了解Catalyst 9300系列交换机上的扩展快速软件升级

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简介

本文档介绍Catalyst 9300系列交换机上提供的扩展快速软件升级(xFSU)功能。

先决条件

要求

最低许可

- 独立交换机上的网络基本许可证级别。
- 堆叠交换机上的网络优势许可证级别。

其他要求

- 此功能仅在以安装模式运行的接入交换机上受支持。
- 设备必须配置快速生成树协议(RSTP)或多生成树协议(MSTP)。
- 设备不能是根网桥：对于配置了STP但未定义为根设备的设备，仅当连接到STP对等体的转发状态的端口数小于或等于1时，才支持xFSU。
- NSF计时器：例如：配置“bgp graceful-restart”时，建议将BGP保持时间配置为10秒。

- 运行show version | inc IOS XE，检查您当前的Catalyst 9300交换机系列的版本。

- 推荐的版本：17.12.5/17.15.4

由于17.3、17.6、17.9版本是软件维护的终止版本，我们建议客户迁移到推荐的版本，以避免出现不支持的FPGA问题。

- 版本：17.6.8/17.9.5/17.12.4/17.15.3/17.18.1及更高版本

xFSU预检查

*执行CLI命令show xfsu eligibility以确定快速重新加载升级的资格。

*如果交换机设备使用过时且不受支持的FPGA，xFSU安装操作失败，在控制台上显示以下错误：

“失败:交换机1上的FPGA不支持xFSU。请通过标准安装升级FPGA。”

Peer1-24U#show xfsu eligibility

支持xFSU:是 — 这表示支持xFSU。

资格检查状态

==========

已启用自动引导：是

安装模式:Yes

支持的FPGA:　是 — 如果FPGA不兼容，则状态为“否”。

MacSec:　　符合条件

生成树:　　符合条件

建议：

- 如果FPGA不兼容，请通过定期安装升级软件。

版本(17.3.2-x、17.6.1-7、17.9.1-4、17.12.1-3、17.15.1-2)

通过EEM脚本进行兼容FPGA检查：

* EEM脚本验证：从Cisco技术支持获取EEM脚本以确认FPGA的资格。

通过EEM脚本对堆叠交换机执行SMU安装检查：
* EEM脚本验证：从Cisco技术支持获取EEM脚本，以确认在堆叠交换机上修补的SMU。
*已停用SMU:在执行xFSU升级或执行标准升级之前，请确保堆栈交换机上的所有SMU均已停用

建议：

- 如果FPGA不兼容，请通过定期安装升级软件。

16.12.3或更早版本

从16.12.3或更早版本升级不会自动升级FPGA。使用命令升级到最新软件映像后，需要手动升级FPGA:

'''

install add file <image> activate commit <== Move to latest image customer desirable but FPGA still keep old

upgrade hw-programmable fpga filename flash:switch <sw #> R0
reload ==>触发电源重启

'''

使用的组件

本文档中的信息基于以下软件和硬件版本：

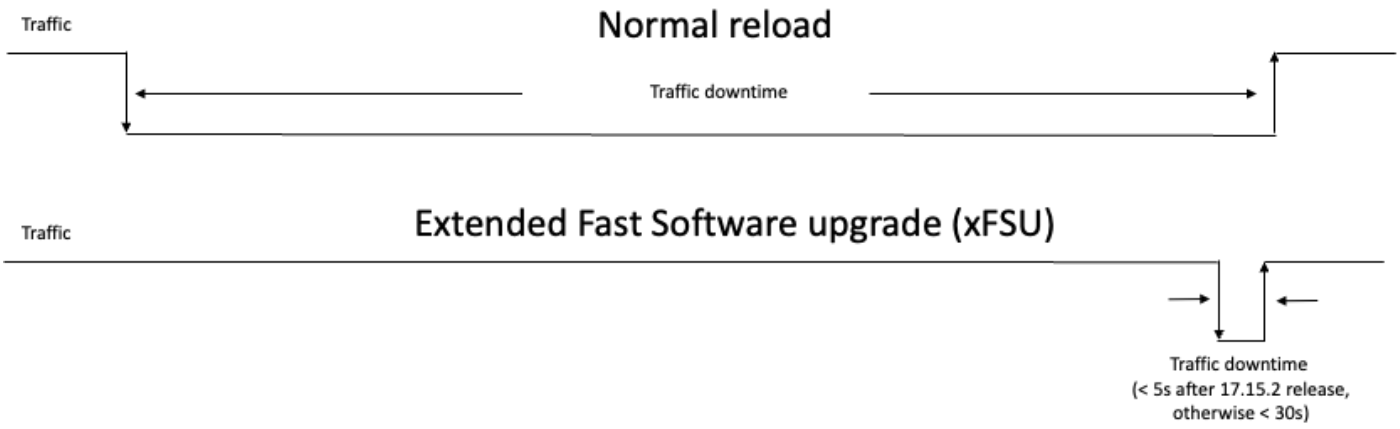
- Catalyst 9300、Catalyst 9300L和Catalyst 9300X系列交换机
- Cisco IOS® XE 17.3.2a及更高版本

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。

背景信息

扩展快速软件升级(xFSU)是一个软件增强过程，旨在减少软件重新加载或升级操作期间的流量停机时间。xFSU基于平滑重启功能（也称为思科NSF）的原则。此功能背后的总体思路是保持数据（转发）平面继续运行，同时控制平面在软件升级过程中重新加载。xFSU的作用是使ASIC中的转发状态与新的控制平面保持一致，并在快速重置转发ASIC后恢复转发状态，如下所示。

此图显示了与正常重新加载相比，流量停机时间显着减少。



xFSU引入了以下命令：

install add file <image URL> activate xfsu commit

- 适用于Cisco IOS XE 17.8版及更高版本

install add file <image URL> activate reloadfast commit

- 适用于Cisco IOS XE 17.3和17.6版本
- 升级软件版本并减少停机时间

reload fast

- 重新加载现有软件，减少停机时间。

为什么选择xFSU

对于没有真正冗余控制和转发平面的Catalyst 9300交换机等系统，在重新加载和升级期间停机时间/流量损失超过3至4分钟。

- 对于接入网络，这种停机时间对于wifi接入点、机器人等网络而言至关重要。
- xFSU有助于最大限度地缩短停机时间，但限制也适用，因为并非所有配置都受支持。

注意：对于堆叠系统，最好在堆叠上的主用和备用或主用和成员交换机之间分配上行链路，以进一步减少停机时间

支持的协议

注意：对于此处未列出的所有协议，流量停机时间类似于正常重新加载/升级时的停机时间。

- 第 2 层交换
- 每VLAN生成树(PVST)
- 使用RSTP或MSTP的STP
- 静态端口通道（模式开启）
- UDLD
- 链路聚合控制协议 (LACP)
- BGP（IPv4和IPv6地址系列）
- 开放最短路径优先(OSPF)、OSPFv2或OSPFv3
- IS-IS
- 虚拟路由和转发(VRF)
- 灵活的NetFlow
- 服务质量
- IEEE 802.1X基于端口的身份验证
- MAC 身份验证绕行
- Web 身份验证
- 互联网组管理协议(IGMP)监听
- 组播侦听程序发现(MLD)监听

限制

警告：xFSU不支持结合上述任何一种情况。如果设备上存在任何此类设备，请不要尝试xFSU。

独立设备和堆叠设备

- 对于STP根设备，如果任何处于转发状态的设备端口连接到STP对等体（配置了STP且直接连接到根设备的设备）。
- 设备配置了双向转发检测(BFD)。

- 设备配置了LISP/VXLAN。
- 设备配置了macsec。
- 设备在SDA和EVPN交换矩阵中配置。
- 设备配置为Meraki模式或DNAC。
- 如果BGP对等体在BGP　Open消息中发送不支持的保持计时器，则会接受建议的保持计时器

，但xFSU事件不支持BGP。

堆叠设备

- 堆叠设备配置有半环状态。
- 堆叠设备配置有MACsec密钥协议(MKA)或思科TrustSec(CTS)
- 堆叠设备配置了组播，因为堆叠上的PIM尚未到位。

其它限制

- 执行扩展Fast软件升级后，应用程序托管无法自动重新启动。您需要禁用和重新启用Cisco IOx，配置应用托管，安装、激活并重新启动应用。
- 配置的单向链路检测(UDLD)消息间隔在xFSU期间被忽略。xFSU完成后，间隔会恢复到配置的值。

所需的配置

此表列出了执行xFSU之前所需的配置，以便在17.15.2版本之后实现不到5秒的流量停机时间，否则各个协议上的停机时间将少于30秒。

注意：此功能不适用于所有配置。即使根据协议与其他组件的交互和时间敏感性（状态协议）配置，xFSU将协议列为受支持，这也会导致较高的流量丢失。建议先测试特定配置，然后再使用此功能。

交换机配置	协议	其他配置	命令
独立设备	IPv6	设置发生可达性确认事件后被视为可达的远程IPv6节点的时间限制。	Device(config)# ipv6 nd reachable-time 3600000
	带MLD的IPv6	启用IPv6 MLD监听	Device(config)# ipv6 mld snooping

	OSPF	增加堆叠中更多的重传重试次数。	Device(config-router)# ip ospf retransmit-interval 10
	OSPFv3	增加堆叠中更多的重传重试次数。	Device(config-router)# ospfv3 retransmit-interval 10
	OSPFv3	• 全局启用SNMP ifIndex持久性 • 为OSPFv3实例设置固定路由器ID。 • 启用SNMP ifIndex持久性	Device(config)# snmp ifmib ifindex persist Device(config)# router ospfv3 1 Device(config-router)# router-id 192.0.2.5 Device(config-router)# interface-id snmp-if-index
	调试输出中显示“BGP	在设备上启用NSF感知。	Device(config-router)# bgp graceful-restart
堆叠设备	OSPF	增加堆叠中更多的重传重试次数。	Device(config-router)# ip ospf retransmit-interval 10
	OSPFv3	增加堆叠中更多的重传重试次数。	Device(config-router)# ospfv3 retransmit-interval 10
	调试输出中显示“BGP	在堆栈中的所有设备上启用NSF感知。	Device(config-router)# bgp graceful-restart all
	IS-IS	启用IS-IS的NSF操作。	Device(config-router)# nsf ietf 或者 Device(config-router)# nsf cisco

版本支持表

从SM到SM版本

自/至	17.3.x（小	17.6.x(SM)	17.9.x(SM)	17.12.x(SM)	17.15.x(SM)	17.18.x(SM)	26.x.x(SM)

	型机）*						
17.3.x（小型机）*	—	✓	✓	✓	✓	✓	X
17.6.x(SM)	—	—	✓	✓	✓	✓	X
17.9.x(SM)	—	—	—	✓	✓	✓	X
17.12.x(SM)	—	—	—	—	✓	✓	X
17.15.x(SM)	—	—	—	—	—	✓	X
17.18.x(SM)	—	—	—	—	—	—	X
26.x.x(SM)	—	—	—	—	—	—	✓

*在Cisco IOS XE 17.3.x系列上，仅从17.3.2版本开始支持xFSU。

在同一SM或EM版本内

自/至	17.3.x(EM)*	17.4.x(SM)	17.5.x(SM)	17.6.x(EM)	17.7.x(SM)	17.8.x(SM)	17.9.x(EM)
17.3.x(EM)*	✓	—	—	—	—	—	—
17.4.x(SM)	—	✓	—	—	—	—	—
17.5.x(SM)	—	—	✓	—	—	—	—
17.6.x(EM)	—	—	—	✓	—	—	—
17.7.x(SM)	—	—	—	—	✓	—	—
17.8.x(SM)	—	—	—	—	—	✓	—
17.9.x(EM)	—	—	—	—	—	—	✓

*在Cisco IOS XE 17.3.x系列上，仅从17.3.2版本开始支持xFSU。

注意：每年计划发布三个版本 — 两个标准维护(SM)和一个扩展维护(EM)。标准支持版本从首次客户发货(FCS)到两次计划重建，均具有12个月的持续支持生命周期。扩展支持版本提供从FCS到10个计划重建的持续支持生命周期（48个月）。不支持从主要版本17.X升级到26.X的xFSU升级。

步骤

install add file <image URL> activate xfsu commit

注意：此CLI仅在Cisco IOS XE 17.8版本及更高版本中可用。对于17.3和17.6版本，请使用install add file <image URL> activate reloadfast commit。

- 此命令可升级软件版本并减少停机时间。
- 以下是运行CLI时自动执行的步骤。
  - 安装add：从TFTP服务器下载映像，复制到所有交换机，并在每台交换机上扩展软件包。
  - xFSU检查:提供xFSU相关检查，包括限制检查。
  - install activate/commit：激活和提交已安装的软件包。
  - 安装预升级：预升级MCU、Rommon映像
  - 快速重新加载：快速重新加载交换机

<#root>

```
C9300_Switch#
```

install add file flash:cat9k_iosxe.V178_1A_FC2_2.SSA.bin activate xfsu commit

```
install_add_activate_commit: START Tue Apr 19 21:54:03 UTC 2022
STACK_GR: Inside xFSU check if switch stack
Checking STP eligibility: Eligible

[1]: Performing xFSU-pre-check
300+0 records in
300+0 records out
307200 bytes (307 kB, 300 KiB) copied, 0.196216 s, 1.6 MB/s
SUCCESS: xFSU-pre-check finished
[1]: xFSU-pre-check package(s) on switch 1
```

For all other than the below protocols, the traffic downtime is longer than 30 seconds.

```
1) Layer 2 Switching, 2) Per VLAN Spanning Tree (PVST), 3) STP with RSTP or MSTP
4) Static Port-channels (Mode on), 5) UDLD, 6) LACP, 7) BGP (IPv4 and IPv6)
```

```
        Open Shortest Path First (OSPF) or OSPFv2 or OSPFv3, 9) IS-IS,
10) Virtual routing and forwarding (VRF), 11) Flexible NetFlow, 12) QoS
SUCCESS: xFSU requirement pre-check
Downloading file flash:cat9k_iosxe.V178_1A_FC2_2.SSA.bin
Finished downloading file flash:cat9k_iosxe.V178_1A_FC2_2.SSA.bin to flash:cat9k_iosxe.V178_1A_FC2_2.SSA
install_add_activate_commit: Adding PACKAGE
install_add_activate_commit: Checking whether new add is allowed ....

--- Starting initial file syncing ---
Info: Finished copying flash:cat9k_iosxe.V178_1A_FC2_2.SSA.bin to the selected switch(es)
Finished initial file syncing

--- Starting Add ---
Performing Add on all members
[1] Add package(s) on switch 1
[1] Finished Add on switch 1
Checking status of Add on [1]
Add: Passed on [1]
Finished Add

Image added. Version: 17.08.01.0.1516
install_add_activate_commit: Activating PACKAGE
Following packages shall be activated:
/flash/cat9k-wlc.V178_1A_FC2_2.SSA.pkg
/flash/cat9k-webui.V178_1A_FC2_2.SSA.pkg
/flash/cat9k-srdriver.V178_1A_FC2_2.SSA.pkg
/flash/cat9k-sipspa.V178_1A_FC2_2.SSA.pkg
/flash/cat9k-sipbase.V178_1A_FC2_2.SSA.pkg
/flash/cat9k-rpboot.V178_1A_FC2_2.SSA.pkg
/flash/cat9k-rpbase.V178_1A_FC2_2.SSA.pkg
/flash/cat9k-lni.V178_1A_FC2_2.SSA.pkg
/flash/cat9k-guestshell.V178_1A_FC2_2.SSA.pkg
/flash/cat9k-espbase.V178_1A_FC2_2.SSA.pkg
/flash/cat9k-cc_srdriver.V178_1A_FC2_2.SSA.pkg

--- Verifying Platform specific xFSU admission criteria ---
SUCCESS: xFSU image pre-check

This operation requires a fast reload of the system.

Do you want to proceed? [y/n]y <-- answer y to continue


--- Starting Activate ---
Performing Activate on all members
[1] Activate package(s) on switch 1
--- Starting list of software package changes ---
Old files list:
Modified cat9k-cc_srdriver.17.08.01a.SPA.pkg
Modified cat9k-espbase.17.08.01a.SPA.pkg
Modified cat9k-guestshell.17.08.01a.SPA.pkg
Modified cat9k-lni.17.08.01a.SPA.pkg
Modified cat9k-rpbase.17.08.01a.SPA.pkg
Modified cat9k-rpboot.17.08.01a.SPA.pkg
Modified cat9k-sipbase.17.08.01a.SPA.pkg
Modified cat9k-sipspa.17.08.01a.SPA.pkg
Modified cat9k-srdriver.17.08.01a.SPA.pkg
Modified cat9k-webui.17.08.01a.SPA.pkg
Modified cat9k-wlc.17.08.01a.SPA.pkg
New files list:
Added cat9k-cc_srdriver.V178_1A_FC2_2.SSA.pkg
Added cat9k-espbase.V178_1A_FC2_2.SSA.pkg
Added cat9k-guestshell.V178_1A_FC2_2.SSA.pkg
```

```
Added cat9k-lni.V178_1A_FC2_2.SSA.pkg
Added cat9k-rpbase.V178_1A_FC2_2.SSA.pkg
Added cat9k-rpboot.V178_1A_FC2_2.SSA.pkg
Added cat9k-sipbase.V178_1A_FC2_2.SSA.pkg
Added cat9k-sipspa.V178_1A_FC2_2.SSA.pkg
Added cat9k-srdriver.V178_1A_FC2_2.SSA.pkg
Added cat9k-webui.V178_1A_FC2_2.SSA.pkg
Added cat9k-wlc.V178_1A_FC2_2.SSA.pkg
Finished list of software package changes
[1] Finished Activate on switch 1
Checking status of Activate on [1]
Activate: Passed on [1]
Finished Activate

--- Starting Commit ---
Performing Commit on all members
[1] Commit package(s) on switch 1
[1] Finished Commit on switch 1
Checking status of Commit on [1]
Commit: Passed on [1]
Finished Commit

Send model notification for install_add_activate_commit before reload
Check xFSU support and verification on switch
[1]: xFSU-Verify-Package package(s) on switch 1
Finished preverifying before xFSU
SUCCESS to verify packages
SUCCESS to verify before xFSU
[1]: Finished xFSU-Verify-Package successful on switch 1
(-2) SUCCESS: Finished xFSU-Verify-Package: Success on [1]
[1]: Performing Upgrade_Service
300+0 records in
300+0 records out
307200 bytes (307 kB, 300 KiB) copied, 0.196891 s, 1.6 MB/s
SUCCESS: Upgrade_Service finished
PID TTY TIME CMD
Starting GR:#
Waiting for UDLD processing:UDLD processing complete
cat: /: Is a directory
Wait for ifm backup: Ifm backup is completeApr 19 22:05:04.843: %PMAN-5-EXITACTION: F0/0: pvp: Process
Apr 19 22:05:08.099: %PMAN-5-EXITACTION: R0/0: pvp: Process manager is exiting: rp processes exit with




Initializing Hardware......
Reload Fast Detected

System Bootstrap, Version 17.9.0.4r, DEVELOPMENT SOFTWARE
Copyright (c) 1994-2022 by cisco Systems, Inc.
Compiled Tue 03/22/2022 10:39:31.69 by mjagatap

Current ROMMON image : Primary
Last reset cause : SoftwareReload
C9300-24T platform with 8388608 Kbytes of main memory

Preparing to autoboot. [Press Ctrl-C to interrupt] 0
boot: attempting to boot from [flash:packages.conf]
boot: reading file packages.conf
#
################################################################################################################
```

Loading image in Verbose mode: 0

Both links down, not waiting for other switches
Switch number is 1

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Software feature.

FIPS: Flash Key Check : Key Not Found, FIPS Mode Not Enabled

```
cisco C9300-24T (X86) processor with 1310600K/6147K bytes of memory.
Processor board ID FJC2327E0UB
2048K bytes of non-volatile configuration memory.
8388608K bytes of physical memory.
1638400K bytes of Crash Files at crashinfo:.
11264000K bytes of Flash at flash:.

Base Ethernet MAC Address : d4:ad:bd:f0:38:80
Motherboard Assembly Number : 73-18270-03
Motherboard Serial Number : FJZ23271DDG
Model Revision Number : E0
Motherboard Revision Number : B0
Model Number : C9300-24T
System Serial Number : FJC2327E0UB
CLEI Code Number :


WARNING: Command has been added to the configuration using a type 7 password. However, recommended to m


Press RETURN to get started!

C9300_Switch#sh log | inc FAST
*Apr 19 22:10:05.943: %FED_IPC_MSG-5-FAST_RELOAD_COMPLETE: Switch 1 F0/0: fed: Fast reload operation co
```

快速重新加载

- 此命令可重新加载现有软件，减少停机时间。
- 以下是运行CLI时自动执行的步骤。
  - xFSU检查:提供xFSU相关检查，包括限制检查。
  - 快速重新加载：快速重新加载交换机

```
<#root>

C9300_Switch#

reload fast


Reload fast command is being issued on Active unit, this will reload fast the whole stack
Proceed with reload fast? [confirm]
STACK_GR: Inside xFSU check if switch stack
Checking STP eligibility: Eligible

[1]: Performing xFSU-pre-check
300+0 records in
300+0 records out
307200 bytes (307 kB, 300 KiB) copied, 0.196405 s, 1.6 MB/s
SUCCESS: xFSU-pre-check finished
[1]: xFSU-pre-check package(s) on switch 1

For all other than the below protocols, the traffic downtime will be longer than 30 seconds.


1) Layer 2 Switching, 2) Per VLAN Spanning Tree (PVST), 3) STP with RSTP or MSTP
4) Static Port-channels (Mode on), 5) UDLD, 6) LACP, 7) BGP (IPv4 and IPv6)
```

```
        Open Shortest Path First (OSPF) or OSPFv2 or OSPFv3, 9) IS-IS,
10) Virtual routing and forwarding (VRF), 11) Flexible NetFlow, 12) QoS
SUCCESS: xFSU requirement pre-check

--- Verifying Platform specific xFSU admission criteria ---
SUCCESS: xFSU image pre-check
Check xFSU support and verification on switch
[1]: xFSU-Verify-Package package(s) on switch 1
Finished preverifying before xFSU
SUCCESS to verify packages
SUCCESS to verify before xFSU
[1]: Finished xFSU-Verify-Package successful on switch 1
(-2) SUCCESS: Finished xFSU-Verify-Package: Success on [1]
[1]: Performing Upgrade_Service
300+0 records in
300+0 records out
307200 bytes (307 kB, 300 KiB) copied, 0.196099 s, 1.6 MB/s
mount: /tmp/microcode_update/boot_pkg: WARNING: source write-protected, mounted read-only.
SUCCESS: Upgrade_Service finished
PID TTY TIME CMD
Starting GR:#
Waiting for UDLD processing:UDLD processing complete
cat: /: Is a directory
Wait for ifm backup: Ifm backup is completeApr 19 21:43:03.283: %PMAN-5-EXITACTION: F0/0: pvp: Process
Apr 19 21:43:05.337: %PMAN-5-EXITACTION: R0/0: pvp: Process ger is exiting: rp processes exit with relo




Initializing Hardware......
Reload Fast Detected

System Bootstrap, Version 17.9.0.4r, DEVELOPMENT SOFTWARE
Copyright (c) 1994-2022 by cisco Systems, Inc.
Compiled Tue 03/22/2022 10:39:31.69 by mjagatap

Current ROMMON image : Primary
Last reset cause : SoftwareReload
C9300-24T platform with 8388608 Kbytes of main memory

Preparing to autoboot. [Press Ctrl-C to interrupt] 0
boot: attempting to boot from [flash:packages.conf]
boot: reading file packages.conf
#
################################################################################################################




Loading image in Verbose mode: 0




Both links down, not waiting for other switches
Switch number is 1

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```

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Software clause at DFARS sec. 252.227-7013.

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, California 95134-1706

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Technical Support: https://www.cisco.com/c/en/us/support/index.html
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Compiled Sat 16-Apr-22 18:59 by mcpre

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Software feature.

FIPS: Flash Key Check : Key Not Found, FIPS Mode Not Enabled
cisco C9300-24T (X86) processor with 1310600K/6147K bytes of memory.
Processor board ID FJC2327E0UB
2048K bytes of non-volatile configuration memory.
8388608K bytes of physical memory.
1638400K bytes of Crash Files at crashinfo:.
11264000K bytes of Flash at flash:.

Base Ethernet MAC Address : d4:ad:bd:f0:38:80
Motherboard Assembly Number : 73-18270-03
Motherboard Serial Number : FJZ23271DDG
Model Revision Number : E0
Motherboard Revision Number : B0
Model Number : C9300-24T
System Serial Number : FJC2327E0UB
CLEI Code Number :

```
WARNING: Command has been added to the configuration using a type 7 password. However, recommended to m


Press RETURN to get started!


C9300_Switch>
C9300_Switch>en
C9300_Switch#sh log | inc FAST
*Apr 19 21:48:01.667: %FED_IPC_MSG-5-FAST_RELOAD_COMPLETE: Switch 1 F0/0: fed: Fast reload operation co
```

验证

xFSU成功完成后要收集用于验证的命令/输出。

基本Show命令

· show switch detail — 用于显示交换机详细信息。

· show version — 用于显示交换机版本。

. show version | in reason — 在所有交换机上使用Reloadfast或Reload Fast命令将原因显示为映像安装。

· show running-config — 用于显示交换机的运行配置。

· show logging — 用于显示交换机控制台日志。

•show log | in FAST（收集此post xFSU） — 从交换机控制台日志中grep FAST_RELOAD_COMPLETE。

xFSU相关日志

show graceful-reload — 用于显示xFSU无中断重新加载日志。

<#root>

```
C9300_Switch#
show graceful-reload


Graceful Reload Infra Status: Not running
Minimum required system uptime before fast reload can be supported is 10 seconds
Client OSPFV3 : (0x10203008) Status: Up
Client OSPF : (0x10203007) Status: Up
Client GR_CLIENT_BGP : (0x10203006) Status: Up
Client IS-IS : (0x10203005) Status: Up
Client LACP_xFSU : (0x10203004) Status: Up
Client GR_CLIENT_TOPO : (0x10203003) Status: Up
```

```
Client GR_CLIENT_VRF : (0x10203002) Status: Up
Client GR_CLIENT_RIB : (0x10203001) Status: Up
Client GR_CLIENT_FIB : (0x10203000) Status: Up
```

show xfsu status -显示xFSU状态(此CLI仅在Cisco IOS XE 17.8版及更高版本中可用。对于17.3和17.6版本，请使用show reloadfast status)

<#root>

C9300_Switch#

show xfsu status

```
Reload Fast PLATFORM Status: Dataplane update done
Graceful Reload Infra Status: Not running
Minimum required system uptime before fast reload can be supported is 10 seconds
Client OSPFV3 : (0x10203008) Status: Up
Client OSPF : (0x10203007) Status: Up
Client GR_CLIENT_BGP : (0x10203006) Status: Up
Client IS-IS : (0x10203005) Status: Up
Client LACP_xFSU : (0x10203004) Status: Up
Client GR_CLIENT_TOPO : (0x10203003) Status: Up
Client GR_CLIENT_VRF : (0x10203002) Status: Up
Client GR_CLIENT_RIB : (0x10203001) Status: Up
Client GR_CLIENT_FIB : (0x10203000) Status: Up
```

故障排除

xFSU出现故障时要收集的输出。

FPGA版本

<#root>

show platform hardware fpga switch

| inc Version

```
 - display FPGA version
```

完整的拓扑包括SKU/FRU/上行链路/下行链路详细信息

<#root>

show inventory

 - display switch inventory

show cdp neighbor

 - display switch CDP neighbor

show etherchannel summary

 - display switch etherchannel summary

show spanning-tree

 - display switch spanning-tree configuration

show romvar switch all | in BOARD

 - display switch board ID

Btrace和崩溃相关信息

<#root>

show platform software trace message fed switch

 - display switch fed trace configuration

request platform software trace rotate all

 - rotate switch trace logs to archive
Copy logs from

crashinfo-

:/tracelogs/fed_F0*

If crash happens during xFSU, copy

crashinfo-

:system-report*

If stack SSO not ready or archive trace generated during bootup,

copy crashinfo-

:*archive*

接口相关信息

<#root>

show interface status | inc connected

- display switch connected interface status.

show ip interface brief | inc up

- display switch those interfaces which stay up.

show interface

status -

display interface status for particular interface.

show interface

status err-disabled

- display interface err-disabled status for particular interface.

XCVR/Phy/上行链路相关信息

<#root>

show controllers ethernet-controller

phy detail

- To display switch phy detail for particular ethernet-controller interface.

show controllers ethernet-controller

mac

- To display switch mac information for particular ethernet-controller interface.

show controllers ethernet-controller

link-status

- To display switch link status for particular ethernet-controller interface.

show controllers ethernet-controller

- To display information for particular ethernet-controller interface.

xFSU show tech-support xfsu

<#root>

show tech-support xfsu

- display xFSU technical support information



注意：此CLI仅在Cisco IOS XE 17.8版本及更高版本中可用。对于17.3和17.6版本，请使用show tech-support reloadfast。

xFSU资格

注意：show xfsu eligibility — 显示xFSU资格信息（此CLI仅在Cisco IOS XE 17.8版及更高版本中可用）。

show xfsu eligibility（独立交换机）

<#root>

```
C9300_Switch#

show xfsu eligibility


Reload fast supported: Yes
Reload Fast PLATFORM Status: Not started yet
Stack Configuration: No
Eligibility Check         Status
=================         ======
Autoboot Enabled          No
Install Mode              Yes
Supported FPGA            Yes
Check macsec eligibility  Eligible

<-- All the status must be Yes or eligible to continue xFSU


Spanning Tree             Eligible

<-- For STP status must be eligible to continue xFSU
```

show xfsu eligibility（堆栈交换机）

<#root>

```
Switch#

show xfsu eligibility


Reload fast supported: Yes
Reload Fast PLATFORM Status: Not started yet
Stack Configuration: Yes
Eligibility Check         Status
```

```
=================          ======
Autoboot Enabled           Yes
Install Mode               Yes
Supported FPGA             Yes
```

支持的FPGA是

<#root>

```
Network Advantage License Yes
Full ring stack           Yes
Check macsec eligibility  Eligible

<--

All the status must be Yes or eligible to continue xFSU


Spanning Tree             Eligible

<-- For STP status must be eligible to continue xFSU


SSO Mode                  Yes

<-- If 'SSO mode' status is 'No', please wait until condition is met, then proceed
```

卡韦茨

Bug ID	标题	受影响的版本	修复版本
Cisco Bug ID CSCwk44644	安装了SMU的堆叠交换机上的xFSU故障。	17.12.2	17.12.3 17.15.1
Cisco Bug ID CSCwr07980	执行快速重新加载时，FPGA开始升级。	17.12.3 17.15.2	17.12.4 17.15.3

相关信息

- 技术支持和文档 - Cisco Systems
- 不支持的协议列表：请参阅此处的链接
- 支持的协议列表：请参阅此处的链接

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