

维护Catalyst 3850系列交换机

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简介

本文档介绍如何升级Cisco Catalyst 3850系列交换机，并提供软件或引导故障的恢复技术。

先决条件

要求

Cisco 建议您了解以下主题：


- TFTP
- FTP
- Cisco IOS® XE软件升级体验

使用的组件

本文档中的信息基于运行Cisco IOS XE版本03.03.00及更高版本的Cisco Catalyst 3850系列交换机

。本文档中的示例使用堆叠解决方案；但是，可以在独立交换机上运行相同的命令。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

 注：要从Cisco网站下载Cisco IOS XE映像，您必须具有有效的Cisco Connection Online(CCO)帐户及授权的凭证。思科不提供免费TFTP/FTP解决方案。在开始之前安装和配置TFTP/FTP。

安装模式与捆绑包模式

Cisco Catalyst 3850系列交换机有两种操作模式：INSTALL和BUNDLE。

这两种模式之间有一些细微的差别。有关详情，请参阅配置指南。

思科建议在操作时使用安装模式，因为此模式可以提供更完善的功能，引导时所需的资源也更少。本文档仅提供两种模式的概括介绍，以供参考。

安装模式

这是交换机的默认模式。安装模式使用名为 `packages.conf` 的软件包调配文件来引导交换机。此外，闪存中还有 `.pkg` 文件。

思科建议您不要更改这些文件，除非是在思科技术支持中心 (TAC) 工程师的指导下进行。

捆绑包模式

如果您对使用传统的整体式Cisco IOS映像来启动交换机感到满意，那么捆绑包模式可能比较熟悉。

捆绑包模式消耗的内存比安装模式要多，因为升级时会从捆绑包中解压软件包，并复制到 RAM 中。

模式验证

要验证模式，请输入 `show version` 指令：

```
<#root>
```

```
3850-stack#
```

```
show version
```

```
Cisco IOS Software, Cisco IOS-XE Software, Catalyst L3 Switch Software  
(CAT3K_CAA-UNIVERSALK9-M), Version 03.03.00SE RELEASE SOFTWARE (fc1)
```

```
Switch Ports Model          SW Version  SW Image
```

```
Mode
```

```
-----
1 32   WS-C3850-24P   03.03.00SE   cat3k_caa-universalk9
INSTALL

* 2 56   WS-C3850-48T   03.03.00SE   cat3k_caa-universalk9
INSTALL
```

升级

要开始升级过程，请从Cisco网站下载Cisco IOS® XE .bin文件，并将其放在活动交换机的闪存中。本文档不提供将该文件复制到交换机的操作步骤。

在将 .bin 文件复制到单个交换机时，安装进程会自动将该文件复制到同一堆叠中的其他交换机。复制好文件后，输入如下命令：

```
<#root>
3850-stack#
software install file flash:cat3k_caa-universalk9.SPA.03.03.01.SE.150-1.EZ1.bin
switch 1-2
```



注意：每个命令后都有许多可用选项；但是，在本例中运行的是基本升级。

当升级过程开始时，交换机将.bin文件推送到堆叠成员对等体。

```
Preparing install operation ...
[2]: Copying software from active switch 1 to switch 2
```

当所有成员均收到 .bin 文件后，该文件会自动解压到闪存。

```
[1 2]: Starting install operation
[1 2]: Expanding bundle flash:
cat3k_caa-universalk9.SPA.03.03.01.SE.150-1.EZ1.bin
[1 2]: Copying package files
[1 2]: Package files copied
[1 2]: Finished expanding bundle flash:
cat3k_caa-universalk9.SPA.03.03.01.SE.150-1.EZ1.bin
[1 2]: Verifying and copying expanded package files to flash:
[1 2]: Verified and copied expanded package files to flash:
[1 2]: Starting compatibility checks
[1 2]: Finished compatibility checks
[1 2]: Starting application pre-installation processing
```

```
[1 2]: Finished application pre-installation processing
```

接下来，交换机会列出一份文件列表，其中包括已标记为需要移除并添加到 packages.conf 指针文件中的文件。

```
[1]: Old files list:
  Removed cat3k_caa-base.SPA.03.03.00SE.pkg
  Removed cat3k_caa-drivers.SPA.03.03.00SE.pkg
  Removed cat3k_caa-infra.SPA.03.03.00SE.pkg
  Removed cat3k_caa-iosd-universalk9.SPA.150-1.EZ.pkg
  Removed cat3k_caa-platform.SPA.03.03.00SE.pkg
  Removed cat3k_caa-wcm.SPA.10.1.100.0.pkg
[2]: Old files list:
  Removed cat3k_caa-base.SPA.03.03.00SE.pkg
  Removed cat3k_caa-drivers.SPA.03.03.00SE.pkg
  Removed cat3k_caa-infra.SPA.03.03.00SE.pkg
  Removed cat3k_caa-iosd-universalk9.SPA.150-1.EZ.pkg
  Removed cat3k_caa-platform.SPA.03.03.00SE.pkg
  Removed cat3k_caa-wcm.SPA.10.1.100.0.pkg
[1]: New files list:
  Added cat3k_caa-base.SPA.03.03.01SE.pkg
  Added cat3k_caa-drivers.SPA.03.03.01SE.pkg
  Added cat3k_caa-infra.SPA.03.03.01SE.pkg
  Added cat3k_caa-iosd-universalk9.SPA.150-1.EZ1.pkg
  Added cat3k_caa-platform.SPA.03.03.01SE.pkg
  Added cat3k_caa-wcm.SPA.10.1.110.0.pkg
[2]: New files list:
  Added cat3k_caa-base.SPA.03.03.01SE.pkg
  Added cat3k_caa-drivers.SPA.03.03.01SE.pkg
  Added cat3k_caa-infra.SPA.03.03.01SE.pkg
  Added cat3k_caa-iosd-universalk9.SPA.150-1.EZ1.pkg
  Added cat3k_caa-platform.SPA.03.03.01SE.pkg
  Added cat3k_caa-wcm.SPA.10.1.110.0.pkg
```

最后，交换机会更新并提交 packages.conf 文件。

```
[1 2]: Creating pending provisioning file
[1 2]: Finished installing software. New software will load on reboot.
[1 2]: Committing provisioning file

[1 2]: Do you want to proceed with reload? [yes/no]: yes
```

重新加载交换机，确认升级流程是否正确完成。

```
<#root>
3850-stack#
show ver | i INSTALL
```


```

1 32 WS-C3850-24P 03.03.01SE cat3k_caa-universalk9 INSTALL
* 2 56 WS-C3850-48T 03.03.01SE cat3k_caa-universalk9 INSTALL

```

清除闪存

升级完成后，旧版本的残留文件会保留在闪存中。要清除剩余文件，请输入 `software clean` 命令而不是手动删除文件。此操作会清除交换机不再需要的文件。

 注：此命令还删除用于安装新的Cisco IOS软件的.bin文件。请注意，.bin 文件在解压后便已完成作用，您可以放心删除。

接下来的两部分举例说明闪存在 `software clean` 命令。

清除闪存前的状态

```
<#root>
```

```
3850-stack#
```

```
show flash
```

```

--#-- --length-- -----date/time----- -----path-----
 2    2097152 Feb 16 2014 11:38:46.0 +00:00 nvram_config
 4    257016048 Jan 28 2014 17:22:12.0 +00:00 cat3k_caa-universalk9.SPA.03.03.00.SE.150-1.EZ.bin
 5         4096 Jan 28 2014 17:25:50.0 +00:00 mnt
 6         4096 Jan 28 2014 17:25:50.0 +00:00 mnt/images
 7         4096 Jan 28 2014 17:25:52.0 +00:00 mnt/images/ap.bak
 8          40 Oct 03 2013 05:02:21.0 +00:00 mnt/images/ap.bak/ap1g2.md5
 9    11591680 Oct 03 2013 05:02:21.0 +00:00 mnt/images/ap.bak/ap1g2
10          40 Oct 03 2013 05:02:21.0 +00:00 mnt/images/ap.bak/ap3g1.md5
11   10444800 Oct 03 2013 05:02:21.0 +00:00 mnt/images/ap.bak/ap3g1
12          40 Oct 03 2013 05:02:21.0 +00:00 mnt/images/ap.bak/ap3g2.md5
13   13568000 Oct 03 2013 05:02:21.0 +00:00 mnt/images/ap.bak/ap3g2
14          40 Oct 03 2013 05:02:21.0 +00:00 mnt/images/ap.bak/c1140.md5
15   10291200 Oct 03 2013 05:02:21.0 +00:00 mnt/images/ap.bak/c1140
16          11 Oct 03 2013 05:02:21.0 +00:00 mnt/images/ap.bak/version.info
17         1214 Jan 28 2014 17:25:10.0 +00:00 packages.conf.00-
18   79112096 Jan 28 2014 17:25:06.0 +00:00 cat3k_caa-base.SPA.03.03.00SE.pkg
19   6474428 Jan 28 2014 17:25:06.0 +00:00 cat3k_caa-drivers.SPA.03.03.00SE.pkg
20   34501468 Jan 28 2014 17:25:06.0 +00:00 cat3k_caa-infra.SPA.03.03.00SE.pkg
21         1248 Feb 16 2014 11:27:51.0 +00:00 packages.conf
22   34763952 Jan 28 2014 17:25:06.0 +00:00 cat3k_caa-iosd-universalk9.SPA.150-1.EZ.pkg
23         796 Feb 19 2014 11:43:13.0 +00:00 vlan.dat
24   24992476 Jan 28 2014 17:25:06.0 +00:00 cat3k_caa-platform.SPA.03.03.00SE.pkg
25   77167308 Jan 28 2014 17:25:06.0 +00:00 cat3k_caa-wcm.SPA.10.1.100.0.pkg
26         1224 Jan 28 2014 16:39:58.0 +00:00 packages.conf.01-
27         6571 Dec 20 2013 08:56:32.0 +00:00 BLANK_CONFIG.cfg
28   257193048 Feb 16 2014 11:19:44.0 +00:00 cat3k_caa-universalk9.SPA.03.03.01.SE.150-1.EZ1.bin
30   79113792 Feb 16 2014 11:27:46.0 +00:00 cat3k_caa-base.SPA.03.03.01SE.pkg
31   74409080 Jan 28 2014 16:39:54.0 +00:00 cat3k_caa-base.SPA.03.02.01.SE.pkg
32   2775728 Jan 28 2014 16:39:54.0 +00:00 cat3k_caa-drivers.SPA.03.02.01.SE.pkg
33   6476476 Feb 16 2014 11:27:46.0 +00:00 cat3k_caa-drivers.SPA.03.03.01SE.pkg

```

```
34 32478052 Jan 28 2014 16:39:54.0 +00:00 cat3k_caa-infra.SPA.03.02.01.SE.pkg
35 30389028 Jan 28 2014 16:39:54.0 +00:00 cat3k_caa-iosd-universalk9.SPA.150-1.EX1.pkg
36 18313952 Jan 28 2014 16:39:54.0 +00:00 cat3k_caa-platform.SPA.03.02.01.SE.pkg
37 63402700 Jan 28 2014 16:39:54.0 +00:00 cat3k_caa-wcm.SPA.10.0.101.0.pkg
38 34503664 Feb 16 2014 11:27:46.0 +00:00 cat3k_caa-infra.SPA.03.03.01SE.pkg
39 34788684 Feb 16 2014 11:27:46.0 +00:00 cat3k_caa-iosd-universalk9.SPA.150-1.EZ1.pkg
40 25009040 Feb 16 2014 11:27:46.0 +00:00 cat3k_caa-platform.SPA.03.03.01SE.pkg
41 77296448 Feb 16 2014 11:27:46.0 +00:00 cat3k_caa-wcm.SPA.10.1.110.0.pkg
```

237428736 bytes available (1302147072 bytes used)

清除闪存后的状态

<#root>

3850-stack#

software clean

Preparing clean operation ...

[1 2]: Cleaning up unnecessary package files

[1 2]: No path specified, will use booted path flash:packages.conf

[1 2]: Cleaning flash:

[1]: Preparing packages list to delete ...

In use files, will not delete:

```
cat3k_caa-base.SPA.03.03.01SE.pkg
cat3k_caa-drivers.SPA.03.03.01SE.pkg
cat3k_caa-infra.SPA.03.03.01SE.pkg
cat3k_caa-iosd-universalk9.SPA.150-1.EZ1.pkg
cat3k_caa-platform.SPA.03.03.01SE.pkg
cat3k_caa-wcm.SPA.10.1.110.0.pkg
packages.conf
```

[2]: Preparing packages list to delete ...

In use files, will not delete:

```
cat3k_caa-base.SPA.03.03.01SE.pkg
cat3k_caa-drivers.SPA.03.03.01SE.pkg
cat3k_caa-infra.SPA.03.03.01SE.pkg
cat3k_caa-iosd-universalk9.SPA.150-1.EZ1.pkg
cat3k_caa-platform.SPA.03.03.01SE.pkg
cat3k_caa-wcm.SPA.10.1.110.0.pkg
packages.conf
```

[1]: Files that will be deleted:

```
cat3k_caa-base.SPA.03.02.01.SE.pkg
cat3k_caa-base.SPA.03.03.00SE.pkg
cat3k_caa-drivers.SPA.03.02.01.SE.pkg
cat3k_caa-drivers.SPA.03.03.00SE.pkg
cat3k_caa-infra.SPA.03.02.01.SE.pkg
cat3k_caa-infra.SPA.03.03.00SE.pkg
cat3k_caa-iosd-universalk9.SPA.150-1.EX1.pkg
cat3k_caa-iosd-universalk9.SPA.150-1.EZ.pkg
cat3k_caa-platform.SPA.03.02.01.SE.pkg
cat3k_caa-platform.SPA.03.03.00SE.pkg
cat3k_caa-universalk9.SPA.03.03.00.SE.150-1.EZ.bin
cat3k_caa-universalk9.SPA.03.03.01.SE.150-1.EZ1.bin
cat3k_caa-wcm.SPA.10.0.101.0.pkg
cat3k_caa-wcm.SPA.10.1.100.0.pkg
packages.conf.00-
packages.conf.01-
```

```
[2]: Files that will be deleted:
cat3k_caa-base.SPA.03.02.01.SE.pkg
cat3k_caa-base.SPA.03.03.00SE.pkg
cat3k_caa-drivers.SPA.03.02.01.SE.pkg
cat3k_caa-drivers.SPA.03.03.00SE.pkg
cat3k_caa-infra.SPA.03.02.01.SE.pkg
cat3k_caa-infra.SPA.03.03.00SE.pkg
cat3k_caa-iosd-universalk9.SPA.150-1.EX1.pkg
cat3k_caa-iosd-universalk9.SPA.150-1.EZ.pkg
cat3k_caa-platform.SPA.03.02.01.SE.pkg
cat3k_caa-platform.SPA.03.03.00SE.pkg
cat3k_caa-universalk9.SPA.03.03.00.SE.150-1.EZ.bin
cat3k_caa-universalk9.SPA.03.03.01.SE.150-1.EZ1.bin
cat3k_caa-wcm.SPA.10.0.101.0.pkg
cat3k_caa-wcm.SPA.10.1.100.0.pkg
packages.conf.00-
packages.conf.01-
```

[1 2]: Do you want to proceed with the deletion? [yes/no]:

yes

[1 2]: Clean up completed

以下是 show flash命令 :

<#root>

3850-stack#

show flash

##	length	date/time	path
2	2097152	Feb 16 2014 11:38:46.0 +00:00	nvrnm_config
4	4096	Jan 28 2014 17:25:50.0 +00:00	mnt
5	4096	Jan 28 2014 17:25:50.0 +00:00	mnt/images
6	4096	Jan 28 2014 17:25:52.0 +00:00	mnt/images/ap.bak
7	40	Oct 03 2013 05:02:21.0 +00:00	mnt/images/ap.bak/ap1g2.md5
8	11591680	Oct 03 2013 05:02:21.0 +00:00	mnt/images/ap.bak/ap1g2
9	40	Oct 03 2013 05:02:21.0 +00:00	mnt/images/ap.bak/ap3g1.md5
10	10444800	Oct 03 2013 05:02:21.0 +00:00	mnt/images/ap.bak/ap3g1
11	40	Oct 03 2013 05:02:21.0 +00:00	mnt/images/ap.bak/ap3g2.md5
12	13568000	Oct 03 2013 05:02:21.0 +00:00	mnt/images/ap.bak/ap3g2
13	40	Oct 03 2013 05:02:21.0 +00:00	mnt/images/ap.bak/c1140.md5
14	10291200	Oct 03 2013 05:02:21.0 +00:00	mnt/images/ap.bak/c1140
15	11	Oct 03 2013 05:02:21.0 +00:00	mnt/images/ap.bak/version.info
16	1248	Feb 16 2014 11:27:51.0 +00:00	packages.conf
17	796	Feb 19 2014 11:43:13.0 +00:00	vlan.dat
18	6571	Dec 20 2013 08:56:32.0 +00:00	BLANK_CONFIG.cfg
20	79113792	Feb 16 2014 11:27:46.0 +00:00	cat3k_caa-base.SPA.03.03.01SE.pkg
21	6476476	Feb 16 2014 11:27:46.0 +00:00	cat3k_caa-drivers.SPA.03.03.01SE.pkg
22	34503664	Feb 16 2014 11:27:46.0 +00:00	cat3k_caa-infra.SPA.03.03.01SE.pkg
23	34788684	Feb 16 2014 11:27:46.0 +00:00	cat3k_caa-iosd-universalk9.SPA.150-1.EZ1.pkg
24	25009040	Feb 16 2014 11:27:46.0 +00:00	cat3k_caa-platform.SPA.03.03.01SE.pkg
25	77296448	Feb 16 2014 11:27:46.0 +00:00	cat3k_caa-wcm.SPA.10.1.110.0.pkg


1231515648 bytes available (308060160 bytes used)

Catalyst 3850 系列交换机的自动升级功能

将新交换机引入当前Catalyst 3850系列交换机堆叠的一个场景是购买新交换机以扩展堆叠中可用端口的数量。

要成功将新交换机添加到堆叠，您必须确保新交换机与现有堆叠运行的软件版本完全相同。在Cisco IOS XE版本3.3.1之前，确保版本匹配的唯一方法是在引入堆栈之前暂存新交换机。

Catalyst 3850系列交换机包含称为自动升级的功能。此功能旨在确保新添加的交换机由堆叠成员自动调配正确的Cisco IOS XE版本。


 **注意：**默认情况下禁用自动升级，且在BUNDLE模式下不可用。

要使用自动升级功能，请添加 `software auto-upgrade enable` 命令添加到当前堆栈的配置中。这样一来，任何新添加的堆叠成员都将能实现自动升级。

配置

堆叠并引导交换机后，表明版本不匹配，且新成员未完全加入堆栈。

要观察交换机尝试加入时的SYSLOG，请注意Auto-Advise功能会提示新添加的交换机运行不同的软件版本和模式。

 **注意：**在本示例中，新交换机在捆绑包模式下运行Cisco IOS XE版本3.2.2。

```
%STACKMGR-1-STACK_LINK_CHANGE: STANDBY: 1 stack-mgr:
  Stack port 2 on switch 1 is up (3850-Stack-1)
%STACKMGR-1-STACK_LINK_CHANGE: 2 stack-mgr:
  Stack port 1 on switch 2 is up
%STACKMGR-6-SWITCH_ADDED: 2 stack-mgr:
  Switch 3 has been added to the stack.
%STACKMGR-6-SWITCH_ADDED: STANDBY:1 stack-mgr:
  Switch 3 has been added to the stack. (3850-Stack-1)
%INSTALLER-6-AUTO_ADVISE_SW_INITIATED: 2 installer:
  Auto advise initiated for switch 3
%INSTALLER-6-AUTO_ADVISE_SW: 2 installer:
  Switch 3 running bundled software has been added
%INSTALLER-6-AUTO_ADVISE_SW: 2 installer:
  to the stack that is running installed software.
%INSTALLER-6-AUTO_ADVISE_SW: 2 installer:
  The 'software auto-upgrade' command can be used to
%INSTALLER-6-AUTO_ADVISE_SW: 2 installer:
  convert switch 3 to the installed running mode by
%INSTALLER-6-AUTO_ADVISE_SW: 2 installer:
  installing its running software.
```

一旦新加入的成员完全启动，就会检测到不匹配的情况：


```
<#root>
```

```
3850-Stack#
```

```
show switch
```

```
Switch/Stack Mac Address : 0c27.24cf.ab80 - Local Mac Address  
Mac persistency wait time: Indefinite
```

Switch#	Role	Mac Address	Priority	H/W Version	Current State
*1	Active	0c27.24cf.ab80	14	B0	Ready
2	Standby	f41f.c238.a800	13	B0	Ready
3	Member	b4e9.b0d3.6600	12	0	V-Mismatch

启用自动升级功能

在Global Configuration模式下，输入 `software auto-upgrade enable` 命令。这样一来，所有新加入该堆叠的交换机都将启用自动升级功能。

```
<#root>
```

```
3850-Stack(config)
```

```
#
```

```
software auto-upgrade enable
```

```
3850-Stack(config)
```

```
#
```

```
end
```

仅重新加载新添加的交换机；不需要完全堆叠重新加载。在上面的示例中，新添加的交换机是 switch 3，所以您需要输入 `reload slot 3` 命令。



提示：这些命令中提到的插槽指定堆叠中的交换机(slot 1 =交换机1)。

```
<#root>
```

```
3850-Stack#
```

```
reload slot 3
```

```
Proceed with reload?
```

```
[confirm]
```

```
%STACKMGR-1-RELOAD_REQUEST: 1 stack-mgr:
  Received reload request for switch 3, reason Reload Slot Command
%STACKMGR-1-STACK_LINK_CHANGE: 1 stack-mgr:
  Stack port 2 on switch 1 is down
%STACKMGR-6-SWITCH_REMOVED: 1 stack-mgr:
  Switch 3 has been removed from the stack.
%STACKMGR-1-STACK_LINK_CHANGE: STANDBY:
  2 stack-mgr: Stack port 1 on switch 2 is down (3850-Stack-2)
Starting SWITCH-DELETE sequence, switch 3
SWITCH-DELETE sequence complete, switch 3
%STACKMGR-6-SWITCH_REMOVED: STANDBY:2 stack-mgr:
  Switch 3 has been removed from the stack. (3850-Stack-2)
Starting SWITCH-DELETE sequence, switch 3 (3850-Stack-2)
SWITCH-DELETE sequence complete, switch 3 (3850-Stack-2)
```

交换机在后台立即重新加载。然后，您会看到如下消息：

```
%STACKMGR-1-STACK_LINK_CHANGE: 1 stack-mgr:
  Stack port 2 on switch 1 is up
3850-Stack#
%STACKMGR-1-STACK_LINK_CHANGE: STANDBY:2 stack-mgr:
  Stack port 1 on switch 2 is up (3850-Stack-2)
3850-Stack#
%STACKMGR-6-SWITCH_ADDED: 1 stack-mgr:
  Switch 3 has been added to the stack.
%STACKMGR-6-SWITCH_ADDED: STANDBY:2 stack-mgr:
  Switch 3 has been added to the stack. (3850-Stack-2)
```

发生从BUNDLE到INSTALL模式的转换，然后执行重新加载：

```
%INSTALLER-6-AUTO_UPGRADE_SW_INITIATED: 1 installer:
  Auto upgrade initiated for switch 3
%INSTALLER-6-AUTO_UPGRADE_SW: 1 installer:
  Converting switch 3 to installed mode by
%INSTALLER-6-AUTO_UPGRADE_SW: 1 installer:
  installing its running software
%INSTALLER-6-AUTO_UPGRADE_SW: 1 installer:
  Setting the boot var on switch 3
%INSTALLER-6-AUTO_UPGRADE_SW: 1 installer:
  Finished installing the running software on switch 3
%INSTALLER-6-AUTO_UPGRADE_SW: 1 installer:
  Reloading switch 3 to boot in installed mode
%STACKMGR-1-RELOAD_REQUEST: 1 stack-mgr:
  Received reload request for switch 3, reason Auto upgrade
%STACKMGR-1-STACK_LINK_CHANGE: 1 stack-mgr:
  Stack port 2 on switch 1 is down
%STACKMGR-6-SWITCH_REMOVED: 1 stack-mgr:
  Switch 3 has been r
3850-Stack#emoved from the stack.
%STACKMGR-1-STACK_LINK_CHANGE: STANDBY:2 stack-mgr:
  Stack port 1 on switch 2 is down (3850-Stack-2)
Starting SWITCH-DELETE sequence, switch 3
```

```
SWITCH-DELETE sequence complete, switch 3
%STACKMGR-6-SWITCH_REMOVED: STANDBY:2 stack-mgr:
  Switch 3 has been removed from the stack. (3850-Stack-2)
3850-Stack#
Starting SWITCH-DELETE sequence, switch 3 (3850-Stack-2)
SWITCH-DELETE sequence complete, switch 3 (3850-Stack-2)
```

完成重新引导后，升级将继续进行：

```
%INSTALLER-6-AUTO_UPGRADE_SW_INITIATED: 1 installer:
  Auto upgrade initiated for switch 3
%INSTALLER-6-AUTO_UPGRADE_SW: 1 installer:
  Searching stack for software to upgrade switch 3
%INSTALLER-6-AUTO_UPGRADE_SW: 1 installer:
  Found donor switch 1 to auto upgrade switch 3
%INSTALLER-6-AUTO_UPGRADE_SW: 1 installer:
  Upgrading switch 3 with software from switch 1
%INSTALLER-6-AUTO_UPGRADE_SW: 1 installer:
  Finished installing software on switch 3
%INSTALLER-6-AUTO_UPGRADE_SW: 1 installer:
  Reloading switch 3 to complete the auto upgrade
%STACKMGR-1-RELOAD_REQUEST: 1 stack-mgr:
  Received reload request for switch 3, reason Auto upgrade
%STACKMGR-1-STACK_LINK_CHANGE: 1 stack-mgr:
  Stack port 2 on switch 1 is down
%STACKMGR-6-SWITCH_REMOVED: 1 stack-mgr:
  Switch 3 has been removed from the stack.
%STACKMGR-1-STACK_LINK_CHANGE: STANDBY:2 stack-mgr:
  Stack port
3850-Stack#t 1 on switch 2 is down (3850-Stack-2)
Starting SWITCH-DELETE sequence, switch 3
SWITCH-DELETE sequence complete, switch 3
%STACKMGR-6-SWITCH_REMOVED: STANDBY:2 stack-mgr:
  Switch 3 has been removed from the stack. (3850-Stack-2)
```

交换机会再次自动执行重新引导。交换机启动后，它使用正确的Cisco IOS XE版本和软件模式成功加入堆栈。

```
%STACKMGR-6-SWITCH_ADDED: 1 stack-mgr:
  Switch 3 has been added to the stack.
%STACKMGR-6-SWITCH_ADDED: STANDBY:2 stack-mgr:
  Switch 3 has been added to the stack. (3850-Stack-2)
%STACKMGR-6-SWITCH_READY: STANDBY:2 stack-mgr:
  Switch 3 is ready. (3850-Stack-2)
%STACKMGR-6-SWITCH_READY: 1 stack-mgr: Switch 3 is ready.
Starting SWITCH-ADD sequence, switch 3
%NGWC_USB_CONSOLE-6-CONFIG_ENABLE: Switch 3:
  Console media-type changed to default
Starting SWITCH-ADD sequence, switch 3 (3850-Stack-2)
SWITCH-ADD sequence complete, switch 3 (3850-Stack-2)
SWITCH-ADD sequence complete, switch 3
```

验证

您可以使用 `show switch` 和 `show version` 命令来验证升级流程是否成功完成：

```
<#root>
```

```
3850-Stack#
```

```
show switch
```

```
Switch/Stack Mac Address : 0c27.24cf.ab80 - Local Mac Address  
Mac persistency wait time: Indefinite
```

Switch#	Role	Mac Address	Priority	H/W Version	Current State
*1	Active	0c27.24cf.ab80	14	B0	Ready
2	Standby	f41f.c238.a800	13	B0	Ready
3	Member	b4e9.b0d3.6600	12	B0	Ready

```
3850-Stack#
```

```
show version
```

Switch	Ports	Model	SW Version	SW Image	Mode
*	1 56	WS-C3850-48P	03.03.01SE	cat3k_caa-universalk9	INSTALL
	2 56	WS-C3850-48P	03.03.01SE	cat3k_caa-universalk9	INSTALL
	3 56	WS-C3850-48P	03.03.01SE	cat3k_caa-universalk9	INSTALL

3850 系列交换机引导失败恢复流程

本节介绍3850系列交换机引导失败的可能恢复方法，例如引导映像损坏、`packages.conf`文件损坏或丢失文件。



注意：在继续之前，请确保您了解两种可能的引导模式INSTALL和BUNDLE。

标准恢复方法

本节介绍用于对引导失败的 3850 系列交换机进行恢复的两种标准方法。

USB 恢复

3850 系列交换机的前部有一个用于访问控制台的 USB 端口。此 USB 端口也可用于对闪存驱动器进行映像备份和恢复。

如果卡在`switch:`提示符处，提示存在损坏的镜像或`.conf`文件，请引导至存储在USB驱动器上的文件，或将镜像从USB复制到内部闪存。要从引导失败状态下恢复，请执行以下步骤：

1. 确认闪存驱动器已被识别，而且其中包含 .bin 文件：


```
<#root>
switch:
dir usbflash0:

Directory of usbflash0:/
74 -rw- 223734376 cat3k_caa-universalk9.SPA.03.03.00.SE.150-1.EZ.bin
```

2. 将引导文件切换至 USB 映像：

```
<#root>
switch:
boot usbflash0:cat3k_caa-universalk9.SPA.03.03.00.SE.150-1.EZ.bin
```

 注意：此过程将交换机引导至捆绑包模式。

 提示：您也可以将 .bin 文件从 usbflash0: 复制到 flash:，并将引导语句指向内部闪存。

损坏文件恢复

在某些情况下，packages.conf 调用文件在闪存中不再存在。您可以从 switch:prompt 文件手动启动映像；但是，重新加载时，它会再次调用 packages.conf 文件并无法启动。

如果发生这种情况，思科建议备份当前的 packages.conf 文件，然后重命名或删除该文件。此过程是强制性的，因为如果 .conf 文件已存在，则下一步会失败。

解压缩 .bin 文件后，将创建新的 packages.conf 文件。要从 packages.conf 文件损坏的状况下恢复，请执行以下步骤：

1. 引导完成后（在捆绑包模式下），确认闪存中的文件：

```
<#root>
Switch#
dir flash:

Directory of flash:/
15500 -rwx      1243   Aug 1 2013 07:04:02 +00:00 packages.conf
```

2. 复制或重命名现有 packages.conf 文件：

```
<#root>
Switch#
cp flash:packages.conf flash:packages.conf.badop

Destination filename [packages.conf.bad]?
Copy in progress...C
1243 bytes copied in 0.140 secs (8879 bytes/sec)

Switch#
dir flash:

Directory of flash:/
15500  -rwx      1243   Aug 1 2013 07:04:02 +00:00  packages.conf
15502  -rw-      1243   Aug 1 2013 11:53:51 +00:00  packages.conf.bad
Switch#
del flash:packages.conf

Delete filename [packages.conf]?
Delete flash:/packages.conf? [confirm]
```

3. 解压捆绑包，以创建新的 packages.conf 文件：

```
<#root>
Switch#
software expand running switch 1 to flash:

Preparing expand operation ...
[1]: Expanding the running bundle
[1]: Copying package files
[1]: Package files copied
[1]: Finished expanding the running bundle
```

4. 检查引导信息：

```
<#root>
Switch#
show boot

-----
```

```
Switch 1
-----
Current Boot Variables:
BOOT variable does not exist

Boot Variables on next reload:
BOOT variable = flash:packages.conf;
Manual Boot = no
Enable Break = no
```

5. 重新加载交换机：

```
<#root>

Switch#

reload

Reload command is being issued on Active unit, this will reload the whole stack
Proceed with reload? [confirm]
```

紧急恢复

如果之前的恢复方法失败，3850系列交换机将使用trap door方法来恢复系统。终端必须连接到运行TFTP服务器的交换机的管理端口。然后，您需要从CCO下载有效的映像文件，并将其保存到TFTP服务器的根目录下。

交换机很可能卡在switch:提示符处。但是，如果您处于引导循环中，请使用交换机前面的Mode按钮以中断循环：按住按钮大约10秒钟，然后交换机将中断循环并在switch:提示符处停止。

要进行紧急恢复，请执行以下步骤：

1. 设置交换机 IP 地址：

```
<#root>

switch:

set IP_ADDR 192.0.2.123/255.255.255.0
```

2. 设置默认网关：

```
<#root>

switch:

set DEFAULT_ROUTER 192.0.2.1
```

3. 对连接至 TFTP 服务器的终端执行 Ping 命令，以测试连接情况：

```
<#root>
switch:
ping 192.0.2.1

ping 192.0.2.1 with 32 bytes of data ...
Host 192.0.2.1 is alive.
```

4. 确认交换机文件系统中存在紧急恢复文件：

```
<#root>
switch:
dir sda9:

Directory of sda9:/

   2  drwx  1024      .
   2  drwx  1024     ..
  11  -rwx 18958824   cat3k_caa-recovery.bin
36903936 bytes available (20866048 bytes used)
```

5. 运行紧急安装功能：

```
<#root>
switch:
emergency-install tftp://192.0.2.1/cat3k_caa-universalk9.
SPA.03.03.00.SE.150-1.EZ.bin

The bootflash will be erased during install operation, continue (y/n)?Y
Starting emergency recovery (tftp://192.0.2.1/cat3k_caa-universalk9.
SPA.03.02.02.SE.150-1.EX2.bin)...
Reading full image into memory.....done
Nova Bundle Image
-----
Kernel Address      : 0x6042f5d8
Kernel Size         : 0x317ccc/3243212
Initramfs Address   : 0x607472a4
Initramfs Size      : 0xdc6546/14443846
Compression Format: .mzip

Bootable image at @ ram:0x6042f5d8
Bootable image segment 0 address range [0x81100000, 0x81b80000]
is in range [0x80180000, 0x90000000].
```


@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@@@@@@@@@@@@@@@@@@@@@@@@

File "sda9:cat3k_caa-recovery.bin" uncompressed and installed,
entry point: 0x811060f0
Loading Linux kernel with entry point 0x811060f0 ...
Bootloader: Done loading app on core_mask: 0xf

Launching Linux Kernel (flags = 0x5)

Initiating Emergency Installation of bundle tftp://192.0.2.1/
cat3k_caa-universalk9.SPA.03.03.00.SE.150-1.EZ.bin

Downloading bundle tftp://192.0.2.1/ cat3k_caa-universalk9.
SPA.03.03.00.SE.150-1.EZ.bin...

Validating bundle tftp://192.0.2.1/ cat3k_caa-universalk9.
SPA.03.03.00.SE.150-1.EZ.bin...

Installing bundle tftp://192.0.2.1/ cat3k_caa-universalk9.
SPA.03.03.00.SE.150-1.EZ.bin...

Verifying bundle tftp://192.0.2.1/ cat3k_caa-universalk9.
SPA.03.03.00.SE.150-1.EZ.bin...

Package cat3k_caa-base.SPA.03.03.00.SE.pkg is Digitally Signed
Package cat3k_caa-drivers.SPA.03.03.00.SE.pkg is Digitally Signed
Package cat3k_caa-infra.SPA.03.03.00.SE.pkg is Digitally Signed
Package cat3k_caa-iosd-universalk9.SPA.150-1.EX2.pkg is Digitally Signed
Package cat3k_caa-platform.SPA.03.03.00.SE.pkg is Digitally Signed
Package cat3k_caa-wcm.SPA.10.0.111.0.pkg is Digitally Signed

Preparing flash...

Syncing device...

Emergency Install successful... Rebooting

Restarting system.

关于此翻译

思科采用人工翻译与机器翻译相结合的方式将此文档翻译成不同语言，希望全球的用户都能通过各自的语言得到支持性的内容。

请注意：即使是最好的机器翻译，其准确度也不及专业翻译人员的水平。

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