Upgrading the Switch Software

Automatic Boot Loader Upgrade

When you upgrade from any prior IOS 3.xE release to an IOS XE 16.x release for the first time, the boot loader is automatically upgraded and it will take effect on the next reload. For subsequent IOS XE 16.x releases, if the boot loader is updated in those releases, it will be automatically upgraded when you load the new release on the switch. If you go back to an IOS 3.xE release, your boot loader will not be downgraded. The updated boot loader supports all previous IOS 3.xE releases.

⚠

Caution Please do not power cycle your switch during the upgrade.

The following is a sample of the console output during the automatic boot loader upgrade while booting Cisco IOS XE Denali 16.x.x :

```
%IOSXEBOOT-PLEASE-###: (rp/0): DO NOT POWER CYCLE ### BOOT LOADER UPGRADING
%IOSXEBOOT-Nov-Tue: (rp/0): 24 11:04:42 Universal 2015 boot loader upgrade
 successful
```

Automatic Microcode Upgrade

During an IOS image upgrade or downgrade on a PoE or UPoE switch, the microcode is updated to reflect applicable feature enhancements and bug fixes. Do not restart the switch during the upgrade or downgrade process. With the Cisco IOS XE Denali 16.x.x release, it takes approximately an additional 4 minutes to complete the microcode upgrade in addition to the normal reload time. The microcode update occurs only during an image upgrade or downgrade on PoE or UPoE switches. It does not occur during switch reloads or on non-PoE switches.

The following is a sample of the console messages that are displayed during microcode upgrade:

```
Front-end Microcode IMG MGR: found 4 microcode images for 1 device.
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_0
```

```
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_1
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_2
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_3

Front-end Microcode IMG MGR: Preparing to program device microcode...
Front-end Microcode IMG MGR: Preparing to program device[0]...594412 bytes....
Skipped[0].
Front-end Microcode IMG MGR: Preparing to program device[0]...381758 bytes.
Front-end Microcode IMG MGR: Programming device
0...rwRrrrrrrw..0%.....................................................................
..10%.....................................................................20%.........
.....................................................................30%.....................
.............................................40%.................................
.....................................50%.........................................
.........................60%.....................................................
............70%.
.....................................................................80%...........
.....................................................90%.........................
.........................................100%
Front-end Microcode IMG MGR: Preparing to program device[0]...25166 bytes.
Front-end Microcode IMG MGR: Programming device
0...rrrrrrw..0%....10%....20%......30%...40%......50%....60%......70%...80%......90%....100%
Front-end Microcode IMG MGR: Microcode programming complete for device 0.
Front-end Microcode IMG MGR: Preparing to program device[0]...86370 bytes....
Skipped[3].
Front-end Microcode IMG MGR: Microcode programming complete in 237 seconds
```

Upgrading Cisco IOS XE Software

The method that you use to upgrade Cisco IOS XE software depends on whether the device is running in installed mode or in bundle mode.

Install Mode

Upgrading from Cisco IOS XE 3.xE to Cisco IOS XE Denali 16.x

Copy New Image to Stack

Follow the steps below to copy the source image stored on the TFTP server on to the local flash:

SUMMARY STEPS

1.
2.
3.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `Switch#show run | i tftp` `ip tftp source-interface GigabitEthernet0/0` `ip tftp blocksize 8192`	Make sure your tftp server is reachable from IOS via source interface.

	Command or Action	Purpose
	`Switch#` `Switch#show run | i ip route vrf` `ip route vrf Mgmt-vrf 5.0.0.0 255.0.0.0 5.30.0.1` `Switch#` `Switch#show run int GigabitEthernet0/0` `Building configuration...` `Current configuration : 115 bytes` `!` `interface GigabitEthernet0/0` `vrf forwarding Mgmt-vrf` `ip address 5.30.12.121 255.255.0.0` `negotiation auto` `end` `Switch#` `Switch#ping vrf Mgmt-vrf ip 5.28.11.250` `Type escape sequence to abort.` `Sending 5, 100-byte ICMP Echos to 5.28.11.250,` `timeout is 2 seconds:` `!!!!!` `Success rate is 100 percent (5/5), round-trip` `min/avg/max = 1/1/2 ms`	
Step 2	**Example:** `Switch#copy` `tftp://5.28.11.250/cat3k_caa-universalk9.16.01.01.SPA.bin` ` flash:` `Destination filename` `[cat3k_caa-universalk9.16.01.01.SPA.bin]?` `Accessing` `tftp://5.28.11.250/cat3k_caa-universalk9.16.01.01.SPA.bin...` `Loading cat3k_caa-universalk9.16.01.01.SPA.bin from` ` 5.28.11.250 (via` `GigabitEthernet0/0):!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!` `!!!!!!!!O!!!!!!!!!!!!!!!!!!!!!!!!` `[OK - 469677062 bytes]` `469677062 bytes copied in 140.610 secs (3340282` `bytes/sec)` `Switch#`	Copy the image from your tftp server to flash.
Step 3	**Example:** `Switch#dir flash:*.bin` `Directory of flash:/*.bin` `77453 -rw- 469677062 Nov 30 2015 16:31:05 -08:00` `cat3k_caa-universalk9.16.01.01.SPA.bin` `3458338816 bytes total (2644488192 bytes free)` `Switch#`	Use the **dir** flash command to confirm that the image has been successfully copied to flash.

Software Install Image to Flash

SUMMARY STEPS

1.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `Switch#software install file flash:cat3k_caa-universalk9.16.01.01.SPA.bin new force` `Preparing install operation ...` `[4]: Copying software from active switch 4 to switches 1,2,3` `[4]: Finished copying software to switches 1,2,3` `[1 2 3 4]: Starting install operation` `[1 2 3 4]: Expanding bundle flash:cat3k_caa-universalk9.16.01.01.SPA.bin` `[1 2 3 4]: Copying package files` `[1 2 3 4]: Package files copied` `[1 2 3 4]: Finished expanding bundle flash:cat3k_caa-universalk9.16.01.01.SPA.bin` `[1 2 3 4]: Verifying and copying expanded package files to flash:` `[1 2 3 4]: Verified and copied expanded package files to flash:` `[1 2 3 4]: Starting compatibility checks` `[1 2 3 4]: Bypassing peer package compatibility checks due to 'force' command option` `[1 2 3 4]: Finished compatibility checks` `[1 2 3 4]: Starting application pre-installation processing` `[1 2 3 4]: Finished application pre-installation processing` `[1]: Old files list:` `Removed cat3k_caa-base.SPA.03.07.02E.pkg` `Removed cat3k_caa-drivers.SPA.03.07.02E.pkg` `Removed cat3k_caa-infra.SPA.03.07.02E.pkg` `Removed cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg` `Removed cat3k_caa-platform.SPA.03.07.02E.pkg` `Removed cat3k_caa-wcm.SPA.10.3.120.0.pkg` `[2]: Old files list:` `Removed cat3k_caa-base.SPA.03.07.02E.pkg` `Removed cat3k_caa-drivers.SPA.03.07.02E.pkg` `Removed cat3k_caa-infra.SPA.03.07.02E.pkg` `Removed cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg` `Removed cat3k_caa-platform.SPA.03.07.02E.pkg` `Removed cat3k_caa-wcm.SPA.10.3.120.0.pkg` `[3]: Old files list:` `Removed cat3k_caa-base.SPA.03.07.02E.pkg` `Removed cat3k_caa-drivers.SPA.03.07.02E.pkg` `Removed cat3k_caa-infra.SPA.03.07.02E.pkg` `Removed cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg` `Removed cat3k_caa-platform.SPA.03.07.02E.pkg` `Removed cat3k_caa-wcm.SPA.10.3.120.0.pkg` `[4]: Old files list:` `Removed cat3k_caa-base.SPA.03.07.02E.pkg` `Removed cat3k_caa-drivers.SPA.03.07.02E.pkg` `Removed cat3k_caa-infra.SPA.03.07.02E.pkg` `Removed cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg` `Removed cat3k_caa-platform.SPA.03.07.02E.pkg` `Removed cat3k_caa-wcm.SPA.10.3.120.0.pkg` `[1]: New files list:` `Added cat3k_caa-rpbase.16.01.01.SPA.pkg` `Added cat3k_caa-srdriver.16.01.01.SPA.pkg`	Use the **software install** command with the ‘new’ and ‘force’ options to expand the target image to flash. You can point to the source image on your TFTP server or in flash if you have it copied to flash.

	Command or Action	Purpose
	Added cat3k_caa-wcm.16.01.01.SPA.pkg Added cat3k_caa-webui.16.01.01.SPA.pkg [2]: New files list: Added cat3k_caa-rpbase.16.01.01.SPA.pkg Added cat3k_caa-srdriver.16.01.01.SPA.pkg Added cat3k_caa-wcm.16.01.01.SPA.pkg Added cat3k_caa-webui.16.01.01.SPA.pkg [3]: New files list: Added cat3k_caa-rpbase.16.01.01.SPA.pkg Added cat3k_caa-srdriver.16.01.01.SPA.pkg Added cat3k_caa-wcm.16.01.01.SPA.pkg Added cat3k_caa-webui.16.01.01.SPA.pkg [4]: New files list: Added cat3k_caa-rpbase.16.01.01.SPA.pkg Added cat3k_caa-srdriver.16.01.01.SPA.pkg Added cat3k_caa-wcm.16.01.01.SPA.pkg Added cat3k_caa-webui.16.01.01.SPA.pkg [1 2 3 4]: Creating pending provisioning file [1 2 3 4]: Finished installing software. New software will load on reboot. [1 2 3 4]: Committing provisioning file [1 2 3 4]: Do you want to proceed with reload? [yes/no]: yes [1 2 3 4]: Reloading **Note** Old files listed in the logs should be removed using the **request platform software package clean switch all** command, after reload.	

Reload

SUMMARY STEPS

1.
2.
3.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `switch: boot flash:packages.conf` **Note** When you boot the new image, it will automatically update the boot loader.	If you said 'Yes' to the prompt in software install and your switches are configured with auto boot, the stack will automatically boot up with the new image. If not, you can manually boot flash:packages.conf
Step 2	**Example:** `Switch#show version` `Cisco IOS Software [Denali], Catalyst L3 Switch Software (CAT3K_CAA-UNIVERSALK9-M), Version 16.3.1, RELEASE SOFTWARE (fc3)` `Technical Support: http://www.cisco.com/techsupport`	When the new image boots up, you can verify the version of the new image, by checking **show version**.

	Command or Action	Purpose
	`Copyright (c) 1986-2016 by Cisco Systems, Inc.` `Compiled Tue 02-Aug-16 17:33 by mcpre`	
Step 3	**Example:** `Switch#delete flash:cat3k_caa-universalk9.16.03.01.SPA.bin` `Delete filename [cat3k_caa-universalk9.16.03.01.SPA.bin]?` `Delete flash:/cat3k_caa-universalk9.16.03.01.SPA.bin? [confirm]` `Switch#`	After you have successfully installed the image, you no longer need the .bin image and the file can be deleted from flash of each switch if it was copied to flash.

Upgrading from Cisco IOS XE Denali 16.x-1 to Cisco IOS XE Denali 16.x

Clean Up

SUMMARY STEPS

1.
2.
3.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `switch: boot flash:packages.conf` **Note** When you boot the new image, it will automatically update the boot loader.	If you said 'Yes' to the prompt in software install and your switches are configured with auto boot, the stack will automatically boot up with the new image. If not, you can manually boot flash:packages.conf
Step 2	**Example:** `Switch#show version` `Cisco IOS Software [Denali], Catalyst L3 Switch Software (CAT3K_CAA-UNIVERSALK9-M), Version 16.3.1, RELEASE SOFTWARE (fc3)` `Technical Support: http://www.cisco.com/techsupport` `Copyright (c) 1986-2016 by Cisco Systems, Inc.` `Compiled Tue 02-Aug-16 17:33 by mcpre`	When the new image boots up, you can verify the version of the new image, by checking **show version**.
Step 3	**Example:** `Switch#delete flash:cat3k_caa-universalk9.16.03.01.SPA.bin` `Delete filename [cat3k_caa-universalk9.16.03.01.SPA.bin]?` `Delete flash:/cat3k_caa-universalk9.16.03.01.SPA.bin? [confirm]` `Switch#`	After you have successfully installed the image, you no longer need the .bin image and the file can be deleted from flash of each switch if it was copied to flash.

Copy New Image to Stack

Follow the steps below to copy the source image stored on the TFTP server on to the local flash:

SUMMARY STEPS

1.
2.
3.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `Switch#show run | i tftp` `ip tftp source-interface GigabitEthernet0/0` `ip tftp blocksize 8192` `Switch#` `Switch#show run | i ip route vrf` `ip route vrf Mgmt-vrf 5.0.0.0 255.0.0.0 5.30.0.1` `Switch#` `Switch#show run int GigabitEthernet0/0` `Building configuration...` `Current configuration : 115 bytes` `!` `interface GigabitEthernet0/0` `vrf forwarding Mgmt-vrf` `ip address 5.30.12.121 255.255.0.0` `negotiation auto` `end` `Switch#` `Switch#ping vrf Mgmt-vrf ip 5.28.11.250` `Type escape sequence to abort.` `Sending 5, 100-byte ICMP Echos to 5.28.11.250, timeout is 2 seconds:` `!!!!!` `Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/2 ms`	Make sure your tftp server is reachable from IOS via source interface.
Step 2	**Example:** `Switch#copy tftp://5.28.11.250/cat3k_caa-universalk9.16.01.01.SPA.bin flash:` `Destination filename [cat3k_caa-universalk9.16.01.01.SPA.bin]?` `Accessing tftp://5.28.11.250/cat3k_caa-universalk9.16.01.01.SPA.bin...` `Loading cat3k_caa-universalk9.16.01.01.SPA.bin from 5.28.11.250 (via GigabitEthernet0/0):!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!` `!!!!!!!!O!!!!!!!!!!!!!!!!!!!!!!!!` `[OK - 469677062 bytes]` `469677062 bytes copied in 140.610 secs (3340282 bytes/sec)` `Switch#`	Copy the image from your tftp server to flash.

	Command or Action	Purpose
Step 3	**Example:** `Switch#dir flash:*.bin` `Directory of flash:/*.bin` `77453 -rw- 469677062 Nov 30 2015 16:31:05 -08:00 cat3k_caa-universalk9.16.01.01.SPA.bin` `3458338816 bytes total (2644488192 bytes free)` `Switch#`	Use the **dir** flash command to confirm that the image has been successfully copied to flash.

Software Install Image to Flash

SUMMARY STEPS

1.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `Switch#software install file flash:cat3k_caa-universalk9.16.01.01.SPA.bin new force` `Preparing install operation ...` `[4]: Copying software from active switch 4 to switches 1,2,3` `[4]: Finished copying software to switches 1,2,3` `[1 2 3 4]: Starting install operation` `[1 2 3 4]: Expanding bundle flash:cat3k_caa-universalk9.16.01.01.SPA.bin` `[1 2 3 4]: Copying package files` `[1 2 3 4]: Package files copied` `[1 2 3 4]: Finished expanding bundle flash:cat3k_caa-universalk9.16.01.01.SPA.bin` `[1 2 3 4]: Verifying and copying expanded package files to flash:` `[1 2 3 4]: Verified and copied expanded package files to flash:` `[1 2 3 4]: Starting compatibility checks` `[1 2 3 4]: Bypassing peer package compatibility checks due to 'force' command option` `[1 2 3 4]: Finished compatibility checks` `[1 2 3 4]: Starting application pre-installation processing` `[1 2 3 4]: Finished application pre-installation processing` `[1]: Old files list:` `Removed cat3k_caa-base.SPA.03.07.02E.pkg` `Removed cat3k_caa-drivers.SPA.03.07.02E.pkg` `Removed cat3k_caa-infra.SPA.03.07.02E.pkg` `Removed cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg` `Removed cat3k_caa-platform.SPA.03.07.02E.pkg` `Removed cat3k_caa-wcm.SPA.10.3.120.0.pkg` `[2]: Old files list:` `Removed cat3k_caa-base.SPA.03.07.02E.pkg`	Use the **software install** command with the ‘new’ and ‘force’ options to expand the target image to flash. You can point to the source image on your TFTP server or in flash if you have it copied to flash.

	Command or Action	Purpose
	Removed cat3k_caa-drivers.SPA.03.07.02E.pkg Removed cat3k_caa-infra.SPA.03.07.02E.pkg Removed cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg Removed cat3k_caa-platform.SPA.03.07.02E.pkg Removed cat3k_caa-wcm.SPA.10.3.120.0.pkg [3]: Old files list: Removed cat3k_caa-base.SPA.03.07.02E.pkg Removed cat3k_caa-drivers.SPA.03.07.02E.pkg Removed cat3k_caa-infra.SPA.03.07.02E.pkg Removed cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg Removed cat3k_caa-platform.SPA.03.07.02E.pkg Removed cat3k_caa-wcm.SPA.10.3.120.0.pkg [4]: Old files list: Removed cat3k_caa-base.SPA.03.07.02E.pkg Removed cat3k_caa-drivers.SPA.03.07.02E.pkg Removed cat3k_caa-infra.SPA.03.07.02E.pkg Removed cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg Removed cat3k_caa-platform.SPA.03.07.02E.pkg Removed cat3k_caa-wcm.SPA.10.3.120.0.pkg [1]: New files list: Added cat3k_caa-rpbase.16.01.01.SPA.pkg Added cat3k_caa-srdriver.16.01.01.SPA.pkg Added cat3k_caa-wcm.16.01.01.SPA.pkg Added cat3k_caa-webui.16.01.01.SPA.pkg [2]: New files list: Added cat3k_caa-rpbase.16.01.01.SPA.pkg Added cat3k_caa-srdriver.16.01.01.SPA.pkg Added cat3k_caa-wcm.16.01.01.SPA.pkg Added cat3k_caa-webui.16.01.01.SPA.pkg [3]: New files list: Added cat3k_caa-rpbase.16.01.01.SPA.pkg Added cat3k_caa-srdriver.16.01.01.SPA.pkg Added cat3k_caa-wcm.16.01.01.SPA.pkg Added cat3k_caa-webui.16.01.01.SPA.pkg [4]: New files list: Added cat3k_caa-rpbase.16.01.01.SPA.pkg Added cat3k_caa-srdriver.16.01.01.SPA.pkg Added cat3k_caa-wcm.16.01.01.SPA.pkg Added cat3k_caa-webui.16.01.01.SPA.pkg [1 2 3 4]: Creating pending provisioning file [1 2 3 4]: Finished installing software. New software will load on reboot. [1 2 3 4]: Committing provisioning file [1 2 3 4]: Do you want to proceed with reload? [yes/no]: yes [1 2 3 4]: Reloading **Note** Old files listed in the logs should be removed using the **request platform software package clean switch all** command, after reload.	

Reload

SUMMARY STEPS

1.
2.
3.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `switch: boot flash:packages.conf` **Note** When you boot the new image, it will automatically update the boot loader.	If you said 'Yes' to the prompt in software install and your switches are configured with auto boot, the stack will automatically boot up with the new image. If not, you can manually boot flash:packages.conf
Step 2	**Example:** `Switch#show version` `Cisco IOS Software [Denali], Catalyst L3 Switch Software (CAT3K_CAA-UNIVERSALK9-M), Version 16.3.1, RELEASE SOFTWARE (fc3)` `Technical Support: http://www.cisco.com/techsupport` `Copyright (c) 1986-2016 by Cisco Systems, Inc.` `Compiled Tue 02-Aug-16 17:33 by mcpre`	When the new image boots up, you can verify the version of the new image, by checking **show version**.
Step 3	**Example:** `Switch#delete flash:cat3k_caa-universalk9.16.03.01.SPA.bin` `Delete filename [cat3k_caa-universalk9.16.03.01.SPA.bin]?` `Delete flash:/cat3k_caa-universalk9.16.03.01.SPA.bin? [confirm]` `Switch#`	After you have successfully installed the image, you no longer need the .bin image and the file can be deleted from flash of each switch if it was copied to flash.

Bundle Mode

Upgrading from Cisco IOS XE 3.xE to Cisco IOS XE Denali 16.x

Copy New Image to Stack

Follow the steps below to copy the source image stored on the TFTP server on to the local flash:

SUMMARY STEPS

1.
2.
3.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `Switch#show run | i tftp` `ip tftp source-interface GigabitEthernet0/0` `ip tftp blocksize 8192` `Switch#` `Switch#show run | i ip route vrf`	Make sure your tftp server is reachable from IOS via source interface.

	Command or Action	Purpose
	`ip route vrf Mgmt-vrf 5.0.0.0 255.0.0.0 5.30.0.1` `Switch#` `Switch#show run int GigabitEthernet0/0` `Building configuration...` `Current configuration : 115 bytes` `!` `interface GigabitEthernet0/0` `vrf forwarding Mgmt-vrf` `ip address 5.30.12.121 255.255.0.0` `negotiation auto` `end` `Switch#` `Switch#ping vrf Mgmt-vrf ip 5.28.11.250` `Type escape sequence to abort.` `Sending 5, 100-byte ICMP Echos to 5.28.11.250, timeout is 2 seconds:` `!!!!!` `Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/2 ms`	
Step 2	**Example:** `Switch#copy tftp://5.28.11.250/cat3k_caa-universalk9.16.01.01.SPA.bin flash:` `Destination filename [cat3k_caa-universalk9.16.01.01.SPA.bin]?` `Accessing tftp://5.28.11.250/cat3k_caa-universalk9.16.01.01.SPA.bin...` `Loading cat3k_caa-universalk9.16.01.01.SPA.bin from 5.28.11.250 (via GigabitEthernet0/0):!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!` `!!!!!!!!O!!!!!!!!!!!!!!!!!!!!!!!!!` `[OK - 469677062 bytes]` `469677062 bytes copied in 140.610 secs (3340282 bytes/sec)` `Switch#`	Copy the image from your tftp server to flash.
Step 3	**Example:** `Switch#dir flash:*.bin` `Directory of flash:/*.bin` `77453 -rw- 469677062 Nov 30 2015 16:31:05 -08:00 cat3k_caa-universalk9.16.01.01.SPA.bin` `3458338816 bytes total (2644488192 bytes free)` `Switch#`	Use the **dir** flash command to confirm that the image has been successfully copied to flash.

Edit the Boot Variable

SUMMARY STEPS

1.
2.
3.

4.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `Switch(config)# no boot system`	Clear the boot variable.
Step 2	**Example:** `Switch(config)# boot system flash:cat3k_caa-universalk9.16.03.01.SPA.bin`	Edit the boot variable to point to the new image.
Step 3	**Example:** `Switch#write memory`	Use the **write** memory command to save the configuration change.
Step 4	**Example:** `Switch#show boot` `----------` `Switch 1` `----------` `Current Boot Variables:` `BOOT variable =` `flash:cat3k_caa-universalk9.16.02.01.SPA.bin;` `Boot Variables on next reload:` `BOOT variable =` `flash:cat3k_caa-universalk9.16.02.01.SPA.bin;` `Allow Dev Key = yes` `Manual Boot = yes` `Enable Break = yes` `Switch#`	Use the **show boot** command to confirm that your boot variable is pointing to the new image.

Reload

SUMMARY STEPS

1.
2.
3.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `switch: boot flash:packages.conf` **Note** When you boot the new image, it will automatically update the boot loader.	If you said 'Yes' to the prompt in software install and your switches are configured with auto boot, the stack will automatically boot up with the new image. If not, you can manually boot flash:packages.conf

	Command or Action	Purpose
Step 2	**Example:** `Switch#show version` `Cisco IOS Software [Denali], Catalyst L3 Switch Software (CAT3K_CAA-UNIVERSALK9-M), Version 16.3.1, RELEASE SOFTWARE (fc3)` `Technical Support: http://www.cisco.com/techsupport` `Copyright (c) 1986-2016 by Cisco Systems, Inc.` `Compiled Tue 02-Aug-16 17:33 by mcpre`	When the new image boots up, you can verify the version of the new image, by checking **show version**.
Step 3	**Example:** `Switch#delete flash:cat3k_caa-universalk9.16.03.01.SPA.bin` `Delete filename [cat3k_caa-universalk9.16.03.01.SPA.bin]?` `Delete flash:/cat3k_caa-universalk9.16.03.01.SPA.bin? [confirm]` `Switch#`	After you have successfully installed the image, you no longer need the .bin image and the file can be deleted from flash of each switch if it was copied to flash.

Move from Cisco IOS XE Denali 16.x Bundle Mode to Install Mode

SUMMARY STEPS

1.
2.
3.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `Switch#request platform software package clean switch all file flash:` `Running command on switch 1` `Cleaning up unnecessary package files` `Scanning boot directory for packages... done.` `Preparing packages list to delete...` `done.` `Running command on switch 2` `Cleaning up unnecessary package files` `Scanning boot directory for packages... done.` `Preparing packages list to delete...` `done.` `Running command on switch 3` `Cleaning up unnecessary package files` `Scanning boot directory for packages... done.` `Preparing packages list to delete...` `done.` `Running command on switch 4` `Cleaning up unnecessary package files` `Scanning boot directory for packages... done.` `Preparing packages list to delete...` `done.` `The following files will be deleted:` `[1]:`	Ensure you have enough space in flash to expand a new image by cleaning up old installation files. This command will erase your Cisco IOS XE Denali 16.x bin image file, so ensure that you copy it to your Active again. **Note** Use the **switch all** option to clean up all switches in your stack.

	Command or Action	Purpose
	/flash/cat3k_caa-base.SPA.03.07.02E.pkg /flash/cat3k_caa-drivers.SPA.03.07.02E.pkg /flash/cat3k_caa-infra.SPA.03.07.02E.pkg /flash/cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg /flash/cat3k_caa-platform.SPA.03.07.02E.pkg /flash/cat3k_caa-universalk9.16.01.01.SPA.bin /flash/cat3k_caa-wcm.SPA.10.3.120.0.pkg /flash/packages.conf [2]: /flash/cat3k_caa-base.SPA.03.07.02E.pkg /flash/cat3k_caa-drivers.SPA.03.07.02E.pkg /flash/cat3k_caa-infra.SPA.03.07.02E.pkg /flash/cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg /flash/cat3k_caa-platform.SPA.03.07.02E.pkg /flash/cat3k_caa-universalk9.16.01.01.SPA.bin /flash/cat3k_caa-wcm.SPA.10.3.120.0.pkg /flash/packages.conf [3]: /flash/cat3k_caa-base.SPA.03.07.02E.pkg /flash/cat3k_caa-drivers.SPA.03.07.02E.pkg /flash/cat3k_caa-infra.SPA.03.07.02E.pkg /flash/cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg /flash/cat3k_caa-platform.SPA.03.07.02E.pkg /flash/cat3k_caa-universalk9.16.01.01.SPA.bin /flash/cat3k_caa-wcm.SPA.10.3.120.0.pkg /flash/packages.conf [4]: /flash/cat3k_caa-base.SPA.03.07.02E.pkg /flash/cat3k_caa-drivers.SPA.03.07.02E.pkg /flash/cat3k_caa-infra.SPA.03.07.02E.pkg /flash/cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg /flash/cat3k_caa-platform.SPA.03.07.02E.pkg /flash/cat3k_caa-universalk9.16.01.01.SPA.bin /flash/cat3k_caa-wcm.SPA.10.3.120.0.pkg /flash/packages.conf Do you want to proceed? [y/n]y [1]: Deleting file flash:cat3k_caa-base.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-drivers.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-infra.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg... done. Deleting file flash:cat3k_caa-platform.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-universalk9.16.01.01.SPA.bin... done. Deleting file flash:cat3k_caa-wcm.SPA.10.3.120.0.pkg... done. Deleting file flash:packages.conf... done. SUCCESS: Files deleted. [2]: Deleting file flash:cat3k_caa-base.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-drivers.SPA.03.07.02E.pkg... done. Deleting file	

	Command or Action	Purpose
	flash:cat3k_caa-infra.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg... done. Deleting file flash:cat3k_caa-platform.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-universalk9.16.01.01.SPA.bin... done. Deleting file flash:cat3k_caa-wcm.SPA.10.3.120.0.pkg... done. Deleting file flash:packages.conf... done. SUCCESS: Files deleted. [3]: Deleting file flash:cat3k_caa-base.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-drivers.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-infra.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg... done. Deleting file flash:cat3k_caa-platform.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-universalk9.16.01.01.SPA.bin... done. Deleting file flash:cat3k_caa-wcm.SPA.10.3.120.0.pkg... done. Deleting file flash:packages.conf... done. SUCCESS: Files deleted. [4]: Deleting file flash:cat3k_caa-base.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-drivers.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-infra.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-iosd-universalk9.SPA.152-3.E2.pkg... done. Deleting file flash:cat3k_caa-platform.SPA.03.07.02E.pkg... done. Deleting file flash:cat3k_caa-universalk9.16.01.01.SPA.bin... done. Deleting file flash:cat3k_caa-wcm.SPA.10.3.120.0.pkg... done. Deleting file flash:packages.conf... done. SUCCESS: Files deleted. Switch#	
Step 2	**Example:** Switch#copy tftp://5.28.11.250/cat3k_caa-universalk9.16.01.01.SPA.bin flash: Destination filename [cat3k_caa-universalk9.16.01.01.SPA.bin]? Accessing tftp://5.28.11.250/cat3k_caa-universalk9.16.01.01.SPA.bin...	Copy the image from your tftp server to flash.

	Command or Action	Purpose
	`Loading cat3k_caa-universalk9.16.01.01.SPA.bin from 5.28.11.250 (via GigabitEthernet0/0): !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!O!!!!!!!!! !!!!!!!!!!!!!!! [OK - 469677062 bytes]` `469677062 bytes copied in 140.610 secs (3340282 bytes/sec) Switch#`	
Step 3	**Example:** `Switch#request platform software package expand switch all file flash:cat3k_caa-universalk9.16.01.01.SPA.bin auto-copy [1]: Copying flash:cat3k_caa-universalk9.16.01.01.SPA.bin from switch 1 to switch 2 3 4 [2 3 4]: Finished copying to switch 2 3 4 [1 2 3 4]: Expanding file [1 2 3 4]: Finished expanding all-in-one software package in switch 1 2 3 4 SUCCESS: Finished expanding all-in-one software package. Switch#`	Use the **request platform software package expand switch all file flash:image.bin auto-copy** command to expand the target image to flash and move from bundle mode to install mode. You can point to the source image on your TFTP server or in flash if you have it copied to flash. **Note** Use the **switch all** option to upgrade all switches in your stack. Use the **auto-copy** option to copy the.bin image from flash: to all other switches in your stack.

Edit the Boot Variable

SUMMARY STEPS

1.
2.
3.
4.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** `Switch(config)# no boot system`	Clear the boot variable.
Step 2	**Example:** `Switch(config)# boot system flash:cat3k_caa-universalk9.16.03.01.SPA.bin`	Edit the boot variable to point to the new image.
Step 3	**Example:** `Switch#write memory`	Use the **write** memory command to save the configuration change.
Step 4	**Example:** `Switch#show boot ---------------------------`	Use the **show boot** command to confirm that your boot variable is pointing to the new image.

	Command or Action	Purpose
	Switch 1 --------------------------- Current Boot Variables: BOOT variable = flash:cat3k_caa-universalk9.16.02.01.SPA.bin; Boot Variables on next reload: BOOT variable = flash:cat3k_caa-universalk9.16.02.01.SPA.bin; Allow Dev Key = yes Manual Boot = yes Enable Break = yes Switch#	

Reload

SUMMARY STEPS

1.
2.
3.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**Example:** switch: boot flash:packages.conf **Note** When you boot the new image, it will automatically update the boot loader.	If you said 'Yes' to the prompt in software install and your switches are configured with auto boot, the stack will automatically boot up with the new image. If not, you can manually boot flash:packages.conf
Step 2	**Example:** Switch#show version Cisco IOS Software [Denali], Catalyst L3 Switch Software (CAT3K_CAA-UNIVERSALK9-M), Version 16.3.1, RELEASE SOFTWARE (fc3) Technical Support: http://www.cisco.com/techsupport Copyright (c) 1986-2016 by Cisco Systems, Inc. Compiled Tue 02-Aug-16 17:33 by mcpre	When the new image boots up, you can verify the version of the new image, by checking **show version**.
Step 3	**Example:** Switch#delete flash:cat3k_caa-universalk9.16.03.01.SPA.bin Delete filename [cat3k_caa-universalk9.16.03.01.SPA.bin]? Delete flash:/cat3k_caa-universalk9.16.03.01.SPA.bin? [confirm] Switch#	After you have successfully installed the image, you no longer need the .bin image and the file can be deleted from flash of each switch if it was copied to flash.

Downgrading Cisco IOS XE Software

The method that you use to downgrade Cisco IOS XE software depends on whether the device is running in installed mode or in bundle mode.

Install Mode

Downgrading from Cisco IOS XE Denali 16.x to Cisco 3.xE