**Install Mode Commands**

**Restrictions**

Your boot statement must always be packages.conf in install mode. If you try to change the boot statement to another .conf file while you are in the middle of an upgrade, it could cause the upgrade to fail. If you have already run the **ADD** command, you need to activate the package you added or clean it out to start over. Do not change your boot statement to an inactive package.

**Summary**

If you want to move to install, you need to first change your boot statement to packages.conf if it is not already then add the .bin file. This means you have to copy the new .bin file onto bootflash either from TFTP or USB. If you have issues with the copy of the file onto the switch because there is not enough space, see the **Cleanup** section of this doc to clear out files that are not needed.

* These commands complete the upgrade and **you do not need to do any of the other steps**. However, if you do not want to complete the upgrade in one step, it is possible to break it down into each individual step.

configure terminal

no boot system

boot system bootflash:packages.conf

end

write

**install add file bootflash:<new .bin file> activate commit**

**Install Add**

* When you first start your upgrade you only have your current version.

Switch#**show install summary**

[ R0 R1 ] Installed Package(s) Information:

State (St): I - Inactive, U - Activated & Uncommitted,

C - Activated & Committed, D - Deactivated & Uncommitted

--------------------------------------------------------------------------------

Type St **Filename/Version**

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IMG C **16.11.1**.0.312

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Auto abort timer: inactive

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* In order to get started, you must add the new version to the list of versions that you want to work with.

**install add** file bootflash:cat9k\_iosxe.16.12.01.SPA.bin

* Once it is added, you can see the .pkg file in flash and it lists 16.12.01 as an inactive version.

Switch#**dir | include .pkg**  
359097 -rw- 11359240 Sep 13 2019 16:10:08 +00:00 cat9k-cc\_srdriver.16.11.01.SPA.pkg  
359098 -rw- 84354052 Sep 13 2019 16:10:08 +00:00 cat9k-espbase.16.11.01.SPA.pkg  
359099 -rw- 1676292 Sep 13 2019 16:10:08 +00:00 cat9k-guestshell.16.11.01.SPA.pkg  
359100 -rw- 466576384 Sep 13 2019 16:10:08 +00:00 cat9k-rpbase.16.11.01.SPA.pkg  
359106 -rw- 38552418 Sep 13 2019 16:10:30 +00:00 cat9k-rpboot.16.11.01.SPA.pkg  
359101 -rw- 29877252 Sep 13 2019 16:10:08 +00:00 cat9k-sipbase.16.11.01.SPA.pkg  
359102 -rw- 57259008 Sep 13 2019 16:10:08 +00:00 cat9k-sipspa.16.11.01.SPA.pkg  
359103 -rw- 19936260 Sep 13 2019 16:10:08 +00:00 cat9k-srdriver.16.11.01.SPA.pkg  
359104 -rw- 12321792 Sep 13 2019 16:10:08 +00:00 cat9k-webui.16.11.01.SPA.pkg  
359105 -rw- 9216 Sep 13 2019 16:10:08 +00:00 cat9k-wlc.16.11.01.SPA.pkg  
456963 -rw- 14222344 Sep 13 2019 17:05:35 +00:00 cat9k-cc\_srdriver.16.12.01.SPA.pkg  
456964 -rw- 88892420 Sep 13 2019 17:05:35 +00:00 cat9k-espbase.16.12.01.SPA.pkg  
473282 -rw- 1684484 Sep 13 2019 17:05:35 +00:00 cat9k-guestshell.16.12.01.SPA.pkg  
473283 -rw- 535475200 Sep 13 2019 17:05:35 +00:00 cat9k-rpbase.16.12.01.SPA.pkg  
473289 -rw- 43111714 Sep 13 2019 17:06:00 +00:00 cat9k-rpboot.16.12.01.SPA.pkg  
473284 -rw- 31425540 Sep 13 2019 17:05:35 +00:00 cat9k-sipbase.16.12.01.SPA.pkg  
473285 -rw- 60183552 Sep 13 2019 17:05:35 +00:00 cat9k-sipspa.16.12.01.SPA.pkg  
473286 -rw- 22676484 Sep 13 2019 17:05:35 +00:00 cat9k-srdriver.16.12.01.SPA.pkg  
473287 -rw- 12854272 Sep 13 2019 17:05:35 +00:00 cat9k-webui.16.12.01.SPA.pkg  
473288 -rw- 9216 Sep 13 2019 17:05:35 +00:00 cat9k-wlc.16.12.01.SPA.pkg  
  
Switch#**show install summary**

[ R0 R1 ] Installed Package(s) Information:

State (St): I - Inactive, U - Activated & Uncommitted,

C - Activated & Committed, D - Deactivated & Uncommitted

--------------------------------------------------------------------------------

Type St Filename/Version

--------------------------------------------------------------------------------

IMG **I** **16.12.1**.0.544 **<-- Installed but still Inactive (I)**

IMG C 16.11.1.0.312

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Auto abort timer: inactive

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Switch#**show install inactive**

[ R0 R1 ] Inactive Package(s) Information:

State (St): I - Inactive, U - Activated & Uncommitted,

C - Activated & Committed, D - Deactivated & Uncommitted

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Type St Filename/Version

--------------------------------------------------------------------------------

IMG **I** **16.12.1**.0.544 **<-- Installed but still Inactive (I)**

**Install Activate**

* Once reloaded, you can see the version is active but not committed.
* The next step is to activate the new version. This means reload the sup and load the new version. This edits the .conf file to point to the new .pkg files.

**install activate**

* It asks you to confirm if you want to reload before the device reloads.

**This operation may require a reload of the system**. Do you want to proceed? [y/n]

Switch#**show install sum**

[ R0 R1 ] Installed Package(s) Information:

State (St): I - Inactive, **U - Activated & Uncommitted**,

C - Activated & Committed, D - Deactivated & Uncommitted

--------------------------------------------------------------------------------

Type St Filename/Version

--------------------------------------------------------------------------------

IMG **U** **16.12.1**.0.544

--------------------------------------------------------------------------------

**Auto abort timer:** active on install\_activate, **time before rollback - 01:52:08** <--- when this hits zero, the device reloads back to original version.

--------------------------------------------------------------------------------

Switch#**show install uncommitted**

[ R0 R1 ] Uncommitted Package(s) Information:

State (St): I - Inactive, U - Activated & Uncommitted,

C - Activated & Committed, D - Deactivated & Uncommitted

--------------------------------------------------------------------------------

Type St Filename/Version

--------------------------------------------------------------------------------

IMG U 16.12.1.0.544

**Install Commit**

* To stop the rollback timer and finish the upgrade process, you need to commit the new version.

**install commit**

* This is the last step in the upgrade process and your new version now shows as the active committed version.

Switch#**show install summary**

[ R0 R1 ] Installed Package(s) Information:

State (St): I - Inactive, U - Activated & Uncommitted,

**C - Activated & Committed**, D - Deactivated & Uncommitted

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Type St Filename/Version

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IMG  **C**  **16.12.1**.0.544 **<--- Now Active and Committed**

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Auto abort timer: inactive

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**Install Abort**

* After you have run the **activate** command and before you commit, if you decide there is something wrong with the new version, you can abort the upgrade. This causes the device to reload again back to the previous version.

**install abort**

**Prompt Level**

* it is possible to set the prompt-level to **none** at the end of a install command and it does not ask you yes/no for any questions (normally at the end of the commit command of the upgrade, it asks you if you want to reload). If you set the **prompt-level** to **none**, the switch reloads as soon as it is ready to do so.

install add file bootflash:cat9k\_iosxe.16.12.01.SPA.bin activate commit **prompt-level none**

**Auto Upgrade Timer**

* If an upgrade takes too long, the switch assumes something went wrong and it goes ahead and aborts the upgrade. **The default timer is 120 minutes,** but you can stop the timer manually if you need to.

**install auto-abort-timer stop**

* You can set the rollback timer when you do the activate step.

Switch#**install activate auto-abort-timer** ?

<30-1200> Number of minutes the abort-timer is set for

### Bundle Mode

This section describes the classic method of software upgrade with the use of a boot statement that point to the .bin file (versus a .pkg file).

[warning-icon](https://www.cisco.com/c/dam/en/us/td/i/templates/warn.gif)

**Warning**: If you want to upgrade a switch to bundle mode, ensure you have copied the .bin to EVERY switch in the stack!

* After you have loaded the Cisco IOS file, all you need to do is change the boot statement and reload.

configure terminal

no boot system

**boot system bootflash:<new filename>**

end

write

reload

### Legacy Method (9500/9300 Only)

This section talks about use of the **request platform** commands and is supported on the 9500 and 9300.

* This method is NOT recommended for 9300 or 9500. Please use one of the methods mentioned previously.
* These commands are deprecated as of 16.10.1 and it is recommended that you use the install commands.
* The three most important commands are listed here (There are many more options but it is preferred to use the **install commands** instead of these).

**Expand**

* This command takes whatever .bin file you specify and extract the .pkg files.

request platform **software package expand** switch all file flash:cat9k\_iosxe.16.09.02.SPA.bin

* If the switch uses bundle mode. First run the **expand** command then change your boot statement to **packages.conf** and reload to get to install mode.

**Install**

* If you are already in install mode, use this command to move to another version:

request platform **software package install** switch all file flash:test auto-copy new

**Clean**

* The next command does the same thing as **install remove inactive:**

**request platform software package clean**

## Stackwise Virtual Upgrade Method

### Dual-Sup

* Stackwise virtual is very similar to dual sup setup. If you do a normal upgrade, both chassis reboot at the same time.

configure terminal

no boot system

**boot sys bootflash:packages.conf**

end

write

**install add file bootflash:<new .bin file> activate commit**

* To perform an ISSU there is one more consideration you have to take in stackwise virtual vs a dual sup setup on a single chassis. Because each chassis reloads once during the ISSU process, any devices that are connected to only one chassis go down for a whole reboot cycle. It is recommended to use a dual homed MEC for all connections to avoid this situation. See ISSU section for more details on ISSU.

**Roll Back Install Mode**

* Once you complete an upgrade, it is possible rollback to the previous version if needed. If fact, you are able rollback to multiple versions if the files are still on flash.

Switch#**show install rollback**

**ID** Label Description

-----------------------------------------------

2 No Label No Description

**1** No Label No Description

Switch#**show install rollback id 1**

Rollback id - 1 (Created on Fri Sep 13 13:14:40 2019)

Label: No Label

Description: No Description

Reload required: NO

State (St): I - Inactive, U - Activated & Uncommitted,

C - Activated & Committed, D - Deactivated & Uncommitted

--------------------------------------------------------------------------------

Type St Filename/Version

--------------------------------------------------------------------------------

IMG C 16.11.1.0.312

* The previous output shows I have two rollback points. The first rollback points to rollback to 16.11.01 (**label your rollback points** if you want to put a description or date).

Switch#**install label 1 ?**

description Add a description to specified install point

label-name Add a label name to specified install point

Switch#**install label 1 label-name 16\_11\_01**

install\_add\_label: START Fri Sep 13 16:43:48 UTC 2019

--- Starting install\_add\_label ---

Performing install\_add\_label on Active/Standby

[R0] install\_add\_label package(s) on R0

[R0] Finished install\_add\_label on R0

[R1] install\_add\_label package(s) on R1

[R1] Finished install\_add\_label on R1

Checking status of install\_add\_label on [R0 R1]

install\_add\_label: Passed on [R0 R1]

Finished install\_add\_label

**SUCCESS: install\_add\_label** Fri Sep 13 16:43:57 UTC 2019

Switch#show install rollback

ID Label Description

-----------------------------------------------

2 No Label No Description

1 **16\_11\_01** No Description

* If you now want to perform the rollback, you just need to run the **rollback** command:

**install rollback to id 1**

### Quad-Sup

Not supported at the time of this writing. Scheduled for support on 17.2.1.

## ISSU Upgrade Method

The previous upgrade nethods talk about the upgrade of a single sup or the upgrade of both sups at the same time. However, with dual sups you can do an ISSU (In Service Software Upgrade) which allows one sup to be upgraded at a time so that there is little to no outage.

[note-icon](https://www.cisco.com/c/dam/en/us/td/i/templates/note.gif)

**Note**: For more information on 9300 xFSU see this document [Understand Extended Fast Software Upgrade on Catalyst 9300 Series Switches](https://www.cisco.com/c/en/us/support/docs/switches/catalyst-9300-series-switches/216837-extended-fast-software-upgrade-on-cataly.html)

**Caution**: Once you run the command noted here, **the process starts and reloads sup automatically.** Do not run the command until you are ready for sups to start to reboot. Unlike the normal upgrade process, it does not ask for a confirmation from you before the reload happens.

**install add file** bootflash:cat9k\_iosxe.16.11.01.SPA.bin activate issu **commit**

* Once you run this command, the ISSU process extracts the files, reload the standby sup, wait for it to get back to SSO then failover reloads the active.
* ISSU is only supported in Install mode. If active supervisor is in bundle, you cannot preform an ISSU process.
* 9200 and 9300 do not support ISSU. 9300 does support reloadfast.

## Upgrade Options

### ReloadFast

* ReloadFast is a feature that completes as much of the upgrade possible before the data plane is taken offline to minimize downtime . If you use reloadfast, all switches in the stack reload at the same time. However, they usually reboot much faster than a normal install.
* You can do reloadfast even on a single switch!
* This feature is supported on version 16.8.1 or later. It is only supported in INSTALL mode.
* To prevent any loops that can happen while a fast reload occurs, it is only supported on switches with a single uplink to the STP root. A port-channel counts as a single uplink.
* It is also not supported if the upgrade requires a microcode or FPGA upgrade.
* C9300 always tries to do a reloadfast upgrade by default unless it cannot for one of the previously stated reasons. However, you can explicitly ask it to do so with the this command:

**install add file** flash:cat9k\_iosxe.16.10.01.SPA.bin activate **reloadfast** commit

### Cleanup

Once you are done with an upgrade, you have the option to clean up all the files you do not need by removal of all inactive files. It looks at the current loaded .pkg files and removes everything else. You can review all the files it plans to delete before it deletes them.

**install remove inactive**

**Note**: This removes all .bin files so if you want to cleanup before you do an upgrade, ensure you do it before you copy on the new .bin file.