

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Network Advantage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且未将其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。

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

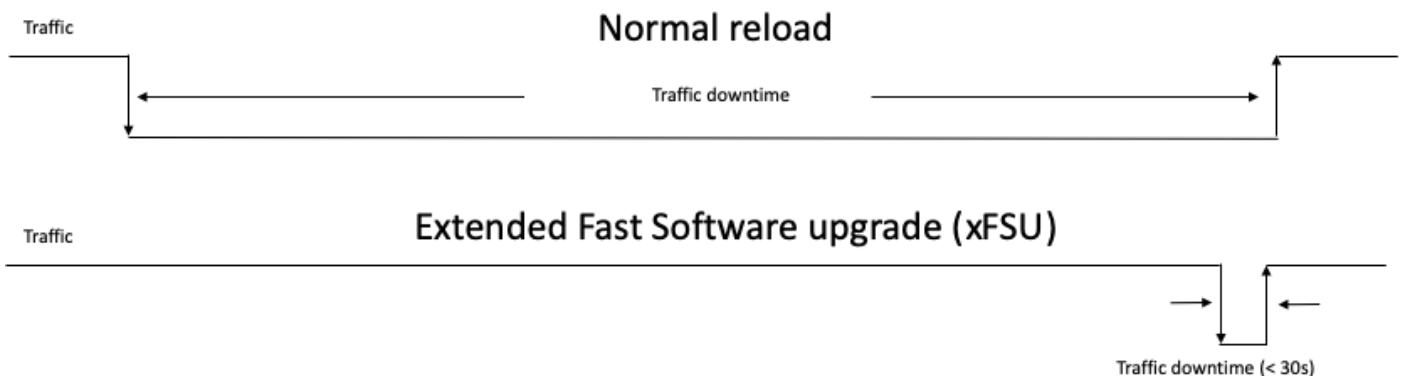
本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

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基于平稳重启功能原则（也称为Cisco NSF）。

此功能背后的总体思路是让数据（转发）平面继续运行，同时作为软件升级的一部分重新加载控制平面。xFSU的角色是用新的控制平面协调ASIC中的转发状态，并在快速重置转发ASIC后恢复转发状态，如下所示。

下图显示了与正常重新加载相比，流量停机时间显著减少。



xFSU引入了以下命令：

```
install add file <image URL> activate xfsu commit
```

- 在Cisco IOS XE 17.8版本及更高版本中提供

install add file <image URL> activate reloadfast commit

- 在Cisco IOS XE 17.3和17.6版本中提供
- 升级软件版本并减少停机时间

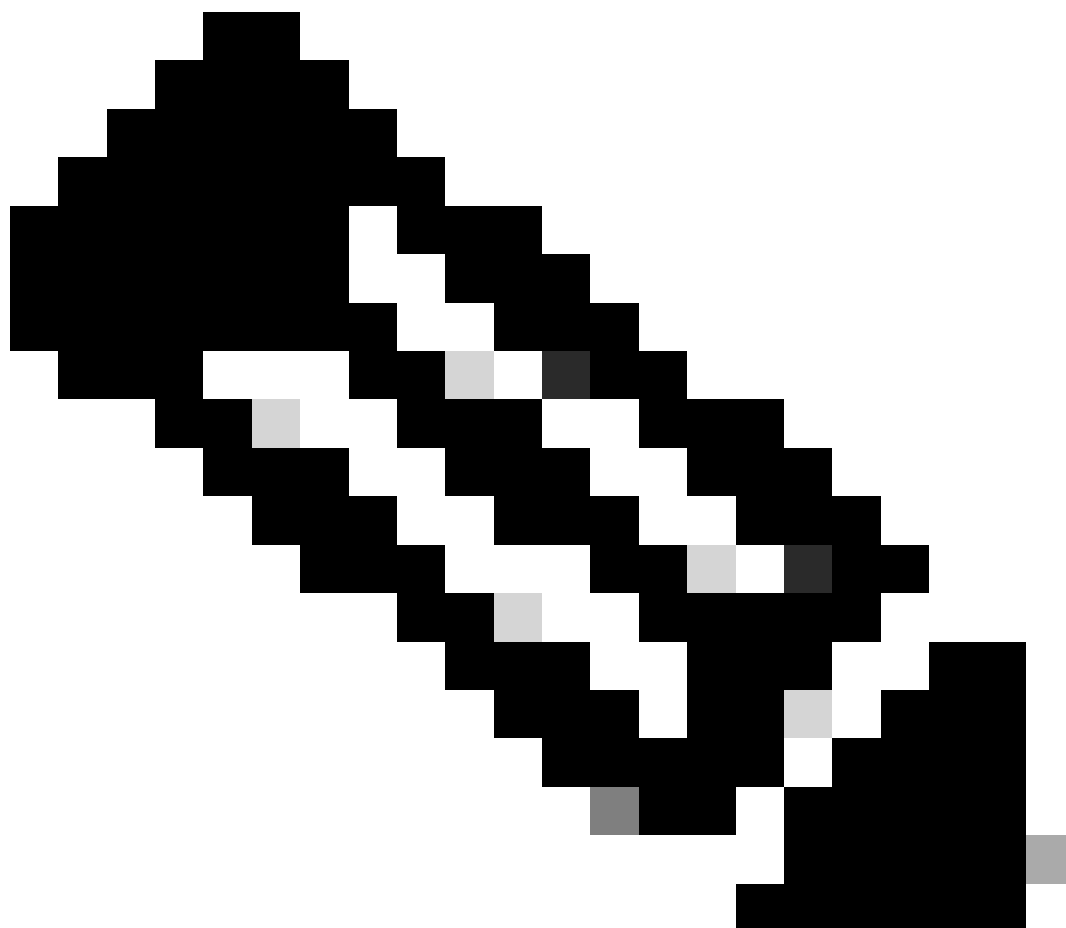
reload fast

- 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到4分钟。

- 对于接入网络而言，这种停机时间对于wifi接入点、机器人等设备而言至关重要。
- xFSU有助于最大程度地缩短停机时间，但因为并非所有配置都受支持，所以存在一些限制。



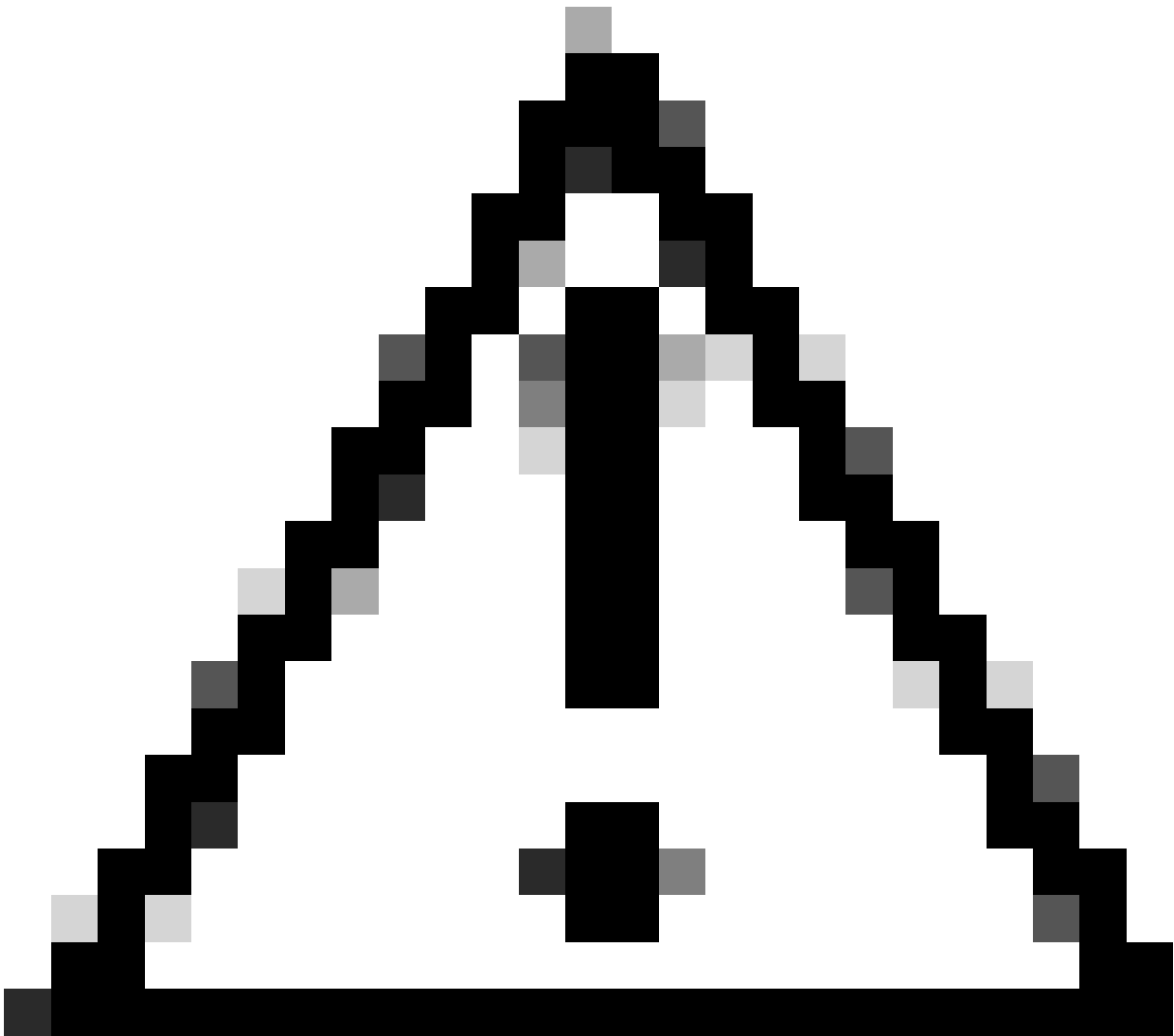
注意：对于将上行链路分布到堆叠上的主用和备用或主用和成员交换机之间的堆叠系统，这是进一步减少停机时间的最佳实践

支持的协议

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

- 第 2 层交换
- 每VLAN生成树(PVST)
- 使用RSTP或MSTP的STP
- 静态端口通道 (开启模式)
- 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
- QoS
- 基于IEEE 802.1X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



注意：不支持结合使用xFSU和以下任何情况。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并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交换矩阵中进行配置。
- 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

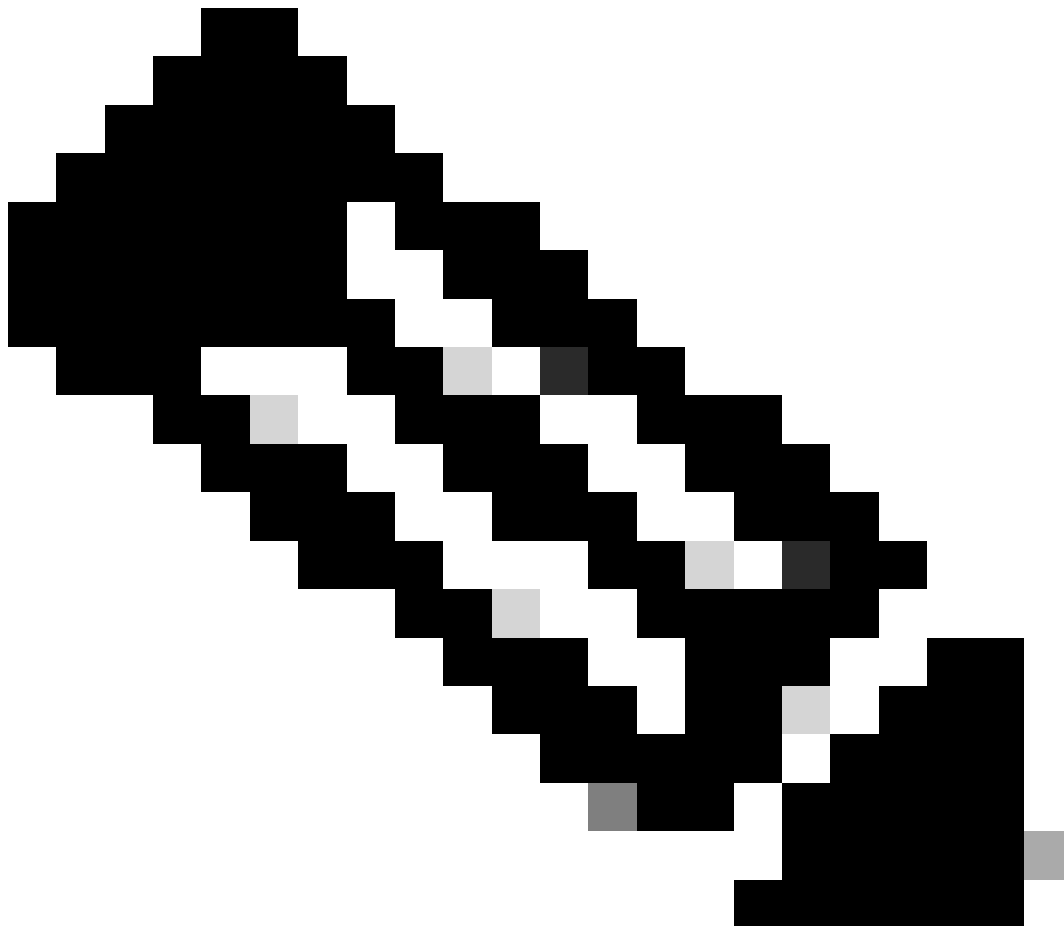
- 堆叠设备被配置为半环状态。
- 堆叠设备配置有MACsec密钥协议(MKA)或思科TrustSec (CTS)
- 堆叠设备配置了组播，因为堆叠上的PIM尚未就位。

其它限制

- 执行扩展快速软件升级后，应用程序托管可能无法自动重新启动。您可能需要禁用和重新启用Cisco IOx、配置应用托管、安装、激活并再次启动应用。
- 配置的单向链路检测(UDLD)消息间隔将在xFSU期间被忽略。在xFSU完成后，间隔会恢复到配置的值。

所需配置

此表列出了执行xFSU之前所需的配置，以使各个协议上的流量停机时间小于30秒。



注意：此功能不适用于所有配置。即使xFSU根据协议与其他组件的交互以及对时间敏感的

(状态协议) 配置，将其列为支持的协议，这也会导致更高的流量丢失。建议在使用此功能之前测试特定配置。

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远程IPv6节点被视为可达的时间限制。	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	<ul style="list-style-type: none"> 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



各版本之间扩展的快速软件升级支持

EM版本内/从EM到EM版本

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)*	✓	X	X	✓	X	X	✓
17.4.x (SM)	—	—	X	X	X	X	X
17.5.x (SM)	—	—	—	X	X	X	X
17.6.x (EM)	—	—	—	✓	X	X	✓
17.7.x (SM)	—	—	—	—	—	X	X
17.8.x (SM)	—	—	—	—	—	—	X

17.9.x (EM)	—	—	—	—	—	—	✓
-------------	---	---	---	---	---	---	---

* 在Cisco IOS XE 17.3.x系列上，仅从17.3.2版开始支持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)。标准支持版本的持续支持寿命为12个月，从第一次客户发货(FCS)开始，包括两次计划重建。扩展支持版本提供了从FCS开始的48个月的持久支持生命周期，并安排了10次定期重建。

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。
 - install add：从TFTP服务器下载映像，复制到所有交换机，并展开每台交换机上的软件包
 - xFSU检查：提供xFSU相关检查，包括限制检查

- install activate/commit : 激活并提交已安装软件包
- 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 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
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.SS
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-sipsa.V178_1A_FC2_2.SSA.pkg
/flash/cat9k-sibase.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-espbases.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-espbases.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-sipspace.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-espbases.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-sipspace.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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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
 - Fast Reload：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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```
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成功完成后要收集以进行验证的命令/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 - 在所有交换机上将reason显示为“Image Install with Reloadfast”或“Reload Fast Command”。
- show running-config - 用于显示交换机的运行配置
- show logging - 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平滑重新加载日志

```
<#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 -用于显示xFSU状态 (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 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

如果xFSU发生故障，则收集输出。

FPGA版本

```
<#root>
```

```
show platform hardware fpga switch <sw_num> | 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 <sw-num>

- display switch fed trace configuration

request platform software trace rotate all

- rotate switch trace logs to archive

Copy logs from

crashinfo-<sw_num>:/tracelogs/fed_F0*

If crash happens during xFSU, copy

crashinfo-<sw_num>:system-report*

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

copy crashinfo-<sw_num>:*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 <intf-id> status -

display interface status for particular interface.

show interface <intf-id> 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 <intf-id> phy detail

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

show controllers ethernet-controller <intf-id> mac

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

show controllers ethernet-controller <intf-id> link-status

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

show controllers ethernet-controller <ints-id>

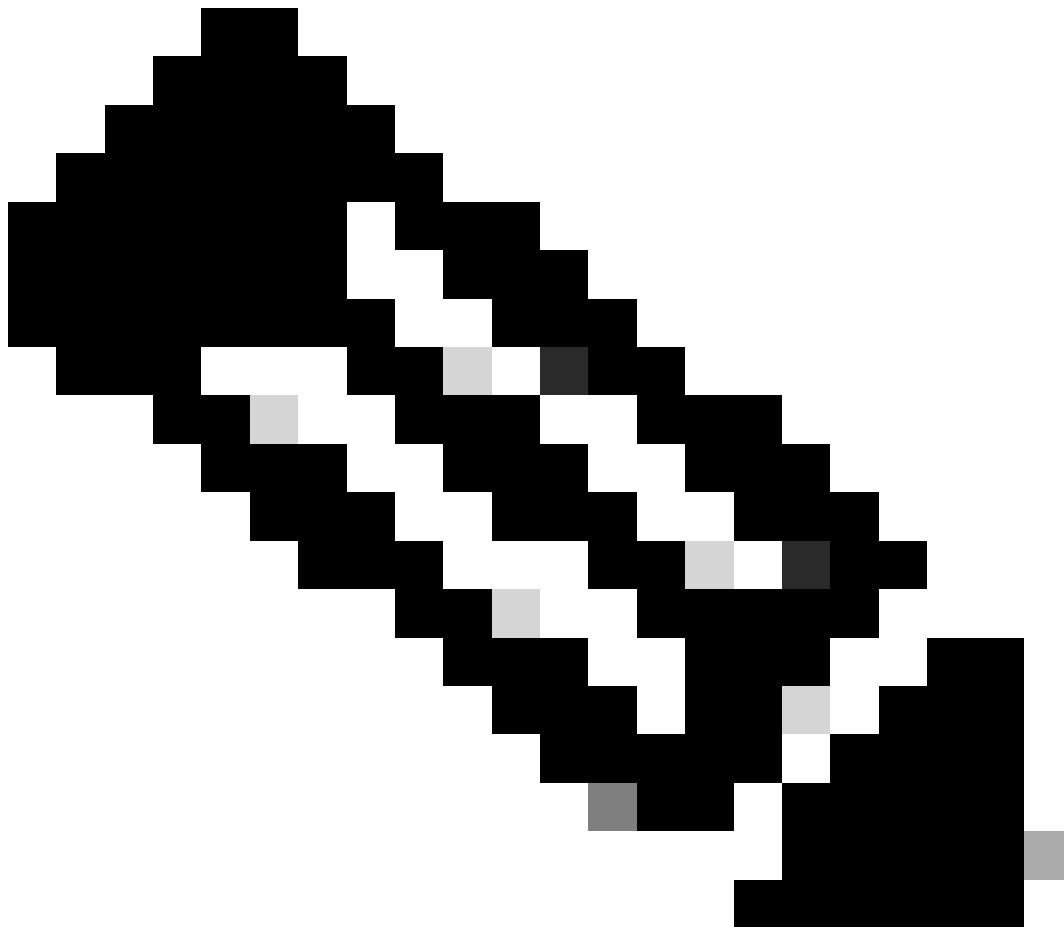
- To display information for particular ethernet-controller interface.

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 -用于显示xFSU资格信息（此CLI仅在Cisco IOS XE 17.8版本及更高版本中可用）

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
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 (堆叠交换机)

<#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
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

相关信息

- [技术支持和文档 - Cisco Systems](#)
- 不支持的协议列表：[此处](#)链接参考
- 支持的协议列表：请参阅[此处](#)的链接

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