



Switch Stack Update

This workflow explains how to update all members of a switch stack with the same software image.

Before proceeding with global and advanced configurations on a switch stack, all stack members must be running the same Cisco IOS XE release to avoid mismatch issues. In addition, any new switch that needs to join the switch stack must also be running the same Cisco IOS XE release; otherwise, the switch stack will not converge and the new switch will remain in a standalone state.



Note

Updating a Catalyst 3850 or 3650 switch stack is different from updating a Catalyst 3750 switch stack. Simply changing the boot statement to the desired .bin file is not recommended for Catalyst 3850 and 3650 switch stacks. The update process for Catalyst 3850 and 3650 switch stacks includes a series of package files, which are extracted from the .bin file and loaded into flash.

Prerequisites

- Obtain a valid Cisco Connection Online (CCO) account with entitled credentials.
- The process to install the new IOS version will use either FTP or TFTP. This requires a FTP or TFTP server be available to host the 3850 IOS Software, and the server reachable over an IP network.
- Install and configure the TFTP or FTP before you begin.
- Verify that the TFTP block size is set at the maximum value of 8192, as described in the “Increase the TFTP Block Size” section.



Identify Configuration Values

We recommend that you identify certain switch configuration values in advance so that you are ready to proceed with this section without interruption. As you follow the configuration sequence, replace the values in column B with your values in column C.


Note

In the configuration examples, you must replace the blue italicized example values with your own values.

Table 1 *Switch Stack Update Configuration Values*

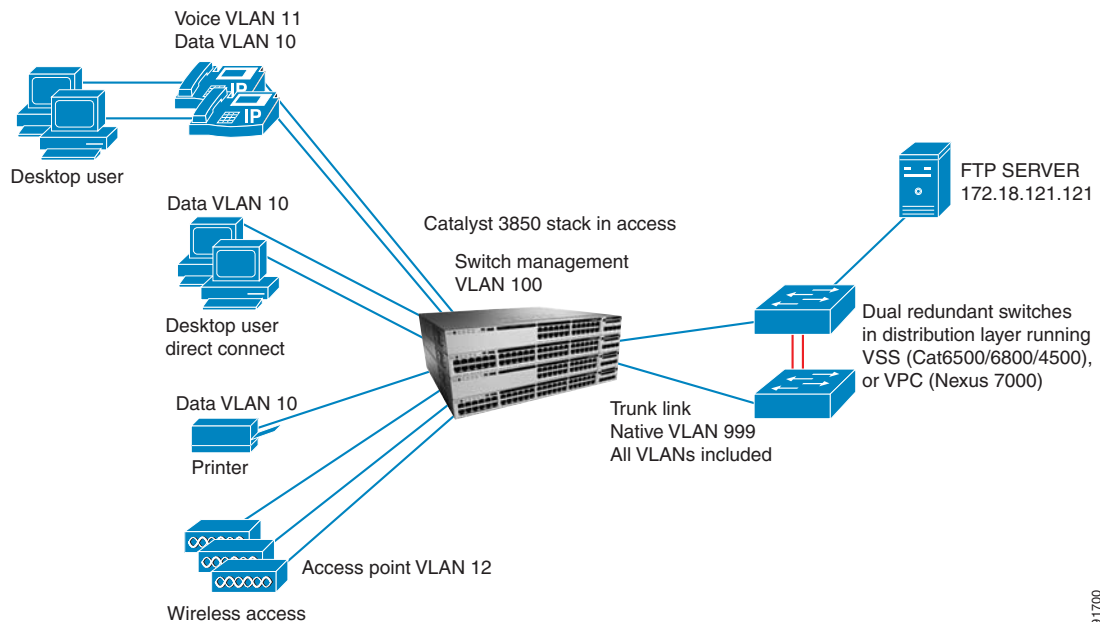
A. Value Name	B. Example Value Names	C. Your Value
hostname	<i>3850-access-Bld1Flr1</i>	
TFTP server	<i>192.168.254.12</i>	
Flash file	<i>cat3k_caa-universalk9.SSA .16.1.0.EFT3-1.bin</i>	


Note

Configuration examples begin in global configuration mode unless noted otherwise.

LAN Access Switch Topology with Configured TFTP Server

Figure 1 *LAN Access Switch Topology with Configured TFTP Server*



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Performing the Stack Update

- [Obtain the Switch Software Image](#)
- [Check the Software Version on the Stack Members](#)
- [Configure the Switch to Run in Install Mode](#)
- [Installing IOS image from local TFTP/FTP server](#)
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**Note**

The following tasks are to be performed in a sequence that is listed here.

Obtain the Switch Software Image

We recommend that you review the appropriate switch release notes before installation to ensure compatibility with your network topology. Each platform on Cisco.com has a Cisco-suggested release based on software quality, stability, and longevity, which is designated by the  symbol, as displayed in [Appendix 2, “Cisco Catalyst 3850-48P-S Switch”](#)

Step 1

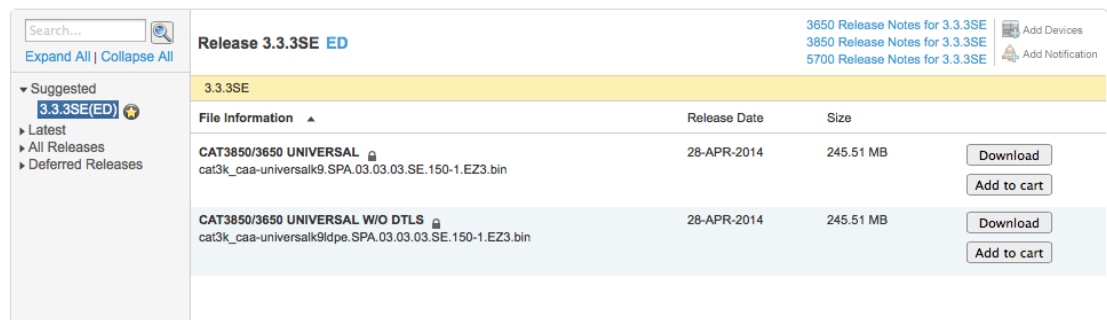
Download the desired .bin file from Cisco.com to the switch flash storage.

**Note**

The purpose of this example is only to show you how the Cisco-suggested release symbol is designated, and not to give you recommended release versions because those change over time.

Figure 2 *Cisco Catalyst 3850-48P-S Switch*

Cisco Catalyst 3850-48P-S Switch



File Information	Release Date	Size	
CAT3850/3650 UNIVERSAL cat3k_caa-universalk9.SPA.03.03.03.SE.150-1.EZ3.bin	28-APR-2014	245.51 MB	Download Add to cart
CAT3850/3650 UNIVERSAL W/O DTLS cat3k_caa-universalk9ldpe.SPA.03.03.03.SE.150-1.EZ3.bin	28-APR-2014	245.51 MB	Download Add to cart

Check the Software Version on the Stack Members

Step 2 Verify the running software version.

Configure the Switch to Run in Install Mode

Your switches should run in install mode while in production. This mode is not a requirement, but the update procedure is different if your switches are running in a mode other than install mode.

Switch	Ports	Model	SW Version	SW Image	Mode
* BUNDLE	1 32	WS-C3850-24P	Denali 16.1.1	CAT3K_CAA-UNIVERSALK9	----
BUNDLE	2 32	WS-C3850-24P	Denali 16.1.1	CAT3K_CAA-UNIVERSALK9	
BUNDLE	3 32	WS-C3850-24P	Denali 16.1.1	CAT3K_CAA-UNIVERSALK9	

**Note**

To learn the differences for the install and bundle installation modes, see the [“Working with the Cisco IOS File System, Configuration File, and Software Bundle Files”](#) chapter of the *Cisco IOS File System, Configuration Files, and Bundle Files Appendix, Cisco IOS XE Release 3SE (Catalyst 3850 Switches)*

- Step 3** If your switch stack is running in bundle mode, use the **request platform software package expand switch file to flash** command to convert it to install mode.

```
request platform software package expand switch 1 file
flash:cat3k_caa-universalk9.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.b
to flash:
```

- Step 4** After the .bin file has successfully extracted to flash, change the boot statement and boot to the packages.conf file.

```
no boot system
boot system switch all flash:packages.conf
exit
write memory
reload
```

**Note**

Since the format of the packages.conf file has changed in Cisco IOS XE Release Denali 16.1, overwrite the old packages.conf with the new packages.conf file. Perform the above step for each switch in your stack. If you have a 3 member stack, it will need to be done on flash:, flash-2:, and flash-3.

**Note**

Make sure the tftp server is reachable. To improve performance, increase the tftp block size to 8192. Use the **ip tftp blocksize bytes** command in global configuration mode.

Step 5 Confirm that the switch stack is now running in install mode.

```
Switch# show version
Cisco IOS Software, Catalyst L3 Switch Software (CAT3K_CAA-UNIVERSALK9-M), Version
Denali 16.1.1, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2015 by Cisco Systems, Inc.
Compiled Thu 12-Nov-15 16:23 by mcpre

Switch Ports Model          SW Version  SW Image          Mode
-----
*   1 32   WS-C3850-24P   Denali 16.1.1  CAT3K_CAA-UNIVERSALK9 BUNDLE
   2 32   WS-C3850-24P   Denali 16.1.1  CAT3K_CAA-UNIVERSALK9 BUNDLE
   3 32   WS-C3850-24P   Denali 16.1.1  CAT3K_CAA-UNIVERSALK9 BUNDLE
```

Installing IOS image from local TFTP/FTP server

You can use any file transfer method that you are familiar with, but we recommend TFTP or FTP.

Step 6 Confirm the block size config using the following command:

```
# show run | inc block
ip tftp blocksize 8192
```

We recommend that you use a TFTP block size of 8192 (maximum allowed value) before attempting to use TFTP or FTP to transfer a file to the switch. Refer to the “Increase the TFTP Block Size” section in the “[Global System Configuration](#)” workflow for details.

Step 7 Make sure that there is connectivity to the TFTP server.

In this example, a TFTP server is used that is accessible through the in-band network.

```
ping 192.168.254.12
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 192.168.254.12, timeout is 2 seconds: !!!!
```

Step 8 After verifying connectivity, make sure that there is enough room in flash on all the switch stack members.

Step 9 If you determine that files must be purged from flash, run the **request platform clean switch** command to erase unneeded files within flash on all the stack members.

We recommend using the **request platform clean switch** command instead of individually deleting files. The command provides a list of the files to purge so that you understand what files are deleted when you confirm deletion.



Note

Use switch all option to clean up all switches in your stack.



Note

The **request platform clean switch** command also deletes the .bin file that is used to install the new Cisco IOS software. After the .bin is extracted, you no longer need it.

```
Device# 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.
The following files will be deleted:
[1]:
/flash/cat3k_caa-rpbase.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
/flash/cat3k_caa-srdriver.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
/flash/cat3k_caa-universalk9.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.bin
/flash/cat3k_caa-wcm.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
/flash/cat3k_caa-webui.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
/flash/packages.conf
/flash/packages.conf.00-
/flash/packages.conf.01-
/flash/packages.conf.02-
[2]:

/flash/cat3k_caa-rpbase.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
/flash/cat3k_caa-srdriver.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
/flash/cat3k_caa-universalk9.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.bin
/flash/cat3k_caa-wcm.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
/flash/cat3k_caa-webui.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
/flash/packages.conf
/flash/packages.conf.00-
/flash/packages.conf.01-
/flash/packages.conf.02-
Do you want to proceed? [y/n]y
[1]:
Deleting file flash:cat3k_caa-rpbase.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
...
done.
Deleting file
flash:cat3k_caa-srdriver.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
... done.
Deleting file
flash:cat3k_caa-universalk9.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.bin
... done.
Deleting file flash:cat3k_caa-wcm.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg ...
done.
Deleting file flash:cat3k_caa-webui.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
...
done.
```

```

Deleting file flash:packages.conf ... done.
Deleting file flash:packages.conf.00- ... done.
Deleting file flash:packages.conf.01- ... done.
Deleting file flash:packages.conf.02- ... done.
SUCCESS: Files deleted.
[2]:
Deleting file flash:cat3k_caa-rpbase.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
...
done.
Deleting file
flash:cat3k_caa-srdriver.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
... done.
Deleting file
flash:cat3k_caa-universalk9.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.bin
... done.
Deleting file flash:cat3k_caa-wcm.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg ...
done.
Deleting file flash:cat3k_caa-webui.BLD_V161_0_THROTTLE_LATEST_20151116_230450.SSA.pkg
...
done.
Deleting file flash:packages.conf ... done.
Deleting file flash:packages.conf.00- ... done.
Deleting file flash:packages.conf.01- ... done.
Deleting file flash:packages.conf.02- ... done.
SUCCESS: Files deleted.

```

Step 10 Copy the switch image to the TFTP server using the **copy tftp://flash** command.

The following example shows that the TFTP server (192.168.254.12) requires a user name (admin) and password (cisco), which can easily be integrated into the **copy** command:

```

copy
tftp://admin:cisco@192.168.254.12/IOS/3850/cat3k_caa-universalk9.SSA.16.1.0.
EFT3-1.bin flash:

```

Update the Switch Stack Image

Step 11 Upload the image to the stack members, and then reload the switch.

The image download and installation can be performed while the stack is in-service, but to complete the update install, you must perform a switch reload, which causes a service outage.

```

software install file flash: cat3k_caa-universalk9.SSA.16.1.0.EFT3-1.bin

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

```

Step 12 After the reload completes, run the **request platform software package clean switch all file flash** command.


```
.
request platform software package clean switch all file flash
Device# 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.
```

To verify that stack members are using the same software, use the **show version** command on all members of the switch stack.

Enable Switch Image Auto-Upgrade

Step 13 Enable auto-upgrade so that new or replacement stack members are automatically upgraded with the software running on the switch stack.

If you are adding a new member, or replacing a stack member, we recommend that you enable the auto-upgrade feature within the stack. This feature helps to avoid stack mismatch issues and ensures that any new switches are upgraded to the version currently running on the stack and also converts a member in bundle mode to install mode.

The auto-upgrade feature automatically installs the software packages from an existing stack member to the stack member that is running incompatible software.



Note Auto-upgrade is disabled by default.



Note The rolling-upgrade feature is not supported.

```
software auto-upgrade enable
end
```

