/rng/iso-schematron.rng for the license text)
- \* The skeleton iso-schematron-xslt1 pure-xslt schematron implementation xsl stylesheets, copyright Rick Jelliffe and Academia Sinica Computing Center, Taiwan (see the xsl files here for the license text: src/lxml/isoschematron/resources/xsl/iso-schematron-xslt1/)
- \* The xsd/rng schema schematron extraction xsl transformations are unlicensed and copyright the respective authors as noted (see src/lxml/isoschematron/resources/xsl/RNG2Schtrn.xsl and src/lxml/isoschematron/resources/xsl/XSD2Schtrn.xsl)

Zope Public License (ZPL) Version 2.0

-----

This software is Copyright (c) Zope Corporation (tm) and Contributors. All rights reserved.

This license has been certified as open source. It has also been designated as GPL compatible by the Free Software Foundation (FSF).

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions in source code must retain the above



copyright notice, this list of conditions, and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name Zope Corporation (tm) must not be used to endorse or promote products derived from this software without prior written permission from Zope Corporation.
4. The right to distribute this software or to use it for any purpose does not give you the right to use Servicemarks (sm) or Trademarks (tm) of Zope Corporation. Use of them is covered in a separate agreement (see <http://www.zope.com/Marks>).
5. If any files are modified, you must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

#### Disclaimer

THIS SOFTWARE IS PROVIDED BY ZOPE CORPORATION ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL ZOPE CORPORATION OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This software consists of contributions made by Zope Corporation and many individuals on behalf of Zope Corporation. Specific attributions are listed in the accompanying credits file.

The ElementTree / XML Toys Library is

Copyright (c) 1999-2003 by Secret Labs AB

Copyright (c) 1999-2003 by Fredrik Lundh

By obtaining, using, and/or copying this software and/or its associated documentation, you agree that you have read, understood, and will comply with the following terms and conditions:

Permission to use, copy, modify, and distribute this software and its associated documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appears in all copies, and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of Secret Labs AB or the author not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission.

SECRET LABS AB AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL SECRET LABS AB OR THE AUTHOR BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

GNU GENERAL PUBLIC LICENSE

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.

59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

#### Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

## GNU GENERAL PUBLIC LICENSE TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the

Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
- b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
- c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

- a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made

generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,

## REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

## END OF TERMS AND CONDITIONS

### How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>  
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:



Gnomovision version 69, Copyright (C) year name of author  
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.  
This is free software, and you are welcome to redistribute it  
under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program  
'Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989  
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

Copyright (c) 2004 Infrae. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of Infrae nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INFRAE OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,

EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 1.76 python-xml\_test\_script 3.3.5

### 1.76.1 Available under license :

```
#!/usr/bin/env python
#
# SchoolTool - common information systems platform for school administration
# Copyright (c) 2003 Shuttleworth Foundation
#
# This program is free software; you can redistribute it and/or modify
# it under the terms of the GNU General Public License as published by
# the Free Software Foundation; either version 2 of the License, or
# (at your option) any later version.
#
# This program is distributed in the hope that it will be useful,
# but WITHOUT ANY WARRANTY; without even the implied warranty of
# MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
# GNU General Public License for more details.
#
# You should have received a copy of the GNU General Public License
# along with this program; if not, write to the Free Software
# Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
#
GNU GENERAL PUBLIC LICENSE
Version 2, June 1991
```

Copyright (C) 1989, 1991 Free Software Foundation, Inc.

59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

#### Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to

your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

#### GNU GENERAL PUBLIC LICENSE TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law:

that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
- b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
- c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If

identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

- a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the

operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under

any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### END OF TERMS AND CONDITIONS

#### How to Apply These Terms to Your New Programs

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>  
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License



along with this program; if not, write to the Free Software  
Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this  
when it starts in an interactive mode:

```
Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type 'show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type 'show c' for details.
```

The hypothetical commands 'show w' and 'show c' should show the appropriate  
parts of the General Public License. Of course, the commands you use may  
be called something other than 'show w' and 'show c'; they could even be  
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your  
school, if any, to sign a "copyright disclaimer" for the program, if  
necessary. Here is a sample; alter the names:

```
Yoyodyne, Inc., hereby disclaims all copyright interest in the program
'Gnomovision' (which makes passes at compilers) written by James Hacker.
```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
```

This General Public License does not permit incorporating your program into  
proprietary programs. If your program is a subroutine library, you may  
consider it more useful to permit linking proprietary applications with the  
library. If this is what you want to do, use the GNU Library General  
Public License instead of this License.

## 1.77 pytz 2018.5

### 1.77.1 Available under license :

Copyright (c) 2003-2018 Stuart Bishop <stuart@stuartbishop.net>

Permission is hereby granted, free of charge, to any person obtaining a  
copy of this software and associated documentation files (the "Software"),  
to deal in the Software without restriction, including without limitation  
the rights to use, copy, modify, merge, publish, distribute, sublicense,  
and/or sell copies of the Software, and to permit persons to whom the  
Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.78 PyYAML 3.13

### 1.78.1 Available under license :

Copyright (c) 2017-2018 Ingy dt Net

Copyright (c) 2006-2016 Kirill Simonov

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.79 raf 3.4.0

## 1.80 rc-calendar 9.6.2

### 1.80.1 Available under license :

The MIT License (MIT)

Copyright (c) 2014-present yiminghe

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.81 rc-time-picker 3.6.4

### 1.81.1 Available under license :

The MIT License (MIT)

Copyright (c) 2014-present yiminghe

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.82 react 16.8.5

## 1.82.1 Available under license :

MIT License

Copyright (c) Facebook, Inc. and its affiliates.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.83 react-bootstrap 0.32.4

### 1.83.1 Available under license :

The MIT License (MIT)

Copyright (c) 2014-present Stephen J. Collings, Matthew Honnibal, Pieter Vanderwerff

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN

THE SOFTWARE.

## 1.84 react-cookie 3.1.1

### 1.84.1 Available under license :

The MIT License (MIT)

Copyright (c) 2015 Benoit Tremblay

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.85 react-dev-utils 5.0.3

### 1.85.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A

PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.86 react-dom 16.8.5

### 1.86.1 Available under license :

MIT License

Copyright (c) Facebook, Inc. and its affiliates.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE

## 1.87 react-dropzone 10.1.5

### 1.87.1 Available under license :

Budl " NSE.tx LICENSE.txtllocblob ;(""""""" @ " @ " @ " @ E" DSDB ` " @ "  
The MIT License (MIT)

Copyright (c) 2018 Param Aggarwal

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The MIT License (MIT)

Copyright (c) 2018 Param Aggarwal

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.88 react-redux 5.1.1

## 1.88.1 Available under license :

The MIT License (MIT)

Copyright (c) 2015-present Dan Abramov

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.89 react-router 4.3.1

## 1.89.1 Available under license :

MIT License

Copyright (c) React Training 2016-2018

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:



The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.90 react-router-dom 4.3.1

### 1.90.1 Available under license :

MIT License

Copyright (c) React Training 2016-2018

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.91 react-select 1.2.1

### 1.91.1 Available under license :

The MIT License (MIT)

Copyright (c) 2018 Jed Watson

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights

to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.92 react-visjs-timeline 1.5.0

### 1.92.1 Available under license :

The MIT License (MIT)

Copyright (c) 2016 Lighthouse.io

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.93 redux-mock-store 1.5.3

## 1.93.1 Available under license :

The MIT License (MIT)

Copyright (c) 2017 Arnaud Benard

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.94 redux-promise-middleware 5.1.1

## 1.94.1 Available under license :

# Contributors

- [pburtchaell](https://github.com/pburtchaell)
- [tomatau](https://github.com/tomatau)
- [mik01aj](https://github.com/mik01aj)
- [joshkel](https://github.com/joshkel)
- [ianks](https://github.com/ianks)
- [therewillbecode](https://github.com/therewillbecode)
- [doronpr](https://github.com/doronpr)
- [sandiiarov](https://github.com/sandiiarov)
- [andrgood](https://github.com/andrgood)
- [mironov](https://github.com/mironov)
- [bennypowers](https://github.com/bennypowers)
- [cedricmessiant](https://github.com/cedricmessiant)
- [danwang](https://github.com/danwang)
- [GeKorm](https://github.com/GeKorm)
- [notgiorgi](https://github.com/notgiorgi)
- [jarsbe](https://github.com/jarsbe)
- [janeklb](https://github.com/janeklb)
- [jmar777](https://github.com/jmar777)

- [kishorevarma](https://github.com/kishorevarma)
  - [kuuup](https://github.com/kuuup)
  - [pzenger](https://github.com/pzenger)
  - [pjdvs](https://github.com/pjdvs)
  - [piu130](https://github.com/piu130)
  - [randycoulman](https://github.com/randycoulman)
  - [rotemmiz](https://github.com/rotemmiz)
  - [toddmazierski](https://github.com/toddmazierski)
  - [umidbekkarimov](https://github.com/umidbekkarimov)
  - [anajavi](https://github.com/anajavi)
  - [comerc](https://github.com/comerc)
  - [extg](https://github.com/extg)
  - [mikew](https://github.com/mikew)
  - [roboslone](https://github.com/roboslone)
- The MIT License (MIT)

Copyright (c) 2015 Patrick Burtchaell

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.95 requests 2.15.1

### 1.95.1 Available under license :

""""

This module uses ctypes to bind a whole bunch of functions and constants from SecureTransport. The goal here is to provide the low-level API to SecureTransport. These are essentially the C-level functions and constants, and they're pretty gross to work with.

This code is a bastardised version of the code found in Will Bond's oscrypto library. An enormous debt is owed to him for blazing this trail for us. For

that reason, this code should be considered to be covered both by urllib3's license and by oscrypto's:

Copyright (c) 2015-2016 Will Bond <will@wbond.net>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

"""

```
from __future__ import absolute_import

import platform
from ctypes.util import find_library
from ctypes import (
    c_void_p, c_int32, c_char_p, c_size_t, c_byte, c_uint32, c_ulong, c_long,
    c_bool
)
from ctypes import CDLL, POINTER, CFUNCTYPE

security_path = find_library('Security')
if not security_path:
    raise ImportError("The library Security could not be found")

core_foundation_path = find_library('CoreFoundation')
if not core_foundation_path:
    raise ImportError("The library CoreFoundation could not be found")

version = platform.mac_ver()[0]
version_info = tuple(map(int, version.split('.')))
if version_info < (10, 8):
    raise OSError(
```

```
'Only OS X 10.8 and newer are supported, not %s.%s' % (  
    version_info[0], version_info[1]  
)  
)
```

```
Security = CDLL(security_path, use_errno=True)
```

```
CoreFoundation = CDLL(core_foundation_path, use_errno=True)
```

```
Boolean = c_bool
```

```
CFIndex = c_long
```

```
CFStringEncoding = c_uint32
```

```
CFData = c_void_p
```

```
CFString = c_void_p
```

```
CFArray = c_void_p
```

```
CFMutableArray = c_void_p
```

```
CFDictionary = c_void_p
```

```
CFError = c_void_p
```

```
CFTType = c_void_p
```

```
CFTTypeID = c_ulong
```

```
CFTTypeRef = POINTER(CFTType)
```

```
CFAllocatorRef = c_void_p
```

```
OSStatus = c_int32
```

```
CFDataRef = POINTER(CFData)
```

```
CFStringRef = POINTER(CFString)
```

```
CFArrayRef = POINTER(CFArray)
```

```
CFMutableArrayRef = POINTER(CFMutableArray)
```

```
CFDictionaryRef = POINTER(CFDictionary)
```

```
CFArrayCallBacks = c_void_p
```

```
CFDictionaryKeyCallBacks = c_void_p
```

```
CFDictionaryValueCallBacks = c_void_p
```

```
SecCertificateRef = POINTER(c_void_p)
```

```
SecExternalFormat = c_uint32
```

```
SecExternalItemType = c_uint32
```

```
SecIdentityRef = POINTER(c_void_p)
```

```
SecItemImportExportFlags = c_uint32
```

```
SecItemImportExportKeyParameters = c_void_p
```

```
SecKeychainRef = POINTER(c_void_p)
```

```
SSLProtocol = c_uint32
```

```
SSLCipherSuite = c_uint32
```

```
SSLContextRef = POINTER(c_void_p)
```

```
SecTrustRef = POINTER(c_void_p)
```

```
SSLConnectionRef = c_uint32
```

```
SecTrustResultType = c_uint32
```

```
SecTrustOptionFlags = c_uint32
```

```
SSLProtocolSide = c_uint32
SSLConnectionType = c_uint32
SSLSessionOption = c_uint32
```

try:

```
Security.SecItemImport.argtypes = [
    CFDataRef,
    CFStringRef,
    POINTER(SecExternalFormat),
    POINTER(SecExternalItemType),
    SecItemImportExportFlags,
    POINTER(SecItemImportExportKeyParameters),
    SecKeychainRef,
    POINTER(CFArrayRef),
]
```

```
Security.SecItemImport.restype = OSStatus
```

```
Security.SecCertificateGetTypeID.argtypes = []
Security.SecCertificateGetTypeID.restype = CFTTypeID
```

```
Security.SecIdentityGetTypeID.argtypes = []
Security.SecIdentityGetTypeID.restype = CFTTypeID
```

```
Security.SecKeyGetTypeID.argtypes = []
Security.SecKeyGetTypeID.restype = CFTTypeID
```

```
Security.SecCertificateCreateWithData.argtypes = [
    CFAllocatorRef,
    CFDataRef
]
Security.SecCertificateCreateWithData.restype = SecCertificateRef
```

```
Security.SecCertificateCopyData.argtypes = [
    SecCertificateRef
]
Security.SecCertificateCopyData.restype = CFDataRef
```

```
Security.SecCopyErrorMessageString.argtypes = [
    OSStatus,
    c_void_p
]
Security.SecCopyErrorMessageString.restype = CFStringRef
```

```
Security.SecIdentityCreateWithCertificate.argtypes = [
    CFTypesRef,
    SecCertificateRef,
    POINTER(SecIdentityRef)
]
```

```

]
Security.SecIdentityCreateWithCertificate.restype = OSStatus

Security.SecKeychainCreate.argtypes = [
    c_char_p,
    c_uint32,
    c_void_p,
    Boolean,
    c_void_p,
    POINTER(SecKeychainRef)
]
Security.SecKeychainCreate.restype = OSStatus

Security.SecKeychainDelete.argtypes = [
    SecKeychainRef
]
Security.SecKeychainDelete.restype = OSStatus

Security.SecPKCS12Import.argtypes = [
    CFDataRef,
    CFDictionaryRef,
    POINTER(CFArrayRef)
]
Security.SecPKCS12Import.restype = OSStatus

SSLReadFunc = CFUNCTYPE(OSStatus, SSLConnectionRef, c_void_p, POINTER(c_size_t))
SSLWriteFunc = CFUNCTYPE(OSStatus, SSLConnectionRef, POINTER(c_byte), POINTER(c_size_t))

Security.SSLSetIOFuncs.argtypes = [
    SSLContextRef,
    SSLReadFunc,
    SSLWriteFunc
]
Security.SSLSetIOFuncs.restype = OSStatus

Security.SSLSetPeerID.argtypes = [
    SSLContextRef,
    c_char_p,
    c_size_t
]
Security.SSLSetPeerID.restype = OSStatus

Security.SSLSetCertificate.argtypes = [
    SSLContextRef,
    CFArrayRef
]
Security.SSLSetCertificate.restype = OSStatus

```



```
Security.SSLSetCertificateAuthorities.argtypes = [  
    SSLContextRef,  
    CFTypeRef,  
    Boolean  
]  
Security.SSLSetCertificateAuthorities.restype = OSStatus
```

```
Security.SSLSetConnection.argtypes = [  
    SSLContextRef,  
    SSLConnectionRef  
]  
Security.SSLSetConnection.restype = OSStatus
```

```
Security.SSLSetPeerDomainName.argtypes = [  
    SSLContextRef,  
    c_char_p,  
    c_size_t  
]  
Security.SSLSetPeerDomainName.restype = OSStatus
```

```
Security.SSLHandshake.argtypes = [  
    SSLContextRef  
]  
Security.SSLHandshake.restype = OSStatus
```

```
Security.SSLRead.argtypes = [  
    SSLContextRef,  
    c_char_p,  
    c_size_t,  
    POINTER(c_size_t)  
]  
Security.SSLRead.restype = OSStatus
```

```
Security.SSLWrite.argtypes = [  
    SSLContextRef,  
    c_char_p,  
    c_size_t,  
    POINTER(c_size_t)  
]  
Security.SSLWrite.restype = OSStatus
```

```
Security.SSLClose.argtypes = [  
    SSLContextRef  
]  
Security.SSLClose.restype = OSStatus
```

```
Security.SSLGetNumberSupportedCiphers.argtypes = [  
    SSLContextRef,
```

```
    POINTER(c_size_t)
]
Security.SSLGetNumberSupportedCiphers.restype = OSStatus
```

```
Security.SSLGetSupportedCiphers.argtypes = [
    SSLContextRef,
    POINTER(SSLCipherSuite),
    POINTER(c_size_t)
]
Security.SSLGetSupportedCiphers.restype = OSStatus
```

```
Security.SSLSetEnabledCiphers.argtypes = [
    SSLContextRef,
    POINTER(SSLCipherSuite),
    c_size_t
]
Security.SSLSetEnabledCiphers.restype = OSStatus
```

```
Security.SSLGetNumberEnabledCiphers.argtype = [
    SSLContextRef,
    POINTER(c_size_t)
]
Security.SSLGetNumberEnabledCiphers.restype = OSStatus
```

```
Security.SSLGetEnabledCiphers.argtypes = [
    SSLContextRef,
    POINTER(SSLCipherSuite),
    POINTER(c_size_t)
]
Security.SSLGetEnabledCiphers.restype = OSStatus
```

```
Security.SSLGetNegotiatedCipher.argtypes = [
    SSLContextRef,
    POINTER(SSLCipherSuite)
]
Security.SSLGetNegotiatedCipher.restype = OSStatus
```

```
Security.SSLGetNegotiatedProtocolVersion.argtypes = [
    SSLContextRef,
    POINTER(SSLProtocol)
]
Security.SSLGetNegotiatedProtocolVersion.restype = OSStatus
```

```
Security.SSLCopyPeerTrust.argtypes = [
    SSLContextRef,
    POINTER(SecTrustRef)
]
Security.SSLCopyPeerTrust.restype = OSStatus
```

```

Security.SecTrustSetAnchorCertificates.argtypes = [
    SecTrustRef,
    CFArrayRef
]
Security.SecTrustSetAnchorCertificates.restype = OSStatus

Security.SecTrustSetAnchorCertificatesOnly.argtypes = [
    SecTrustRef,
    Boolean
]
Security.SecTrustSetAnchorCertificatesOnly.restype = OSStatus

Security.SecTrustEvaluate.argtypes = [
    SecTrustRef,
    POINTER(SecTrustResultType)
]
Security.SecTrustEvaluate.restype = OSStatus

Security.SecTrustGetCertificateCount.argtypes = [
    SecTrustRef
]
Security.SecTrustGetCertificateCount.restype = CFIndex

Security.SecTrustGetCertificateAtIndex.argtypes = [
    SecTrustRef,
    CFIndex
]
Security.SecTrustGetCertificateAtIndex.restype = SecCertificateRef

Security.SSLCreateContext.argtypes = [
    CFAllocatorRef,
    SSLProtocolSide,
    SSLConnectionType
]
Security.SSLCreateContext.restype = SSLContextRef

Security.SSLSetSessionOption.argtypes = [
    SSLContextRef,
    SSLSessionOption,
    Boolean
]
Security.SSLSetSessionOption.restype = OSStatus

Security.SSLSetProtocolVersionMin.argtypes = [
    SSLContextRef,
    SSLProtocol
]

```

```

Security.SSLSetProtocolVersionMin.restype = OSStatus

Security.SSLSetProtocolVersionMax.argtypes = [
    SSLContextRef,
    SSLProtocol
]
Security.SSLSetProtocolVersionMax.restype = OSStatus

Security.SecCopyErrorMessageString.argtypes = [
    OSStatus,
    c_void_p
]
Security.SecCopyErrorMessageString.restype = CFStringRef

Security.SSLReadFunc = SSLReadFunc
Security.SSLWriteFunc = SSLWriteFunc
Security.SSLContextRef = SSLContextRef
Security.SSLProtocol = SSLProtocol
Security.SSLCipherSuite = SSLCipherSuite
Security.SecIdentityRef = SecIdentityRef
Security.SecKeychainRef = SecKeychainRef
Security.SecTrustRef = SecTrustRef
Security.SecTrustResultType = SecTrustResultType
Security.SecExternalFormat = SecExternalFormat
Security.OSStatus = OSStatus

Security.kSecImportExportPassphrase = CFStringRef.in_dll(
    Security, 'kSecImportExportPassphrase'
)
Security.kSecImportItemIdentity = CFStringRef.in_dll(
    Security, 'kSecImportItemIdentity'
)

# CoreFoundation time!
CoreFoundation.CFRetain.argtypes = [
    CFTypeRef
]
CoreFoundation.CFRetain.restype = CFTypeRef

CoreFoundation.CFRelease.argtypes = [
    CFTypeRef
]
CoreFoundation.CFRelease.restype = None

CoreFoundation.CFGetTypeID.argtypes = [
    CFTypeRef
]
CoreFoundation.CFGetTypeID.restype = CFTypeID

```

```
CoreFoundation.CFStringCreateWithCString.argtypes = [  
    CFAllocatorRef,  
    c_char_p,  
    CFStringEncoding  
]  
CoreFoundation.CFStringCreateWithCString.restype = CFStringRef
```

```
CoreFoundation.CFStringGetCStringPtr.argtypes = [  
    CFStringRef,  
    CFStringEncoding  
]  
CoreFoundation.CFStringGetCStringPtr.restype = c_char_p
```

```
CoreFoundation.CFStringGetCString.argtypes = [  
    CFStringRef,  
    c_char_p,  
    CFIndex,  
    CFStringEncoding  
]  
CoreFoundation.CFStringGetCString.restype = c_bool
```

```
CoreFoundation.CFDataCreate.argtypes = [  
    CFAllocatorRef,  
    c_char_p,  
    CFIndex  
]  
CoreFoundation.CFDataCreate.restype = CFDataRef
```

```
CoreFoundation.CFDataGetLength.argtypes = [  
    CFDataRef  
]  
CoreFoundation.CFDataGetLength.restype = CFIndex
```

```
CoreFoundation.CFDataGetBytePtr.argtypes = [  
    CFDataRef  
]  
CoreFoundation.CFDataGetBytePtr.restype = c_void_p
```

```
CoreFoundation.CFDictionaryCreate.argtypes = [  
    CFAllocatorRef,  
    POINTER(CFStringRef),  
    POINTER(CFStringRef),  
    CFIndex,  
    CFDictionaryKeyCallbacks,  
    CFDictionaryValueCallbacks  
]  
CoreFoundation.CFDictionaryCreate.restype = CFDictionaryRef
```

```

CoreFoundation.CFDictionaryGetValue.argtypes = [
    CFDictionaryRef,
    CFTypeRef
]
CoreFoundation.CFDictionaryGetValue.restype = CFTypeRef

CoreFoundation.CFArrayCreate.argtypes = [
    CFAllocatorRef,
    POINTER(CFTypeRef),
    CFIndex,
    CFArrayCallBacks,
]
CoreFoundation.CFArrayCreate.restype = CFArrayRef

CoreFoundation.CFArrayCreateMutable.argtypes = [
    CFAllocatorRef,
    CFIndex,
    CFArrayCallBacks
]
CoreFoundation.CFArrayCreateMutable.restype = CFMutableArrayRef

CoreFoundation.CFArrayAppendValue.argtypes = [
    CFMutableArrayRef,
    c_void_p
]
CoreFoundation.CFArrayAppendValue.restype = None

CoreFoundation.CFArrayGetCount.argtypes = [
    CFArrayRef
]
CoreFoundation.CFArrayGetCount.restype = CFIndex

CoreFoundation.CFArrayGetValueAtIndex.argtypes = [
    CFArrayRef,
    CFIndex
]
CoreFoundation.CFArrayGetValueAtIndex.restype = c_void_p

CoreFoundation.kCFAllocatorDefault = CFAllocatorRef.in_dll(
    CoreFoundation, 'kCFAllocatorDefault'
)
CoreFoundation.kCFTypeArrayCallBacks = c_void_p.in_dll(CoreFoundation, 'kCFTypeArrayCallBacks')
CoreFoundation.kCFTypeDictionaryKeyCallBacks = c_void_p.in_dll(
    CoreFoundation, 'kCFTypeDictionaryKeyCallBacks'
)
CoreFoundation.kCFTypeDictionaryValueCallBacks = c_void_p.in_dll(
    CoreFoundation, 'kCFTypeDictionaryValueCallBacks'
)

```

)

```
CoreFoundation.CFTypeRef = CFTypeRef
CoreFoundation.CFArrayRef = CFArrayRef
CoreFoundation.CFStringRef = CFStringRef
CoreFoundation.CFDictionaryRef = CFDictionaryRef
```

```
except (AttributeError):
    raise ImportError('Error initializing ctypes')
```

```
class CFConst(object):
    """
    A class object that acts as essentially a namespace for CoreFoundation
    constants.
    """
    kCFStringEncodingUTF8 = CFStringEncoding(0x08000100)
```

```
class SecurityConst(object):
    """
    A class object that acts as essentially a namespace for Security constants.
    """
    kSSLSessionOptionBreakOnServerAuth = 0

    kSSLProtocol2 = 1
    kSSLProtocol3 = 2
    kTLSProtocol1 = 4
    kTLSProtocol11 = 7
    kTLSProtocol12 = 8

    kSSLClientSide = 1
    kSSLStreamType = 0

    kSecFormatPEMSequence = 10

    kSecTrustResultInvalid = 0
    kSecTrustResultProceed = 1
    # This gap is present on purpose: this was kSecTrustResultConfirm, which
    # is deprecated.
    kSecTrustResultDeny = 3
    kSecTrustResultUnspecified = 4
    kSecTrustResultRecoverableTrustFailure = 5
    kSecTrustResultFatalTrustFailure = 6
    kSecTrustResultOtherError = 7

    errSSLProtocol = -9800
    errSSLWouldBlock = -9803
```

errSSLClosedGraceful = -9805  
errSSLClosedNoNotify = -9816  
errSSLClosedAbort = -9806  
  
errSSLXCertChainInvalid = -9807  
errSSLCrypto = -9809  
errSSLInternal = -9810  
errSSLCertExpired = -9814  
errSSLCertNotYetValid = -9815  
errSSLUnknownRootCert = -9812  
errSSLNoRootCert = -9813  
errSSLHostNameMismatch = -9843  
errSSLPeerHandshakeFail = -9824  
errSSLPeerUserCancelled = -9839  
errSSLWeakPeerEphemeralDHKey = -9850  
errSSLServerAuthCompleted = -9841  
errSSLRecordOverflow = -9847  
  
errSecVerifyFailed = -67808  
errSecNoTrustSettings = -25263  
errSecItemNotFound = -25300  
errSecInvalidTrustSettings = -25262

# Cipher suites. We only pick the ones our default cipher string allows.

TLS\_ECDHE\_ECDSA\_WITH\_AES\_256\_GCM\_SHA384 = 0xC02C  
TLS\_ECDHE\_RSA\_WITH\_AES\_256\_GCM\_SHA384 = 0xC030  
TLS\_ECDHE\_ECDSA\_WITH\_AES\_128\_GCM\_SHA256 = 0xC02B  
TLS\_ECDHE\_RSA\_WITH\_AES\_128\_GCM\_SHA256 = 0xC02F  
TLS\_DHE\_DSS\_WITH\_AES\_256\_GCM\_SHA384 = 0x00A3  
TLS\_DHE\_RSA\_WITH\_AES\_256\_GCM\_SHA384 = 0x009F  
TLS\_DHE\_DSS\_WITH\_AES\_128\_GCM\_SHA256 = 0x00A2  
TLS\_DHE\_RSA\_WITH\_AES\_128\_GCM\_SHA256 = 0x009E  
TLS\_ECDHE\_ECDSA\_WITH\_AES\_256\_CBC\_SHA384 = 0xC024  
TLS\_ECDHE\_RSA\_WITH\_AES\_256\_CBC\_SHA384 = 0xC028  
TLS\_ECDHE\_ECDSA\_WITH\_AES\_256\_CBC\_SHA = 0xC00A  
TLS\_ECDHE\_RSA\_WITH\_AES\_256\_CBC\_SHA = 0xC014  
TLS\_DHE\_RSA\_WITH\_AES\_256\_CBC\_SHA256 = 0x006B  
TLS\_DHE\_DSS\_WITH\_AES\_256\_CBC\_SHA256 = 0x006A  
TLS\_DHE\_RSA\_WITH\_AES\_256\_CBC\_SHA = 0x0039  
TLS\_DHE\_DSS\_WITH\_AES\_256\_CBC\_SHA = 0x0038  
TLS\_ECDHE\_ECDSA\_WITH\_AES\_128\_CBC\_SHA256 = 0xC023  
TLS\_ECDHE\_RSA\_WITH\_AES\_128\_CBC\_SHA256 = 0xC027  
TLS\_ECDHE\_ECDSA\_WITH\_AES\_128\_CBC\_SHA = 0xC009  
TLS\_ECDHE\_RSA\_WITH\_AES\_128\_CBC\_SHA = 0xC013  
TLS\_DHE\_RSA\_WITH\_AES\_128\_CBC\_SHA256 = 0x0067  
TLS\_DHE\_DSS\_WITH\_AES\_128\_CBC\_SHA256 = 0x0040  
TLS\_DHE\_RSA\_WITH\_AES\_128\_CBC\_SHA = 0x0033  
TLS\_DHE\_DSS\_WITH\_AES\_128\_CBC\_SHA = 0x0032



TLS\_RSA\_WITH\_AES\_256\_GCM\_SHA384 = 0x009D  
TLS\_RSA\_WITH\_AES\_128\_GCM\_SHA256 = 0x009C  
TLS\_RSA\_WITH\_AES\_256\_CBC\_SHA256 = 0x003D  
TLS\_RSA\_WITH\_AES\_128\_CBC\_SHA256 = 0x003C  
TLS\_RSA\_WITH\_AES\_256\_CBC\_SHA = 0x0035  
TLS\_RSA\_WITH\_AES\_128\_CBC\_SHA = 0x002F

Copyright 2017 Kenneth Reitz

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software  
distributed under the License is distributed on an "AS IS" BASIS,  
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
See the License for the specific language governing permissions and  
limitations under the License.

Requests includes some vendorized python libraries to ease installation.

Urllib3 License

=====

This is the MIT license: <http://www.opensource.org/licenses/mit-license.php>

Copyright 2008-2011 Andrey Petrov and contributors (see CONTRIBUTORS.txt),  
Modifications copyright 2012 Kenneth Reitz.

Permission is hereby granted, free of charge, to any person obtaining  
a copy of this software and associated documentation files (the  
"Software"), to deal in the Software without restriction, including  
without limitation the rights to use, copy, modify, merge, publish,  
distribute, sublicense, and/or sell copies of the Software, and to  
permit persons to whom the Software is furnished to do so, subject to  
the following conditions:

The above copyright notice and this permission notice shall be  
included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,  
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF  
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND  
NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE  
LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION  
OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION  
WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

#### Chardet License

=====

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

#### CA Bundle License

=====

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at <http://mozilla.org/MPL/2.0/>.

#### Idna License

=====

Copyright (c) 2013-2016, Kim Davies. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- #. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- #. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- #. Neither the name of the copyright holder nor the names of the contributors may be used to endorse or promote products derived from this software without specific prior written permission.
- #. THIS SOFTWARE IS PROVIDED BY THE CONTRIBUTORS "AS IS" AND ANY

EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Portions of the codec implementation and unit tests are derived from the Python standard library, which carries the Python Software Foundation License <<https://docs.python.org/2/license.html>> \_:

Copyright (c) 2001-2014 Python Software Foundation; All Rights Reserved

Portions of the unit tests are derived from the Unicode standard, which is subject to the Unicode, Inc. License Agreement:

Copyright (c) 1991-2014 Unicode, Inc. All rights reserved.

Distributed under the Terms of Use in  
<<http://www.unicode.org/copyright.html>>.

Permission is hereby granted, free of charge, to any person obtaining a copy of the Unicode data files and any associated documentation (the "Data Files") or Unicode software and any associated documentation (the "Software") to deal in the Data Files or Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Data Files or Software, and to permit persons to whom the Data Files or Software are furnished to do so, provided that

(a) this copyright and permission notice appear with all copies of the Data Files or Software,

(b) this copyright and permission notice appear in associated documentation, and

(c) there is clear notice in each modified Data File or in the Software as well as in the documentation associated with the Data File(s) or Software that the data or software has been modified.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS.

IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in these Data Files or Software without prior written authorization of the copyright holder.

Copyright 2017 Kenneth Reitz

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Requests includes some vendored python libraries to ease installation.

Urllib3 License

=====

This is the MIT license: <http://www.opensource.org/licenses/mit-license.php>

Copyright 2008-2011 Andrey Petrov and contributors (see CONTRIBUTORS.txt),  
Modifications copyright 2012 Kenneth Reitz.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF

MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

#### Chardet License

=====

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

#### CA Bundle License

=====

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at <http://mozilla.org/MPL/2.0/>.

#### Idna License

=====

Copyright (c) 2013-2016, Kim Davies. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

#. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

#. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

#. Neither the name of the copyright holder nor the names of the contributors may be used to endorse or promote products derived from this software without specific prior written permission.

#. THIS SOFTWARE IS PROVIDED BY THE CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Portions of the codec implementation and unit tests are derived from the Python standard library, which carries the Python Software Foundation License <<https://docs.python.org/2/license.html>> \_:

Copyright (c) 2001-2014 Python Software Foundation; All Rights Reserved

Portions of the unit tests are derived from the Unicode standard, which is subject to the Unicode, Inc. License Agreement:

Copyright (c) 1991-2014 Unicode, Inc. All rights reserved.

Distributed under the Terms of Use in

<<http://www.unicode.org/copyright.html>>.

Permission is hereby granted, free of charge, to any person obtaining a copy of the Unicode data files and any associated documentation (the "Data Files") or Unicode software and any associated documentation (the "Software") to deal in the Data Files or Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Data Files or Software, and to permit persons to whom the Data Files or Software are furnished to do so, provided that

(a) this copyright and permission notice appear with all copies of the Data Files or Software,

(b) this copyright and permission notice appear in associated documentation, and

(c) there is clear notice in each modified Data File or in the Software as well as in the documentation associated with the Data File(s) or

Software that the data or software has been modified.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS.

IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in these Data Files or Software without prior written authorization of the copyright holder.

## 1.96 requests-oauthlib 1.0.0

### 1.96.1 Available under license :

ISC License

Copyright (c) 2014 Kenneth Reitz.

Permission to use, copy, modify, and/or distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

## 1.97 requests-oauthlib 1.2.0

### 1.97.1 Available under license :

ISC License

Copyright (c) 2014 Kenneth Reitz.

Permission to use, copy, modify, and/or distribute this software for any purpose with or without fee is hereby granted, provided that the above

copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

## 1.98 resolve 1.6.0

### 1.98.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.99 sass-loader 7.1.0

### 1.99.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit



persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.100 save 2.3.3

### 1.100.1 Available under license :

Copyright (c) 2015, Paul Serby <paul@serby.net>

Permission to use, copy, modify, and/or distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

## 1.101 six 1.12.0

### 1.101.1 Available under license :

Copyright (c) 2010-2018 Benjamin Peterson

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR

IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.102 snappy-java 1.1.2.4

### 1.102.1 Available under license :

The Apache Software License, Version 2.0

<http://www.apache.org/licenses/LICENSE-2.0.txt>

## 1.103 socketIO-client 0.7.2

### 1.103.1 Available under license :

Copyright (c) 2013 Roy Hyunjin Han and contributors

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.104 spring-boot-starter-data-redis 2.0.4

## 1.105 spring-boot-starter-log4j2

## 2.0.4.RELEASE

# 1.106 spring-boot-starter-web 2.0.4.RELEASE

## 1.107 style-loader 0.19.0

### 1.107.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.108 sw-precache-webpack-plugin 0.11.4

### 1.108.1 Available under license :

Copyright <YEAR> <OWNER>

Permission to use, copy, modify, and/or distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS

SOFTWARE.

## 1.109 tzlocal 1.5.1

### 1.109.1 Available under license :

Copyright 2011-2017 Lennart Regebro

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.110 url-loader 0.6.2

### 1.110.1 Available under license :

Copyright JS Foundation and other contributors

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the 'Software'), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED 'AS IS', WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,

TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.111 urllib3 1.24.1

### 1.111.1 Available under license :

This is the MIT license: <http://www.opensource.org/licenses/mit-license.php>

Copyright 2008-2016 Andrey Petrov and contributors (see CONTRIBUTORS.txt)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.112 urllib3 1.25.2

### 1.112.1 Available under license :

This is the MIT license: <http://www.opensource.org/licenses/mit-license.php>

Copyright 2008-2016 Andrey Petrov and contributors (see CONTRIBUTORS.txt)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# Contributions to the urllib3 project

## Creator & Maintainer

\* Andrey Petrov <andrey.petrov@shazow.net>

## Contributors

In chronological order:

\* victor.vde <<http://code.google.com/u/victor.vde/>>

\* HTTPS patch (which inspired HTTPSConnectionPool)

\* erikcederstrand <<http://code.google.com/u/erikcederstrand/>>

\* NTLM-authenticated HTTPSConnectionPool

\* Basic-authenticated HTTPSConnectionPool (merged into make\_headers)

\* niphlod <niphlod@gmail.com>

\* Client-verified SSL certificates for HTTPSConnectionPool

\* Response gzip and deflate encoding support

\* Better unicode support for filepost using StringIO buffers

\* btoconnor <brian@btoconnor.net>

\* Non-multipart encoding for POST requests

\* p.dobrogost <<http://code.google.com/u/@WBRSRIBZDhBFXQB6/>>

\* Code review, PEP8 compliance, benchmark fix

\* kennethreitz <me@kennethreitz.com>

\* Bugfixes, suggestions, Requests integration

\* georgemarshall <<http://github.com/georgemarshall>>

\* Bugfixes, Improvements and Test coverage

\* Thomas Kluyver <thomas@kluyver.me.uk>

\* Python 3 support

- \* brandon-rhodes <<http://rhodesmill.org/brandon>>
  - \* Design review, bugfixes, test coverage.
  
- \* studer <[theo.studer@gmail.com](mailto:theo.studer@gmail.com)>
  - \* IPv6 url support and test coverage
  
- \* Shivaram Lingamneni <[slingamn@cs.stanford.edu](mailto:slingamn@cs.stanford.edu)>
  - \* Support for explicitly closing pooled connections
  
- \* hartator <[hartator@gmail.com](mailto:hartator@gmail.com)>
  - \* Corrected multipart behavior for params
  
- \* Thomas Weischuh <[thomas@t-8ch.de](mailto:thomas@t-8ch.de)>
  - \* Support for TLS SNI
  - \* API unification of ssl\_version/cert\_reqs
  - \* SSL fingerprint and alternative hostname verification
  - \* Bugfixes in testsuite
  
- \* Sune Kirkeby <[mig@ibofobi.dk](mailto:mig@ibofobi.dk)>
  - \* Optional SNI-support for Python 2 via PyOpenSSL.
  
- \* Marc Schlaich <[marc.schlaich@gmail.com](mailto:marc.schlaich@gmail.com)>
  - \* Various bugfixes and test improvements.
  
- \* Bryce Boe <[bbzbryce@gmail.com](mailto:bbzbryce@gmail.com)>
  - \* Correct six.moves conflict
  - \* Fixed pickle support of some exceptions
  
- \* Boris Figovsky <[boris.figovsky@ravellosystems.com](mailto:boris.figovsky@ravellosystems.com)>
  - \* Allowed to skip SSL hostname verification
  
- \* Cory Benfield <<http://lukasa.co.uk/about/>>
  - \* Stream method for Response objects.
  - \* Return native strings in header values.
  - \* Generate 'Host' header when using proxies.
  
- \* Jason Robinson <[jaywink@basshero.org](mailto:jaywink@basshero.org)>
  - \* Add missing WrappedSocket.fileno method in PyOpenSSL
  
- \* Audrius Butkevicius <[audrius.butkevicius@elastichosts.com](mailto:audrius.butkevicius@elastichosts.com)>
  - \* Fixed a race condition
  
- \* Stanislav Vitkovskiy <[stas.vitkovsky@gmail.com](mailto:stas.vitkovsky@gmail.com)>
  - \* Added HTTPS (CONNECT) proxy support
  
- \* Stephen Holsapple <[sholsapp@gmail.com](mailto:sholsapp@gmail.com)>
  - \* Added abstraction for granular control of request fields

- \* Martin von Gagern <Martin.vGagern@gmx.net>
- \* Support for non-ASCII header parameters
  
- \* Kevin Burke <kev@inburke.com> and Pavel Kirichenko <juanych@yandex-team.ru>
- \* Support for separate connect and request timeouts
  
- \* Peter Waller <p@pwaller.net>
- \* HTTPResponse.tell() for determining amount received over the wire
  
- \* Nipunn Koorapati <nipunn1313@gmail.com>
- \* Ignore default ports when comparing hosts for equality
  
- \* Danilo @dbrgn <http://dbrgn.ch/>
- \* Disabled TLS compression by default on Python 3.2+
- \* Disabled TLS compression in pyopenssl contrib module
- \* Configurable cipher suites in pyopenssl contrib module
  
- \* Roman Bogorodskiy <roman.bogorodskiy@ericsson.com>
- \* Account retries on proxy errors
  
- \* Nicolas Delaby <nicolas.delaby@ezeep.com>
- \* Use the platform-specific CA certificate locations
  
- \* Josh Schneier <https://github.com/jschneier>
- \* HTTPHeaderDict and associated tests and docs
- \* Bugfixes, docs, test coverage
  
- \* Tahia Khan <http://tahia.tk/>
- \* Added Timeout examples in docs
  
- \* Arthur Grunseid <http://grunseid.com>
- \* source\_address support and tests (with https://github.com/bui)
  
- \* Ian Cordasco <graffatcolmingov@gmail.com>
- \* PEP8 Compliance and Linting
- \* Add ability to pass socket options to an HTTP Connection
  
- \* Erik Tollerud <erik.tollerud@gmail.com>
- \* Support for standard library io module.
  
- \* Krishna Prasad <kprasad.iitd@gmail.com>
- \* Google App Engine documentation
  
- \* Aaron Meurer <asmeurer@gmail.com>
- \* Added Url.url, which unparses a Url
  
- \* Evgeny Kapun <abacabadabacaba@gmail.com>
- \* Bugfixes



- \* Benjamin Meyer <bm\_witness@yahoo.com>
- \* Security Warning Documentation update for proper capture
  
- \* Shivan Sornarajah <github@sornars.com>
- \* Support for using ConnectionPool and PoolManager as context managers.
  
- \* Alex Gaynor <alex.gaynor@gmail.com>
- \* Updates to the default SSL configuration
  
- \* Tomas Tomecek <ttomecek@redhat.com>
- \* Implemented generator for getting chunks from chunked responses.
  
- \* tlynn <https://github.com/tlynn>
- \* Respect the warning preferences at import.
  
- \* David D. Riddle <ddriddle@illinois.edu>
- \* IPv6 bugfixes in testsuite
  
- \* Jon Wayne Parrott <jonwayne@google.com>
- \* App Engine environment tests.
  
- \* John Krauss <https://github.com/talos>
- \* Clues to debugging problems with `cryptography` dependency in docs
  
- \* Disassem <https://github.com/Disassem>
- \* Fix pool-default headers not applying for url-encoded requests like GET.
  
- \* James Atherfold <jlatherfold@hotmail.com>
- \* Bugfixes relating to cleanup of connections during errors.
  
- \* Christian Pedersen <https://github.com/chripede>
- \* IPv6 HTTPS proxy bugfix
  
- \* Jordan Moldow <https://github.com/jmoldow>
- \* Fix low-level exceptions leaking from ``HTTPResponse.stream()``.
- \* Bugfix for ``ConnectionPool.urlopen(release\_conn=False)``.
- \* Creation of ``HTTPConnectionPool.ResponseCls``.
  
- \* Predrag Gruevski <https://github.com/obi1kenobi>
- \* Made cert digest comparison use a constant-time algorithm.
  
- \* Adam Talsma <https://github.com/a-tal>
- \* Bugfix to ca\_cert file paths.
  
- \* Evan Meagher <https://evanmeagher.net>
- \* Bugfix related to `memoryview` usage in PyOpenSSL adapter

- \* John Vandenberg <jayvdb@gmail.com>
  - \* Python 2.6 fixes; pyflakes and pep8 compliance
  
- \* Andy Caldwell <andy.m.caldwell@googlemail.com>
  - \* Bugfix related to reusing connections in indeterminate states.
  
- \* Ville Skytt <ville.skytta@iki.fi>
  - \* Logging efficiency improvements, spelling fixes, Travis config.
  
- \* Shige Takeda <smtakeda@gmail.com>
  - \* Started Recipes documentation and added a recipe about handling concatenated gzip data in HTTP response
  
- \* Jesse Shapiro <jesse@jesseshapiro.net>
  - \* Various character-encoding fixes/tweaks
  - \* Disabling IPv6 DNS when IPv6 connections not supported
  
- \* David Foster <http://dafoster.net/>
  - \* Ensure order of request and response headers are preserved.
  
- \* Jeremy Cline <jeremy@jcline.org>
  - \* Added connection pool keys by scheme
  
- \* Aviv Palivoda <palaviv@gmail.com>
  - \* History list to Retry object.
  - \* HTTPResponse contains the last Retry object.
  
- \* Nate Prewitt <nate.prewitt@gmail.com>
  - \* Ensure timeouts are not booleans and greater than zero.
  - \* Fixed infinite loop in ``stream`` when amt=None.
  - \* Added length\_remaining to determine remaining data to be read.
  - \* Added enforce\_content\_length to raise exception when incorrect content-length received.
  
- \* Seth Michael Larson <sethmichaellarson@protonmail.com>
  - \* Created selectors backport that supports PEP 475.
  
- \* Alexandre Dias <alex.dias@smarkets.com>
  - \* Don't retry on timeout if method not in whitelist
  
- \* Moinuddin Quadri <moin18@gmail.com>
  - \* Lazily load idna package
  
- \* Tom White <s6yg1ez3@mail2tor.com>
  - \* Made SOCKS handler differentiate socks5h from socks5 and socks4a from socks4.
  
- \* Tim Burke <tim.burke@gmail.com>
  - \* Stop buffering entire deflate-encoded responses.
  
- \* Tuukka Mustonen <tuukka.mustonen@gmail.com>

\* Add counter for status\_forcelist retries.

\* [Your name or handle] <[email or website]>

\* [Brief summary of your changes]

## 1.113 urllib3 1.23

### 1.113.1 Available under license :

# Contributions to the urllib3 project

## Creator & Maintainer

\* Andrey Petrov <andrey.petrov@shazow.net>

## Contributors

In chronological order:

\* victor.vde <<http://code.google.com/u/victor.vde/>>

\* HTTPS patch (which inspired HTTPSConnectionPool)

\* erikcederstrand <<http://code.google.com/u/erikcederstrand/>>

\* NTLM-authenticated HTTPSConnectionPool

\* Basic-authenticated HTTPSConnectionPool (merged into make\_headers)

\* niphlod <niphlod@gmail.com>

\* Client-verified SSL certificates for HTTPSConnectionPool

\* Response gzip and deflate encoding support

\* Better unicode support for filepost using StringIO buffers

\* btoconnor <brian@btoconnor.net>

\* Non-multipart encoding for POST requests

\* p.dobrogost <<http://code.google.com/u/@WBRSRIBZDhBFXQB6/>>

\* Code review, PEP8 compliance, benchmark fix

\* kennethreitz <me@kennethreitz.com>

\* Bugfixes, suggestions, Requests integration

\* georgemarshall <<http://github.com/georgemarshall>>

\* Bugfixes, Improvements and Test coverage

\* Thomas Kluyver <thomas@kluyver.me.uk>

\* Python 3 support

\* brandon-rhodes <<http://rhodesmill.org/brandon>>

- \* Design review, bugfixes, test coverage.
  
- \* studer <theo.studer@gmail.com>
- \* IPv6 url support and test coverage
  
- \* Shivaram Lingamneni <slingamn@cs.stanford.edu>
- \* Support for explicitly closing pooled connections
  
- \* hartator <hartator@gmail.com>
- \* Corrected multipart behavior for params
  
- \* Thomas Weischuh <thomas@t-8ch.de>
- \* Support for TLS SNI
- \* API unification of ssl\_version/cert\_reqs
- \* SSL fingerprint and alternative hostname verification
- \* Bugfixes in testsuite
  
- \* Sune Kirkeby <mig@ibofobi.dk>
- \* Optional SNI-support for Python 2 via PyOpenSSL.
  
- \* Marc Schlaich <marc.schlaich@gmail.com>
- \* Various bugfixes and test improvements.
  
- \* Bryce Boe <bbzbryce@gmail.com>
- \* Correct six.moves conflict
- \* Fixed pickle support of some exceptions
  
- \* Boris Figovsky <boris.figovsky@ravellosystems.com>
- \* Allowed to skip SSL hostname verification
  
- \* Cory Benfield <<http://lukasa.co.uk/about/>>
- \* Stream method for Response objects.
- \* Return native strings in header values.
- \* Generate 'Host' header when using proxies.
  
- \* Jason Robinson <jaywink@basshero.org>
- \* Add missing WrappedSocket.fileno method in PyOpenSSL
  
- \* Audrius Butkevicius <audrius.butkevicius@elastichosts.com>
- \* Fixed a race condition
  
- \* Stanislav Vitkovskiy <stas.vitkovsky@gmail.com>
- \* Added HTTPS (CONNECT) proxy support
  
- \* Stephen Holsapple <sholsapp@gmail.com>
- \* Added abstraction for granular control of request fields
  
- \* Martin von Gagern <Martin.vGagern@gmx.net>

- \* Support for non-ASCII header parameters
  
- \* Kevin Burke <kev@inburke.com> and Pavel Kirichenko <juanych@yandex-team.ru>
- \* Support for separate connect and request timeouts
  
- \* Peter Waller <p@pwaller.net>
- \* HTTPResponse.tell() for determining amount received over the wire
  
- \* Nipunn Koorapati <nipunn1313@gmail.com>
- \* Ignore default ports when comparing hosts for equality
  
- \* Danilo @dbrgn <http://dbrgn.ch/>
- \* Disabled TLS compression by default on Python 3.2+
- \* Disabled TLS compression in pyopenssl contrib module
- \* Configurable cipher suites in pyopenssl contrib module
  
- \* Roman Bogorodskiy <roman.bogorodskiy@ericsson.com>
- \* Account retries on proxy errors
  
- \* Nicolas Delaby <nicolas.delaby@ezeep.com>
- \* Use the platform-specific CA certificate locations
  
- \* Josh Schneier <https://github.com/jschneier>
- \* HTTPHeaderDict and associated tests and docs
- \* Bugfixes, docs, test coverage
  
- \* Tahia Khan <http://tahia.tk/>
- \* Added Timeout examples in docs
  
- \* Arthur Grunseid <http://grunseid.com>
- \* source\_address support and tests (with https://github.com/bui)
  
- \* Ian Cordasco <graffatcolmingov@gmail.com>
- \* PEP8 Compliance and Linting
- \* Add ability to pass socket options to an HTTP Connection
  
- \* Erik Tollerud <erik.tollerud@gmail.com>
- \* Support for standard library io module.
  
- \* Krishna Prasad <kprasad.iitd@gmail.com>
- \* Google App Engine documentation
  
- \* Aaron Meurer <asmeurer@gmail.com>
- \* Added Url.url, which unparses a Url
  
- \* Evgeny Kapun <abacabadabacaba@gmail.com>
- \* Bugfixes

- \* Benjamin Meyer <bm\_witness@yahoo.com>
- \* Security Warning Documentation update for proper capture
  
- \* Shivan Sornarajah <github@sornars.com>
- \* Support for using ConnectionPool and PoolManager as context managers.
  
- \* Alex Gaynor <alex.gaynor@gmail.com>
- \* Updates to the default SSL configuration
  
- \* Tomas Tomecek <ttomecek@redhat.com>
- \* Implemented generator for getting chunks from chunked responses.
  
- \* tlynn <https://github.com/tlynn>
- \* Respect the warning preferences at import.
  
- \* David D. Riddle <ddriddle@illinois.edu>
- \* IPv6 bugfixes in testsuite
  
- \* Jon Wayne Parrott <jonwayne@google.com>
- \* App Engine environment tests.
  
- \* John Krauss <https://github.com/talos>
- \* Clues to debugging problems with `cryptography` dependency in docs
  
- \* Disassem <https://github.com/Disassem>
- \* Fix pool-default headers not applying for url-encoded requests like GET.
  
- \* James Atherfold <jlatherfold@hotmail.com>
- \* Bugfixes relating to cleanup of connections during errors.
  
- \* Christian Pedersen <https://github.com/chripede>
- \* IPv6 HTTPS proxy bugfix
  
- \* Jordan Moldow <https://github.com/jmoldow>
- \* Fix low-level exceptions leaking from ``HTTPResponse.stream()``.
- \* Bugfix for ``ConnectionPool.urlopen(release\_conn=False)``.
- \* Creation of ``HTTPConnectionPool.ResponseCls``.
  
- \* Predrag Gruevski <https://github.com/obi1kenobi>
- \* Made cert digest comparison use a constant-time algorithm.
  
- \* Adam Talsma <https://github.com/a-tal>
- \* Bugfix to ca\_cert file paths.
  
- \* Evan Meagher <https://evanmeagher.net>
- \* Bugfix related to `memoryview` usage in PyOpenSSL adapter
  
- \* John Vandenberg <jayvdb@gmail.com>

- \* Python 2.6 fixes; pyflakes and pep8 compliance
  
- \* Andy Caldwell <andy.m.caldwell@googlemail.com>
  - \* Bugfix related to reusing connections in indeterminate states.
  
- \* Ville Skytt <ville.skytta@iki.fi>
  - \* Logging efficiency improvements, spelling fixes, Travis config.
  
- \* Shige Takeda <smtakeda@gmail.com>
  - \* Started Recipes documentation and added a recipe about handling concatenated gzip data in HTTP response
  
- \* Jesse Shapiro <jesse@jesseshapiro.net>
  - \* Various character-encoding fixes/tweaks
  - \* Disabling IPv6 DNS when IPv6 connections not supported
  
- \* David Foster <http://dafoster.net/>
  - \* Ensure order of request and response headers are preserved.
  
- \* Jeremy Cline <jeremy@jcline.org>
  - \* Added connection pool keys by scheme
  
- \* Aviv Palivoda <palaviv@gmail.com>
  - \* History list to Retry object.
  - \* HTTPResponse contains the last Retry object.
  
- \* Nate Prewitt <nate.prewitt@gmail.com>
  - \* Ensure timeouts are not booleans and greater than zero.
  - \* Fixed infinite loop in ``stream`` when amt=None.
  - \* Added length\_remaining to determine remaining data to be read.
  - \* Added enforce\_content\_length to raise exception when incorrect content-length received.
  
- \* Seth Michael Larson <sethmichaellarson@protonmail.com>
  - \* Created selectors backport that supports PEP 475.
  
- \* Alexandre Dias <alex.dias@smarkets.com>
  - \* Don't retry on timeout if method not in whitelist
  
- \* Moinuddin Quadri <moin18@gmail.com>
  - \* Lazily load idna package
  
- \* Tom White <s6yg1ez3@mail2tor.com>
  - \* Made SOCKS handler differentiate socks5h from socks5 and socks4a from socks4.
  
- \* Tim Burke <tim.burke@gmail.com>
  - \* Stop buffering entire deflate-encoded responses.
  
- \* Tuukka Mustonen <tuukka.mustonen@gmail.com>
  - \* Add counter for status\_forcelist retries.

- \* Erik Rose <erik@mozilla.com>
- \* Bugfix to pyopenssl vendoring
  
- \* Wolfgang Richter <wolfgang.richter@gmail.com>
- \* Bugfix related to loading full certificate chains with PyOpenSSL backend.
  
- \* Mike Miller <github@mikeage.net>
- \* Logging improvements to include the HTTP(S) port when opening a new connection
  
- \* Ioannis Tziakos <mail@itziakos.gr>
- \* Fix ``util.selectors.\_fileobj\_to\_fd`` to accept ``long``.
- \* Update appveyor tox setup to use the 64bit python.
  
- \* Akamai (through Jesse Shapiro) <jshapiro@akamai.com>
- \* Ongoing maintenance
  
- \* Dominique Leuenberger <dimstar@opensuse.org>
- \* Minor fixes in the test suite
  
- \* Will Bond <will@wbond.net>
- \* Add Python 2.6 support to ``contrib.securetransport``
  
- \* Aleksei Alekseev <alekseev.yeskela@gmail.com>
- \* using auth info for socks proxy
  
- \* Chris Wilcox <git@crwilcox.com>
- \* Improve contribution guide
- \* Add ``HTTPResponse.geturl`` method to provide ``urllib2.urlopen().geturl()`` behavior
  
- \* [Your name or handle] <[email or website]>
- \* [Brief summary of your changes]

This is the MIT license: <http://www.opensource.org/licenses/mit-license.php>

Copyright 2008-2016 Andrey Petrov and contributors (see CONTRIBUTORS.txt)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR



PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.114 vcversioner 2.16.0.0

## 1.115 vis 4.21.0

### 1.115.1 Available under license :

The MIT License (MIT)

Copyright (c) 2014-2017 Almende B.V.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

RefreshCL Icon Pack by TPKD 2005 [www.tpdkdesign.net](http://www.tpdkdesign.net)

All rights reserved.

version 1.0 2005/18/11

Terms of use

Theses icons are copyrighted, and for personal use only.

Until now, COMMERCIAL USE is strictly forbidden.

You cannot (non-exhaustive list) :

- Use my icons in commercial website
- Use my icons in a professional website layout
- Sell or distribute those icons

For any other use, such as :

- using in non-commercial website
- using icon in free software under GPL licence

you need my authorization to use them. If you have my permission, you need to credit me in your terms and put a link to my website.

I would not be responsible fo any damage you may encounter while using this product.

For any question or request about the pack, please send me an email to [tpdk@tpdkdesign.net](mailto:tpdk@tpdkdesign.net).

Special thanks to customxp's & crystalxp's teams and members for help and support ;)

<http://crystalxp.net>

<http://customxp.net>

<http://pngfactory.net>

visit my deviantart webpage : <http://tpdkcasimir.deviantart.com/>

IMAGE LICENSES

#### REFRESH CL

<http://www.iconarchive.com/category/system/refresh-cl-icons-by-tpdkdesign.net.html>

License: Free for non-commercial use.

[http://www.iconarchive.com/icons/tpdkdesign.net/refresh-cl/readme\\_eng.txt](http://www.iconarchive.com/icons/tpdkdesign.net/refresh-cl/readme_eng.txt)

#### AESTHETICA 2

<http://www.iconarchive.com/category/application/aesthetica-2-icons-by-dryicons.html>

License:

DryIcons Terms of Use

<http://dryicons.com/terms/>

Aesthetica Icon Set, version 2.0

<http://dryicons.com/free-icons/preview/aesthetica-version-2/>

Information

-----

This icon set contains 181 quality icons in the following formats:

Transparent PNG

16 x 16 px

24 x 24 px

32 x 32 px

48 x 48 px

128 x 128 px

## Licensing

-----

The usage of DryIcons' work (icons, icon sets and graphics) is limited to the terms of the "Free License" and "Commercial License" use.

The DryIcons Free License means that you can use our icons, icon sets and graphics in any publicly accesible web site, web application or any form of presentation publicly accessible through the World Wide Web only according to the DryIcons Free License Terms and Conditions:

- \* You must put a back link with credits to <http://dryicons.com> on every page where DryIcons' Works are used (example: Icons by <http://dryicons.com>);
- \* You must include the correct back link to DryIcons website, which is: <http://dryicons.com>;
- \* You must place the link on an easy-to-see, recognizable place, so there is no confusion about the Original Author of the Works (DryIcons);
- \* When copying, or paraphrasing description text (or title) on one of the Works, you must make sure there are no spelling mistakes;
- \* Do not try to take credit or imply in any way that you and not DryIcons is the Original Author of the Works (icons, icon sets and graphics).

For a more detailed look at our Free License Agreement, please follow the link: <http://dryicons.com/terms/#free-license>

The DryIcons Commercial License means that you can use our Free Icon Sets and Free Graphics without being obligated to put a back link to DryIcons.com for a certain fee. After you complete yourpayment transaction DryIcons grants you a Commercial License.

Refresh Cl icon set

<http://www.iconarchive.com/show/refresh-cl-icons-by-tpdkdesign.net.html>

<http://www.iconarchive.com/artist/tpdkdesign.net.html>

Artist: TpdKDesign.net

License: Free for non-commercial use.

Name: TpdKDesign.net

URL: <http://www.tpdkdesign.net>

Available for custom work: No

Default License: Free for non-commercial use.

Commercial usage: Not allowed

Scrap Icons by Deleket

<http://www.iconarchive.com/show/soft-scraps-icons-by-deleket.html>

Artist: Deleket (Jojo Mendoza) (Available for custom work)

License: CC Attribution-Noncommercial-No Derivate 3.0

<http://creativecommons.org/licenses/by-nc-nd/3.0/>

Commercial usage: Allowed (Author Approval required -> Visit artist homepage for details).

\*\*\*\*\*\

Shapes4FREE License

<http://www.shapes4free.com/> - visit us to get free photoshop shapes, read our easy-to-understand shapes tutorials and tips, and view beautiful examples of using shapes in all kinds of design

More about the license: <http://www.shapes4free.com/license/>

\*\*\*\*\*/

This resource was created by Oksana Khristenko

This resource has been downloaded from Shapes4FREE.com and is free for personal or commercial projects. You may use it for web and print design.

No attribution or backlinks are required, but we would certainly appreciate it if you bookmarked [www.shapes4free.com](http://www.shapes4free.com) and shared the link to it with your friends:

[www.shapes4free.com](http://www.shapes4free.com) - free photoshop shapes

You may not resell or distribute this resource. Uploading it to another website or offering them for download on another website is not allowed. If you would like to feature this resource on your website or share them with friends, do not link directly to the resource files, please link to the appropriate page on Shapes4FREE.com where it is possible to download the freebie.

\*\*\*\*\*\

Shapes4FREE

<http://www.shapes4free.com/> - , ,

: <http://www.shapes4free.com/license-ru/>

\*\*\*\*\*/

:

Shapes4FREE.com,  
(photoshop custom shapes) .  
Shapes4FREE .

Shapes4FREE.com . :

[www.shapes4free.com](http://www.shapes4free.com) -

Shapes4FREE.

.  
, ,

## TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
  - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or

agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

## 1.116 wewidth 0.1.7

### 1.116.1 Available under license :

The MIT License (MIT)

Copyright (c) 2014 Jeff Quast <contact@jeffquast.com>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:



The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.117 webencodings 0.5.1

## 1.118 webpack 3.8.1

### 1.118.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.119 webpack-dev-server 2.11.3

## 1.119.1 Available under license :

MIT License

SPDX short identifier: MIT

Copyright <YEAR> <COPYRIGHT HOLDER>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.120 webpack-manifest-plugin 1.3.2

### 1.120.1 Available under license :

The MIT License (MIT)

Copyright (c) Dane Thurber <dane.thurber@gmail.com>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

# 1.121 websocket-client 0.56.0

## 1.121.1 Available under license :

Copyright 2018 Hiroki Ohtani.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

# 1.122 wget 3.2

# 1.123 whatwg-fetch 2.0.3

## 1.123.1 Available under license :

Copyright (c) 2014-2016 GitHub, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 1.124 xz 1.5

### 1.124.1 Available under license :

Public Domain

You can do whatever you want with this package.

## 1.125 zope.interface 4.6.0

### 1.125.1 Available under license :

Zope Foundation and Contributors

Zope Public License (ZPL) Version 2.1

A copyright notice accompanies this license document that identifies the copyright holders.

This license has been certified as open source. It has also been designated as GPL compatible by the Free Software Foundation (FSF).

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions in source code must retain the accompanying copyright notice, this list of conditions, and the following disclaimer.
2. Redistributions in binary form must reproduce the accompanying copyright notice, this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Names of the copyright holders must not be used to endorse or promote products derived from this software without prior written permission from the copyright holders.
4. The right to distribute this software or to use it for any purpose does not give you the right to use Servicemarks (sm) or Trademarks (tm) of the

copyright holders. Use of them is covered by separate agreement with the copyright holders.

5. If any files are modified, you must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

#### Disclaimer

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: [www.cisco.com/go/trademarks](http://www.cisco.com/go/trademarks). Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

©2019 Cisco Systems, Inc. All rights reserved.