# CPS Release Change Reference, Release 24.2.0

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**Americas Headquarters**

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
       800 553-NETS (6387)
Fax: 408 527-0883

# CONTENTS

# Preface

# About This Guide

**Note**  The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. While any existing biased terms are being substituted, exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

This document overrides the same document available in the 22.1.0. For other functionality refer to the 22.1.0 documentation at Cisco.com.

This document is a part of the Cisco Policy Suite documentation set.

For information about available documentation, see the *CPS Documentation Map* for this release at Cisco.com.

# Audience

This guide is best used by these readers:

- Network administrators

- Network engineers

- Network operators

- System administrators

This document assumes a general understanding of network architecture, configuration, and operations.

# Additional Support

For further documentation and support:

- Contact your Cisco Systems, Inc. technical representative.

- Call the Cisco Systems, Inc. technical support number.

- Write to Cisco Systems, Inc. at support@cisco.com.

- Refer to support matrix at https://www.cisco.com/c/en/us/support/index.html and to other documents related to Cisco Policy Suite.

# Conventions (all documentation)

This document uses the following conventions.

| Conventions | Indication |
|---|---|
| **bold** font | Commands and keywords and user-entered text appear in **bold** font. |
| *italic* font | Document titles, new or emphasized terms, and arguments for which you supply values are in *italic* font. |
| [ ] | Elements in square brackets are optional. |
| {x \| y \| z } | Required alternative keywords are grouped in braces and separated by vertical bars. |
| [ x \| y \| z ] | Optional alternative keywords are grouped in brackets and separated by vertical bars. |
| string | A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks. |
| courier font | Terminal sessions and information the system displays appear in courier font. |
| < > | Nonprinting characters such as passwords are in angle brackets. |
| [ ] | Default responses to system prompts are in square brackets. |
| !, # | An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line. |

**Note** Means reader take note. Notes contain helpful suggestions or references to material not covered in the manual.

**Caution** Means reader be careful. In this situation, you might perform an action that could result in equipment damage or loss of data.

**Warning** IMPORTANT SAFETY INSTRUCTIONS.

Means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

**Note** Regulatory: Provided for additional information and to comply with regulatory and customer requirements.

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- To obtain general networking, training, and certification titles, visit Cisco Press.

- To find warranty information for a specific product or product family, access Cisco Warranty Finder.

**Cisco Bug Search Tool**

Cisco Bug Search Tool (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

# Important Notes

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**Important**    Any feature or GUI functionality that is not documented may not be supported in this release or may be customer specific, and must not be used without consulting your Cisco Account representative.

# Platform

- Support for MongoDB 6.0 Version in vDRA, on page 1
- Upgrade Alma Linux to 8.9, on page 4
- Upgrade MongoDB Version 6.0, on page 4

# Support for MongoDB 6.0 Version in vDRA

## Feature Summary and Revision History

*Table 1: Summary Data*

| Applicable Product(s) or Functional Area | vDRA |
|---|---|
| Applicable Platform(s) | Not Applicable |
| Default Setting | Enabled – Configuration Required |
| Related Changes in This Release | Not Applicable |
| Related Documentation | Not Applicable |

*Table 2: Revision History*

| Revision Details | Release |
|---|---|
| First introduced | 24.2.0 |

## Feature Description

This release provides support for MongoDB version 6.0

**Upgrade, Migrate, and Backward Compatibility Considerations**

- **Supported DRA Releases for Upgrading to 6.0**: You can upgrade vDRA 24.1.0 (mongoDB version,5.0) to vDRA 24.2.0 (mongoDB version, 6.0).

- **Un Supported DRA Releases for Upgrading to 6.0**: Any DRA version prior to DRA 24.1(mongo 5.0) like DRA 23.1/23.2(mongo 4.4), 22.2 (mongo 4.2) and previous versions of DRA doesn't support direct upgrade to DRA 24.2(mongo version 6.0)

  Refer the link for upgrading the replica set to 6.0.

> **Note** Upgrading to DRA 24.2 is supported only from DRA 24.1.0

**Mongo Java Driver**: Current DRA Version 24.2.0 supports mongo java driver 3.12.9.

**Prerequisite for upgrading to 24.2.0 from 24.1.0**

The following are the common prerequisites for both upgrade and downgrade:

- Run the following CLI before upgrade:

  ```
  #database genericfcvcheck 5.0
  ```

> **Note** Make sure to run the above CLI before upgrade and / or downgrade on all sites.

- Specify any one of the CLI options:

  - **Set**: This option checks and sets FCV only on primary.

> **Note** We recommend using the **Set** option first and then **Check** to make sure that FCV is replicated on primary members. Upgrade/downgrade should not be triggered if any error is found in the above CLI or FCV is not replicated on secondary members. Make sure to resolve the CLI error, rerun the CLI, and then only proceed for upgrade or downgrade.

  - **Check**: This option only checks FCV on all members (primary, secondary, and arbiter).

- Run the following CLI before upgrade:

  ```
  #database dwccheck
  ```

> **Note** CLI automatically takes care of the defaultWriteConcern version on all databases.

- Specify any one of the CLI options:

  - **Set**: This option checks and sets dwc on primary members.

> ✎
>
> **Note**   We recommend using the **Set** option first and then **Check** to make sure that DWC is replicated on primary members. Upgrade/downgrade should not be triggered if any error is found in the above CLI or DWC is not replicated on secondary members. Make sure to resolve the CLI error, rerun the CLI, and then only proceed for upgrade or downgrade.

  • **Check**: This option only checks dwc on all members.

  • **(set/check) << set**

    • **Set**: This option checks and sets defaultWriteConcern.

    • **Check**: This option only checks defaultWriteConcern on all members(primary/secondary).

### Deprecated Mongo Commands and Parameters

  • From 24.2.0, the mongo command is replaced with **mongosh** command. Refer the following **mongosh** command usage example:

```
root@mongo-s105:/# mongosh --port 27033

Using MongoDB: 6.0.15
Using Mongosh: 1.10.6
orchestrator[primary] test>
```

  • The following parameters are renamed in MongoDB 6.0:

| Previous Name | New Name |
|---|---|
| wiredTigerConcurrentReadTransactions | storageEngineConcurrentReadTransactions |
| wiredTigerConcurrentWriteTransactions | storageEngineConcurrentWriteTransactions |

### Upgrade to 24.2.0

1. Run the prerequisite steps.

2. Follow the standard documented procedure for upgrade.

### Downgrade from 24.2.0

1. Run the steps mentioned in the prerequisite section.

2. Follow the standard documented procedure for downgrade.

# Upgrade Alma Linux to 8.9

### Feature Summary and Revision History

*Table 3: Summary Data*

| | |
|---|---|
| Applicable Product(s) or Functional Area | CPS |
| Applicable Platform(s) | Not Applicable |
| Feature Default | Enabled – Always-on |
| Related Changes in This Release | Not Applicable |
| Related Documentation | Not Applicable |

### Revision History

| Revision Details | Release |
|---|---|
| First introduced. | 24.2.0 |

### Feature Description

In CPS 24.2.0 release, Alma Linux version 8.8 is replaced with Alma Linux 8.9 along with upgrading to the latest rpm packages and their dependencies.

With Alma Linux 8.9 the kernel version is modified to:

```
# rpm -qa | grep kernel-[0-9]
kernel-4.18.0-513.24.1.el8_9.x86_64

# cat /etc/redhat-release
AlmaLinux release 8.9 (Midnight Oncilla)

# uname -a
Linux localhost.localdomain 4.18.0-513.24.1.el8_9.x86_64 #1 SMP Thu Aug 8 11:23:13 EDT 2024
 x86_64 x86_64 x86_64 GNU/Linux
```

# Upgrade MongoDB Version 6.0

### Feature Summary and Revision History

*Table 4: Summary Data*

| | |
|---|---|
| Applicable Product(s) or Functional Area | CPS |

| Applicable Platform(s) | Not Applicable |
|---|---|
| Default Setting | Enabled – Configuration Required |
| Related Changes in This Release | Not Applicable |
| Related Documentation | Not Applicable |

*Table 5: Revision History*

| Revision Details | Release |
|---|---|
| First introduced | 24.2.0. |

**Feature Description**

This release provides support for MongoDB version 6.0.

Following are the supported and unsupported CPS releases:

- **Supported CPS Releases for upgrading to 6.0**:

    You can upgrade CPS 24.1.0 (using mongoDB version 5.0.20) to CPS 24.2.0 (using mongoDB version 6.0.14). Upgrade to MongoDB 6.0 is supported only from MongoDB 5.0. For example, if you are running a 4.4 series, you must first upgrade to 5.0 before you can upgrade to 6.0.

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**Important**   Upgrading to CPS 24.2 is supported only from CPS 24.1.

- **Un Supported CPS Releases for upgrading to 6.0**:

    Any CPS versions prior to CPS 24.1 (using MongoDB version 5.0.20) such as CPS 23.1 or 23.2 (using MongoDB version 4.4.18), CPS 22.2 (using MongoDB version 4.2.20), or CPS 22.1.1 (using MongoDB version 4.0.27), CPS 21.1 (using MongoDB version 3.6.9), or CPS 19.4/18.2 (using MongoDB version 3.4.5), and previous versions of CPS does not support direct upgrade to CPS 24.2 (using MongoDB version 6.0).

    To upgrade the Replica set to 6.0, go to https://www.mongodb.com/docs/manual/release-notes/6.0-upgrade-replica-set/

The compatible Java driver for 6.0 is 3.12.9.

The following parameters are renamed in MongoDB 6.0:

| Previous Name | New Name |
|---|---|
| wiredTigerConcurrentReadTransactions | storageEngineConcurrentReadTransactions |
| wiredTigerConcurrentWriteTransactions | storageEngineConcurrentWriteTransactions |

**Prerequisite for Upgrading from 24.1.0 to 24.2.0**

While performing In-Service Software Migration (ISSM) from 24.1.0 to 24.2.0, after bringing up the new Cluman with 24.2.0, verify whether the DefaultRWConcern configuration for MongoDB is set to 1 using the **diagnostics.sh** script

**Note** In CPS 24.2.0, the **diagnostics.sh** script has been updated to verify whether the DefaultRWConcern configuration for MongoDB is set to 1.

• If the value is already set to 1, the diagnotics.sh script will report the DefaultRWConcern check as PASS, where NO action is required from the user.

```
[root@cluman ~]# diagnostics.sh --get_r
CPS Diagnostics HA Multi-Node Environment
---------------------------
Checking DefaultRWConcern for the MongoReplicaSet Members...[PASS]
Checking replica sets...
```

• If the value is not set to 1, the diagnotics.sh script will report the DefaultRWConcern check as FAIL, and the user should run the following script from Cluman to update the value to 1.

```
[root@localhost ~]# diagnostics.sh --get_r
CPS Diagnostics HA Multi-Node Environment
---------------------------
Checking DefaultRWConcern for the MongoReplicaSet Members...
sessionmgr02:27727 is not having the right DefaultRWConcern...[FAIL]
sessionmgr02:27737 is not having the right DefaultRWConcern...[FAIL]
Checking replica sets...

source /var/qps/install/current/scripts/bin/support/mongo/dbcmds.sh

replica_sets=$(perl -wlne 'print if /SETNAME=/../MEMBER1=/;'/etc/broadhop/mongoConfig.cfg
 |awk -F= /MEMBER1/'{print $2}')
  for set in ${replica_sets[*]}; do
   echo $set;
   x="$MONGO_ADMIN  ${set}   --eval 'db.adminCommand(  {setDefaultRWConcern : 1,
     \"defaultWriteConcern\": { \"w\" : 1 ,\"wtimeout\" : 0  } })'";
   xx=$(eval $x);
   echo $xx
done
```

**Note** This prerequisite is not applicable for fresh installation.

# Security Enahncements

# PSB Requirements for 24.2.0

**Feature Summary and Revision History**

*Table 6: Summary Data*

| | |
|---|---|
| Applicable Product(s) or Functional Area | CPS/vDRA |
| Applicable Platform(s) | Not Applicable |
| Default Setting | Enabled – Always-on |
| Related Changes in This Release | Not Applicable |
| Related Documentation | Not Applicable |

*Table 7: Revision History*

| Revision Details | Release |
|---|---|
| First Introduced. | 24.2.0 |

**Feature Description**

CPS PCRF meets the Cisco security guidelines and is aligned with the security features for 24.2.0 release. CPS now supports the following PSB requirements:

*Table 8: CPS PSB Requirements*

| PSB Item | Description |
|---|---|
| CT1972: SEC-AUT-API-3 | Use authentication and authorization to protect the API service offerings. |
| CT2224: SEC-DAT-MINIMIZE-2 | Minimize collection, use, and storage of data. |

| PSB Item | Description |
|---|---|
| CT2240: SEC-SW-APPDTCT-FR9-v1 | Malformed Signatures (was SEC-SW-LOADCHK-FR7). |
| CT2303: SEC-SUP-PATCH-3 | Propagate upstream security patches. |

CPS vDRA meets the Cisco security guidelines and is aligned with the security features for 24.2.0 release. CPS now supports the following PSB requirements:

*Table 9: vDRA PSB Requirements*

| PSB Item | Description |
|---|---|
| CT2303: SEC-SUP-PATCH-3 | Propagate upstream security patches. |
| CT2301: SEC-IP-IPv6-2 | Support all security requirements over IPv6. |
| CT2240: SEC-SW-APPDTCT-FR9-v1 | Malformed Signatures (was SEC-SW-LOADCHK-FR7). |
| CT2224: SEC-DAT-MINIMIZE-2 | Minimize collection, use, and storage of data |

# vDRA

# Control Plane Optimization for Local and Remote Peers

### Feature Summary and Revision History

*Table 10: Summary Data*

| | |
|---|---|
| Applicable Product(s) or Functional Area | vDRA |
| Applicable Platform(s) | Not Applicable |
| Default Setting | Enabled – Always-on |
| Related Changes in This Release | Not Applicable |
| Related Documentation | • *CPS vDRA Operations Guide*<br>• *CPS vDRA Advanced Tuning Guide* |

*Table 11: Revision History*

| Revision Details | Release |
|---|---|
| In CPS vDRA:<br><br>• Introduced a new thread pool to process the global control plane messages and the existing thread process only the local control plane messages.<br><br>• CLI is configured to skip the local publishing and processing of RxB peers control plane messages from the remote sites. The process is applicable for the non-mated systems. | 24.2.0 |

### Feature Description

In vDRA, all the control plane messages from local and remote were handled by a single thread pool *cpSubscriberWorker*. Whenever there is a network outage or peer fluctuation on the remote site, the local site was flooded with control plane messages from the remote site thus, leading to peer expiration in local site followed by traffic loss. Hence, following enhancements are made in CPS vDRA 24.2.0 and later releases:

- A separate thread pool is available to handle the remote sites control plane messages. The addition of a new thread pool helps to overcome the exhaustion of thread pool in local sites during any fluctuation on the remote sites. The control plane worker threads and queue size are increased through:

    - *Policy Builder - cpSubscriberWorker* threading configuration to handle the peer status control messages from local sites.

    - *Policy Builder - globalCPSubscriberWorker* threading configuration to handle the control messages from remote sites.

- The *control-plane remote-peer-policy global filter-fqdn-with-string* CLI command configures the RxB peer FQDN as a list of substring to skip the local publish of RxB peer status control messages from remote sites.

- The **subscribe_messages_drop** KPI includes the following labels added along with the existing labels:

    - control_topic

    - system

For more information see, the *Advanced Tuning* section in the *CPS vDRA Advanced Tuning Guide*, *CLI Commands* section in the *CPS vDRA Operations Guide*, and *Statistics/KPI Additions or Changes* section in the *CPS Release Change Reference Guide*.

CHAPTER **4**

# Operations

- Statistics/KPI Additions or Changes, on page 11

## Statistics/KPI Additions or Changes

The following table provides information on new/modified statistics:

*Table 12: Statistics Additions*

| Statistics Name | Description | Applicable Product(s) |
|---|---|---|
| subscribe_messages_drop | Tracks the number of subscribed messages dropped when the executor queue is full.<br><br>New Labels: control_topic,system | vDRA |