

Upgrades and Downgrades

This chapter describes the procedures for upgrading or downgrading the switch software.

This chapter contains these sections:

- [Section 8.1: Upgrade/Downgrade Overview](#)
- [Section 8.2: Accelerated Software Upgrade \(ASU\)](#)
- [Section 8.3: Leaf Smart System Upgrade \(Leaf SSU\)](#)
- [Section 8.4: Standard Upgrades and Downgrades](#)
- [Section 8.5: Upgrade/Downgrade Commands](#)

8.1 Upgrade/Downgrade Overview

Upgrading or downgrading Arista switch software is accomplished by replacing the EOS image and reloading the switch. Depending on the switch model and the software change being made, there are different options for minimizing (or potentially eliminating) downtime and packet loss during the upgrade/downgrade.

Accelerated Software Upgrade (ASU): ASU is available on the 7050SX-64, 7050SX-128, 7050Q-32, and 7050Q-32S and can be used on both leaf and spine switches. It significantly reduces reload time by streamlining and optimizing the reload procedure for upgrades, and continues sending LACP PDUs while the CPU is rebooting, keeping port channels operational during the reload. Downtime during the upgrade is reduced to 30 seconds. Note: ASU does not support software downgrades.

Leaf Smart System Upgrade (Leaf SSU): SSU is available only on 7050X platforms (excluding 7050SX-72 and 7050SX-96), and can only be used on leaf switches. It includes the core functionality of ASU, plus additional elements that permit a hitless restart of several features. SSU does not support software downgrades, and is incompatible with VRRP.

Standard Upgrades and Downgrades: In those cases where an accelerated upgrade is not an option (such as software downgrades and unsupported platforms), performing a standard upgrade or downgrade using the steps described here will minimize downtime and packet loss.

Important! To upgrade the software on switches participating in an MLAG, see [Section 13.3.3: Upgrading MLAG Peers](#).

8.2 Accelerated Software Upgrade (ASU)

The Accelerated Software Upgrade (ASU) process significantly decreases downtime and packet loss during a software upgrade in three ways:

- performing time-intensive tasks (including copying the EOS image) before rebooting the control plane
- forwarding packets in hardware (based on the last known state) while the control-plane is offline
- optimizing the boot process by performing only tasks essential for software upgrade

After the control plane has fully loaded, the data plane is restarted, causing approximately 30 seconds of downtime.

8.2.1 Upgrading the EOS image with Accelerated Software Upgrade

Using ASU to upgrade the active EOS image is a five-step process:

- Step 1** Prepare switch for upgrade ([Section 8.2.1.1](#)).
- Step 2** Transfer image file to the switch ([Section 8.2.1.2](#)). (Not required if desired file is on the switch).
- Step 3** Modify **boot-config** file to point to the desired image file ([Section 8.2.1.3](#)).
- Step 4** Start the ASU process ([Section 8.2.1.4](#)).
- Step 5** Verify that switch is running the new image ([Section 8.2.1.5](#)).

8.2.1.1 Prepare the Switch

Before upgrading the EOS image, ensure that backup copies of the currently running EOS version and the **running-config** file are available in case of corruption during the upgrade process. To copy the **running-config** file, use the **copy running-config** command. In this example, **running-config** is copied to a file in the flash drive on the switch.

```
switch#copy running-config flash:/cfg_06162014
Copy completed successfully.
switch#
```

Determine the size of the new EOS image. Then verify that there is enough space available on the flash drive for *two* copies of this image (use the **dir** command to check the “bytes free” figure).

```
switch#dir flash:
Directory of flash:/
-rwx   293168526      Nov  4 22:17  EOS4.11.0.swi
-rwx         36      Nov  8 10:24  boot-config
-rwx   37339       Jun 16 14:18  cfg_06162014

606638080 bytes total (602841088 bytes free)
```

Ensure that the switch has a management interface configured with an IP addresses and default gateway (see [Assigning an IP Address to a Specific Ethernet Management Port](#) and [Configuring a Default Route to the Gateway](#)), and confirm that it can be reached through the network by using the **show interfaces status** command and pinging the default gateway.

```
switch#show interfaces status
Port      Name      Status      Vlan      Duplex  Speed Type
Et3/1                                notconnect  1          auto    auto 1000BASE-T

Ma1/1                                connected   routed     unconf  unconf Unknown

switch#ping 1.1.1.10
PING 172.22.26.1 (172.22.26.1) 72(100) bytes of data.
 80 bytes from 1.1.1.10: icmp_seq=1 ttl=64 time=0.180 ms
 80 bytes from 1.1.1.10: icmp_seq=2 ttl=64 time=0.076 ms
 80 bytes from 1.1.1.10: icmp_seq=3 ttl=64 time=0.084 ms
 80 bytes from 1.1.1.10: icmp_seq=4 ttl=64 time=0.073 ms
 80 bytes from 1.1.1.10: icmp_seq=5 ttl=64 time=0.071 ms
```

8.2.1.2 Transfer the Image File

The target image must be copied to the file system on the switch, typically onto the flash drive. After verifying that there is space for two copies of the image, use the **copy** command to copy the image to the flash drive, then confirm that the new image file has been correctly transferred.

These command examples transfer an image file to the flash drive from various locations.

USB Memory

Command

```
copy usb1:/sourcefile flash:/destfile
```

Example

```
Sch#copy usb1:/EOS-4.14.4.swi flash:/EOS-4.14.4.swi
```

FTP Server

Command

```
copy ftp:/ftp-source/sourcefile flash:/destfile
```

Example

```
Sch#copy ftp:/user:password@10.0.0.3/EOS-4.14.4.swi flash:/EOS-4.14.4.swi
```

SCP

Command

```
copy scp://scp-source/sourcefile flash:/destfile
```

Example

```
sch#copy scp://user@10.1.1.8/user/EOS-4.14.4.swi flash:/EOS-4.14.4.swi
```

HTTP

Command

```
copy http://http-source/sourcefile flash:/destfile
```

Example

```
sch#copy http://10.0.0.10/EOS-4.14.4.swi flash:/EOS-4.14.4.swi
```

Once the file has been transferred, verify that it is present in the directory, then confirm the MD5 checksum using the **verify** command. The MD5 checksum is available from the EOS download page of the Arista website.

```
switch#dir flash:
Directory of flash:/
-rwx   293168526      Nov  4 22:17  EOS4.14.2.swi
-rwx           36      Nov  8 10:24  boot-config
-rwx     37339      Jun 16 14:18  cfg_06162014
-rwx   394559902      May 30 02:57  EOS-4.13.1.swi
```

```
606638080 bytes total (208281186 bytes free)
switch#53#verify /md5 flash:EOS-4.14.4.swi
verify /md5 (flash:EOS-4.14.4.swi) =c277a965d0ed48534de6647b12a86991
```

8.2.1.3 Modify boot-config

After transferring and confirming the desired image file, use the **boot system** command to update the **boot-config** file to point to the new EOS image.

This command changes the **boot-config** file to point to the image file located in flash memory at EOS-4.14.4.swi.

```
switch#configure terminal
switch(config)#boot system flash:/EOS-4.14.4.swi
```

Use the **show boot-config** command to verify that the boot-config file is correct:

```
switch(config)#show boot-config
Software image: flash:/EOS-4.14.4.swi
Console speed: (not set)
Aboot password (encrypted): $1$ap1QMbmz$DTqsFYeauuMSa7/Qxbi211
```

Save the configuration to the **startup-config** file with the **write** command.

```
switch#write
```

8.2.1.4 Start the ASU Process

After updating the **boot-config** file, start the ASU process using the **reload fast-boot** command to reload the switch and activate the new image. If **running-config** has not been saved, the CLI will prompt to save any modifications to the system configuration; failure to save modifications will abort the reload.

Note

Once the system configuration is saved, there is a significant delay before the user is prompted to confirm the reload.

```
switch#reload fast-boot
System configuration has been modified. Save? [yes/no/cancel/diff]:y
Proceed with reload? [confirm]y
Proceeding with reload
```

8.2.1.5 Verify

After the switch finishes reloading, log into the switch and use the **show version** command to confirm the correct image is loaded. The **Software image version** line displays the version of the active image file.

```
switch#show version
Arista DCS-7150S-64-CL-F
Hardware version:    01.01
Serial number:       JPE13120819
System MAC address:  001c.7326.fd0c

Software image version: 4.14.4F
Architecture:         i386
Internal build version: 4.14.4F-1649184.4144F.2
Internal build ID:     eeb3c212-b4bd-4c19-ba34-1b0aa36e43f1

Uptime:               14 hours and 48 minutes
Total memory:         4017088 kB
Free memory:          1569760 kB

switch>
```

8.3 Leaf Smart System Upgrade (Leaf SSU)

The Smart System Upgrade (SSU) process includes the core functionality of Accelerated Software Upgrade, plus additional optimizations that permit a hitless restart of several features. SSU leverages protocols capable of graceful restart to minimize traffic loss during upgrade. For protocols not capable of graceful restart, SSU generates control plane messages and buffers them in hardware to be slowly released when the control plane is offline. Additionally, under SSU, the forwarding ASIC does not get reset and ports do not flap.

Features capable of hitless restart under SSU include:

- QinQ
- 802.3ad Link Aggregation/LACP
- 802.3x flow control
- BGP (BGP graceful restart must be enabled: see [Configuring BGP](#))
- MP-BGP (BGP graceful restart must be enabled: see [Configuring BGP](#))
- 128-way Equal Cost Multipath Routing (ECMP)
- VRF
- route maps
- L2 MTU
- QoS

Important! SSU is not compatible with VRRP. If VRRP is configured on the switch, another upgrade method must be used.

8.3.1 Upgrading the EOS image with Smart System Upgrade

Using SSU to upgrade the active EOS image is a five-step process:

Step 1 Prepare switch for upgrade ([Section 8.3.1.1](#)).

Step 2 Transfer image file to the switch ([Section 8.3.1.2](#)). (Not required if desired file is on the switch).

Step 3 Modify ***boot-config*** file to point to the desired image file ([Section 8.3.1.3](#)).

Step 4 Start the SSU process ([Section 8.3.1.4](#)).

Step 5 Verify that the upgrade was successful ([Section 8.3.1.5](#)).

8.3.1.1 Prepare the Switch

Preparation of the switch for SSU includes:

- [Backing Up Critical Software](#)
- [Making Room on the Flash Drive](#)
- [Verifying Connectivity](#)
- [Verifying Configuration](#)
- [Configuring BGP](#)

Backing Up Critical Software

Before upgrading the EOS image, ensure that copies of the currently running EOS version and the **running-config** file are available in case of corruption during the upgrade process. To copy the **running-config** file, use the **copy running-config** command. In this example, **running-config** is copied to a file in the flash drive on the switch.

```
switch#copy running-config flash:/cfg_06162014
Copy completed successfully.
switch#
```

Making Room on the Flash Drive

Determine the size of the new EOS image. Then verify that there is enough space available on the flash drive for two copies of this image, plus a recommended 240MB (if available) for diagnostic information in case of a fatal error. Use the **dir** command to check the “bytes free” figure.

```
switch#dir flash:
Directory of flash:/
-rwx    293168526      Nov  4 22:17  EOS4.11.0.swi
-rwx         36      Nov  8 10:24  boot-config
-rwx      37339      Jun 16 14:18  cfg_06162014
```

```
606638080 bytes total (602841088 bytes free)
```

Verifying Connectivity

Ensure that the switch has a management interface configured with an IP addresses and default gateway (see [Assigning an IP Address to a Specific Ethernet Management Port](#) and [Configuring a Default Route to the Gateway](#)), and confirm that it can be reached through the network by using the **show interfaces status** command and pinging the default gateway.

```
switch#show interfaces status
Port      Name              Status      Vlan      Duplex  Speed Type
Et3/1     Et3/1             notconnect  1         auto    auto  1000BASE-T
```

<-----OUTPUT OMITTED FROM EXAMPLE----->

```
Ma1/1     Ma1/1             connected   routed    unconf   unconf Unknown
```

```
switch#ping 1.1.1.10
PING 172.22.26.1 (172.22.26.1) 72(100) bytes of data.
 80 bytes from 1.1.1.10: icmp_seq=1 ttl=64 time=0.180 ms
 80 bytes from 1.1.1.10: icmp_seq=2 ttl=64 time=0.076 ms
 80 bytes from 1.1.1.10: icmp_seq=3 ttl=64 time=0.084 ms
 80 bytes from 1.1.1.10: icmp_seq=4 ttl=64 time=0.073 ms
 80 bytes from 1.1.1.10: icmp_seq=5 ttl=64 time=0.071 ms
```

Verifying Configuration

Verify that the switch configuration is valid for SSU by using the **show reload hitless** command. If parts of the configuration are blocking execution of SSU, an error message will be displayed explaining what they are. For SSU to proceed, the configuration conflicts must be corrected before issuing the **reload hitless** command.

```
switch#show reload hitless
switch#'reload hitless' cannot proceed due to the following:
  Spanning-tree portfast is not enabled for one or more ports
  Spanning-tree BPDU guard is not enabled for one or more ports
switch#
```

Configuring BGP

For hitless restart of BGP and MP-BGP, BGP graceful restart must first be enabled using the **graceful-restart** command. The default restart time value (300 seconds) is appropriate for most configurations.

The BGP configuration mode in which the **graceful-restart** command is issued determines which BGP connections will restart gracefully.

- For all BGP connections, use the **graceful-restart** command in BGP configuration mode:

```
switch#config
switch(config)#router bgp 64496
switch(config-router-bgp)#graceful-restart
switch(config-router-bgp)#
```

- For all BGP connections in a specific VRF, use the **graceful-restart** command in BGP VRF configuration mode:

```
switch#config
switch(config)#router bgp 64496
switch(config-router-bgp)#vrf purple
switch(config-router-bgp-vrf-purple)#graceful-restart
switch(config-router-bgp-vrf-purple)#exit
switch(config-router-bgp)#
```

- For all BGP connections in a specific BGP address family, use the **graceful-restart** command in BGP address-family configuration mode:

```
switch#config
switch(config)#router bgp 64496
switch(config-router-bgp)#address-family ipv6
switch(config-router-bgp-af)#graceful-restart
switch(config-router-bgp-af)#exit
switch(config-router-bgp)#
```

BGP graceful restart can also be configured for a specific interface.

8.3.1.2 Transfer the Image File

The target image must be copied to the file system on the switch, typically onto the flash drive. After verifying that there is space for two copies of the image plus an optional 240MB for diagnostic information, use the **copy** command to copy the image to the flash drive, then confirm that the new image file has been correctly transferred.

These command examples transfer an image file to the flash drive from various locations.

USB Memory**Command**

```
copy usb1:/sourcefile flash:/destfile
```

Example

```
Sch#copy usb1:/EOS-4.14.4.swi flash:/EOS-4.14.4.swi
```

FTP Server**Command**

```
copy ftp:/ftp-source/sourcefile flash:/destfile
```

Example

```
Sch#copy ftp:/user:password@10.0.0.3/EOS-4.14.4.swi flash:/EOS-4.14.4.swi
```

SCP**Command**

```
copy scp://scp-source/sourcefile flash:/destfile
```

Example

```
sch#copy scp://user@10.1.1.8/user/EOS-4.14.4.swi flash:/EOS-4.14.4.swi
```

HTTP**Command**

```
copy http://http-source/sourcefile flash:/destfile
```

Example

```
sch#copy http://10.0.0.10/EOS-4.14.4.swi flash:/EOS-4.14.4.swi
```

Once the file has been transferred, verify that it is present in the directory, then confirm the MD5 checksum using the **verify** command. The MD5 checksum is available from the EOS download page of the Arista website.

```
switch#dir flash:
Directory of flash:/
-rwx   293168526      Nov  4 22:17  EOS4.14.2.swi
-rwx           36      Nov  8 10:24  boot-config
-rwx       37339      Jun 16 14:18  cfg_06162014
-rwx   394559902      May 30 02:57  EOS-4.13.1.swi
```

<-----OUTPUT OMITTED FROM EXAMPLE----->

```
606638080 bytes total (208281186 bytes free)
switch#53#verify /md5 flash:EOS-4.14.4.swi
verify /md5 (flash:EOS-4.14.4.swi) =c277a965d0ed48534de6647b12a86991
```

8.3.1.3 Modify boot-config

After transferring and confirming the desired image file, use the **boot system** command to update the **boot-config** file to point to the new EOS image.

This command changes the **boot-config** file to point to the image file located in flash memory at EOS-4.14.4.swi.

```
switch#configure terminal
switch(config)#boot system flash:/EOS-4.14.4.swi
```

Use the **show boot-config** command to verify that the boot-config file is correct:

```
switch(config)#show boot-config
Software image: flash:/EOS-4.14.4.swi
Console speed: (not set)
Aboot password (encrypted): $1$ap1QMbmz$DTqsFYeauuMSa7/Qxbi211
```

Save the configuration to the **startup-config** file with the **write** command.

```
switch#write
```

8.3.1.4 Start the SSU Process

After updating the **boot-config** file, verify that your configuration supports SSU (if you have not already done so) by using the **show reload hitless** command. If parts of the configuration are blocking execution of SSU, an error message will be displayed explaining what they are.

```
switch#show reload hitless
switch#'reload hitless' cannot proceed due to the following:
  Spanning-tree portfast is not enabled for one or more ports
  Spanning-tree BPDU guard is not enabled for one or more ports
```

Then start the SSU process using the **reload hitless** command to reload the switch and activate the new image. The CLI will identify any changes that must be made to the configuration before starting SSU, prompt to save any modifications to the system configuration, and request confirmation before reloading.

```
switch#reload hitless
System configuration has been modified. Save? [yes/no/cancel/diff]:y
Copy completed successfully.
Proceed with reload? [confirm]y
```

Important! Any configuration changes must be saved for SSU to continue. However, once the upgrade has begun, no changes should be made to the configuration until the “LAUNCHER-6-BOOT_STATUS: 'reload hitless' reconciliation complete.” syslog message has been generated by the switch.

8.3.1.5 Verify Success of the Upgrade

Before making any configuration changes to the switch after reload, verify that the SSU process is complete using the command **show boot stages log**. If the process is complete, the last message should be “Asu Hitless boot stages complete.”

```
switch#show boot stages log
Timestamp          Delta Begin Msg
2015-03-28 15:18:30 000.000000 Asu Hitless boot stages started
2015-03-28 15:18:30 000.069732 stage CriticalAgent started
2015-03-28 15:18:30 000.069811 event CriticalAgent:SuperServer completed

2015-03-28 15:20:20 110.224504 stage BootSanityCheck is complete
2015-03-28 15:20:20 110.225439 Asu Hitless boot stages complete
switch#
```

Completion of the SSU process may also be verified by checking the syslog for the following message:

```
LAUNCHER-6-BOOT_STATUS: 'reload hitless' reconciliation complete
```

To verify whether the SSU upgrade was successful, use the **show reload cause** command. If a fatal error occurred during the upgrade process, the switch will have completely rebooted and the fatal error will be displayed along with the directory in which diagnostic information can be found. If the SSU upgrade succeeded, it will read "Hitless reload requested by the user."

Fatal Error Display

```
switch#show reload cause
Reload Cause 1:
-----
Reload requested by the user.

Reload Time:
-----
Reload occurred at Sat Feb 28 02:34:26 2015 PST.

Recommended Action:
-----
No action necessary.

Debugging Information:
-----
None available.

Reload Cause 2:
-----
Fatal error during 'reload hitless'. (stageMgr - LinkStatusUpdate timed out)

Reload Time:
-----
Reload occurred at Sat Feb 28 02:33:54 2015 PST.

Recommended Action:
-----
A fatal error occurred during hitless reload.
If the problem persists, contact your customer support representative.

Debugging Information:
-----
/mnt/flash/persist/fatalError-2015-02-28_023355
switch#
```

Successful Upgrade Display

```
switch#show reload cause
Reload Cause 1:
-----
Hitless reload requested by the user.

Reload Time:
-----
Reload occurred at Wed Mar 25 14:49:04 2015 PDT.

Recommended Action:
-----
No action necessary.

Debugging Information:
-----
None available.
switch#
```

The **show version** command will confirm whether the correct image is loaded. The **Software image version** line displays the version of the active image file.

```
switch#show version
Arista DCS-7050QX-32-F
Hardware version: 02.00
Serial number: JPE14071098
System MAC address: 001c.7355.556f

Software image version: 4.14.5F-2353054.EOS4145F
Architecture: i386
Internal build version: 4.14.5F-2353054.EOS4145F
Internal build ID: e8748ea7-916d-4217-878f-4bfe2adc7122

Uptime: 4 minutes
Total memory: 3981328 kB
Free memory: 1342408 kB

switch#
```

Important! If a fatal error occurs during the SSU process, the new EOS image will still be loaded and booted.

8.4 Standard Upgrades and Downgrades

Standard software upgrades and downgrades on Arista switches are accomplished by installing a different EOS image and reloading the switch. On switches with redundant supervisors, the EOS image must be installed on both supervisors. Using the procedure described below will minimize packet loss during a standard upgrade or downgrade.

These sections describe standard switch upgrade and downgrade procedures

- [Section 8.4.1: Upgrading or Downgrading the EOS on a Single-Supervisor Switch](#)
- [Section 8.4.2: Upgrading or Downgrading the EOS on a Dual-Supervisor Switch](#)

8.4.1 Upgrading or Downgrading the EOS on a Single-Supervisor Switch

Modifying the active EOS image is a five-step process:

- Step 1** Prepare switch for upgrade ([Prepare the Switch](#)).
- Step 2** Transfer image file to the switch ([Transfer the Image File](#)). (Not required if desired file is on the switch).
- Step 3** Modify **boot-config** file to point to the desired image file ([Modify boot-config](#)).
- Step 4** Reload switch ([Reload](#)).
- Step 5** Verify that switch is running the new image ([Verify](#)).

8.4.1.1 Prepare the Switch

Before upgrading the EOS image, ensure that backup copies of the currently running EOS version and the **running-config** file are available in case of corruption during the upgrade process. To copy the **running-config** file, use the **copy running-config** command. In this example, **running-config** is copied to a file in the flash drive on the switch.

```
switch#copy running-config flash:/cfg_06162014
Copy completed successfully.
switch#
```

Determine the size of the new EOS image and verify that there is enough space available for **two copies** of it on the flash drive, using the **dir** command to check the “bytes free” figure. The EOS boot process makes a copy of the .swi image file to the internal flash, and the switch will boot to the Aboot prompt if there is insufficient room for both copies.

```
switch#dir flash:
Directory of flash:/
-rwx    293168526      Nov  4 22:17  EOS4.11.0.swi
-rwx         36      Nov  8 10:24  boot-config
-rwx       37339      Jun 16 14:18  cfg_06162014
```

<-----OUTPUT OMITTED FROM EXAMPLE----->

```
606638080 bytes total (602841088 bytes free)
```

Ensure that the switch has a management interface configured with an IP addresses and default gateway (see [Assigning an IP Address to a Specific Ethernet Management Port](#) and [Configuring a Default Route to the Gateway](#)), and confirm that it can be reached through the network by using the

show interfaces status command and pinging the default gateway. To configure a virtual IP address to access the active supervisor on a modular switch, see also [Assigning a Virtual IP Address to Access the Active Ethernet Management Port](#).

```
switch#show interfaces status
Port      Name              Status      Vlan      Duplex  Speed  Type
Et3/1                                notconnect  1          auto    auto  1000BASE-T
```

<-----OUTPUT OMITTED FROM EXAMPLE----->

```
Ma1/1                                connected   routed     unconf  unconf  Unknown
```

```
switch#ping 1.1.1.10
PING 172.22.26.1 (172.22.26.1) 72(100) bytes of data.
 80 bytes from 1.1.1.10: icmp_seq=1 ttl=64 time=0.180 ms
 80 bytes from 1.1.1.10: icmp_seq=2 ttl=64 time=0.076 ms
 80 bytes from 1.1.1.10: icmp_seq=3 ttl=64 time=0.084 ms
 80 bytes from 1.1.1.10: icmp_seq=4 ttl=64 time=0.073 ms
 80 bytes from 1.1.1.10: icmp_seq=5 ttl=64 time=0.071 ms
```

8.4.1.2 Transfer the Image File

The target image must be copied to the file system on the switch, typically onto the flash drive. After verifying that there is space for the image, use the CLI **copy** command to copy the image to the flash drive, then confirm that the new image file has been correctly transferred.

These command examples transfer an image file to the flash drive from various locations.

USB Memory

Command

```
copy usb1:/sourcefile flash:/destfile
```

Example

```
Sch#copy usb1:/EOS-4.13.2.swi flash:/EOS-4.13.2.swi
```

FTP Server

Command

```
copy ftp:/ftp-source/sourcefile flash:/destfile
```

Example

```
sch#copy ftp:/user:password@10.0.0.3/EOS-4.13.2.swi flash:/EOS-4.13.2.swi
```

SCP

Command

```
copy scp://scp-source/sourcefile flash:/destfile
```

Example

```
sch#copy scp://user:password@10.1.1.8/user/EOS-4.13.2.swi flash:/EOS-4.13.2.swi
```

HTTP

Command

```
copy http://http-source/sourcefile flash:/destfile
```

Example

```
sch#copy http://10.0.0.10/EOS-4.13.2.swi flash:/EOS-4.13.2.swi
```

Once the file has been transferred, verify that it is present in the directory, then confirm the MD5 checksum using the **verify** command. The MD5 checksum is available from the EOS download page of the Arista website.

```
switch#dir flash:
Directory of flash:/
-rwx 293168526 Nov 4 22:17 EOS4.11.0.swi
-rwx 36 Nov 8 10:24 boot-config
-rwx 37339 Jun 16 14:18 cfg_06162014
-rwx 394559902 May 30 02:57 EOS-4.12.2.swi
```

<-----OUTPUT OMITTED FROM EXAMPLE----->

```
606638080 bytes total (208281186 bytes free)
switch#53#verify /md5 flash:EOS-4.13.2.swi
verify /md5 (flash:EOS-4.13.2.swi) =c277a965d0ed48534de6647b12a86991
```

8.4.1.3 Modify boot-config

After transferring and confirming the desired image file, use the **boot system** command to update the **boot-config** file to point to the new EOS image.

This command changes the **boot-config** file to point to the image file located in flash memory at EOS-4.12.2.swi.

```
switch#configure terminal
switch(config)#boot system flash:/EOS-4.13.2.swi
```

Use the **show boot-config** command to verify that the boot-config file is correct:

```
switch(config)#show boot-config
Software image: flash:/EOS-4.13.2.swi
Console speed: (not set)
Aboot password (encrypted): $1$ap1QMbmz$DTqsFYeauuMSa7/Qxbi211
```

Save the configuration to the **startup-config** file with the **write** command.

```
switch#write
```

8.4.1.4 Reload

After updating the **boot-config** file, reset the switch to activate the new image. The **reload** command resets the switch, resulting in temporary downtime and packet loss on single supervisor switches.

When reloading from the console port, all rebooting messages are displayed on the terminal. From any port except the console, the CLI displays this text:

```
switch#reload
The system is going down for reboot NOW!
```

Important! The EOS boot process makes a copy of the .swi image file in the internal flash while booting, so sufficient space for **two copies** must be present when loading the new EOS image. If the switch is reloaded without adequate space on the flash drive, it will boot to the Aboot prompt from which you can delete files from /mnt/flash to free up additional space. Exiting Aboot will begin the boot process again.

8.4.1.5 Verify

After the switch finishes reloading, log into the switch and use the **show version** command to confirm the correct image is loaded. The **Software image version** line displays the version of the active image file.

```
switch#show version
Arista DCS-7150S-64-CL-F
Hardware version:    01.01
Serial number:      JPE13120819
System MAC address: 001c.7326.fd0c

Software image version: 4.13.2F
Architecture:         i386
Internal build version: 4.13.2F-1649184.4132F.2
Internal build ID:     eeb3c212-b4bd-4c19-ba34-1b0aa36e43f1

Uptime:              14 hours and 48 minutes
Total memory:        4017088 kB
Free memory:         1569760 kB

switch>
```

8.4.2 Upgrading or Downgrading the EOS on a Dual-Supervisor Switch

Modifying the active EOS image is a four-step process:

- Step 1** Prepare switch for upgrade ([Prepare the Switch](#)).
- Step 2** Transfer image file to primary supervisor ([Transfer the Image File to the Primary Supervisor](#)). (Not required if desired file is on switch)
- Step 3** Use the **install** command to install the new EOS image and update **boot-config** ([Install the New EOS Image](#)).
- Step 4** Verify that the switch is running the new image ([Verify the New Image](#)).

Important! Due to a change in the supervisor heartbeat timeout, booting one supervisor with a post-SSO image (version 4.10.0-SSO, 4.11.X and later) while the other supervisor is running a pre-SSO image will cause the supervisor running the pre-SSO image to reload. This will cause a disruption as both supervisors will be inactive for a short time. To minimize downtime, upgrade the images on both supervisors and reload the entire chassis using the **install** command.

8.4.2.1 Prepare the Switch

To prepare the switch for an EOS upgrade, take the following steps:

- Back up essential files.
- Ensure that you are logged in to the primary supervisor.
- Ensure that the primary supervisor is reachable and that the management interfaces are configured.
- Ensure that there is enough room on both supervisors for the new image file.
- Ensure that any extensions running on the active supervisor are also available on the standby.

Before upgrading the EOS image, ensure that backup copies of the currently running EOS version and the **running-config** file are available in case of corruption during the upgrade process. To copy the **running-config** file, use the **copy running-config** command. In this example, **running-config** is being copied to a file called “backup2” on the flash drive.

```
switch#copy running-config backup2
switch#
```

Ensure that you are logged in to the primary supervisor, not the standby. Use the **show redundancy status** command, and verify that **my state** reads “ACTIVE” and not “STANDBY.”

```
switch#show redundancy status
my state = ACTIVE
peer state = STANDBY HOT
Unit = Secondary
Unit ID = 1
```

```
Redundancy Protocol (Operational) = Stateful Switchover
Redundancy Protocol (Configured) = Stateful Switchover
Communications = Up
Ready for switchover
```

```
Last switchover time = 25 days, 19:51:34 ago
Last switchover reason = Other supervisor stopped sending heartbeats
```

Ensure that both supervisors have a management interface configured with an IP address and default gateway (see [Assigning a Virtual IP Address to Access the Active Ethernet Management Port](#) and [Configuring a Default Route to the Gateway](#)), and confirm that both management interfaces are in the up state and can ping the default gateway by using the **show interfaces status** command and **ping** command.

Note

If the management VRF interface is used, use the virtual management interface (management 0) instead of the IP address on the physical management interface.

```
switch#show interfaces status
```

Port	Name	Status	Vlan	Duplex	Speed	Type
Et3/1		notconnect	1	auto	auto	1000BASE-T
Ma1/1		connected	routed	unconf	unconf	Unknown
Ma2/1		connected	routed	a-full	a-100M	10/100/1000

```
switch#ping 1.1.1.10
PING 172.22.26.1 (172.22.26.1) 72(100) bytes of data.
80 bytes from 1.1.1.10: icmp_seq=1 ttl=64 time=0.180 ms
80 bytes from 1.1.1.10: icmp_seq=2 ttl=64 time=0.076 ms
80 bytes from 1.1.1.10: icmp_seq=3 ttl=64 time=0.084 ms
80 bytes from 1.1.1.10: icmp_seq=4 ttl=64 time=0.073 ms
80 bytes from 1.1.1.10: icmp_seq=5 ttl=64 time=0.071 ms
```

Determine the size of the new EOS image and verify that there is space available for it on the flash drive of both supervisors, using the **dir** command to check the “bytes free” figure.

Primary supervisor:

```
switch#dir flash:
Directory of flash:/
-rwx    293168526      Nov  4 22:17  EOS4.11.0.swi
-rwx         36      Nov  8 10:24  boot-config
-rwx     37339      Jun 16 14:18  cfg_06162014
```

<-----OUTPUT OMITTED FROM EXAMPLE----->

```
606638080 bytes total (602841088 bytes free)
```

Standby supervisor:

```
switch#dir supervisor-peer:mnt/flash/
Directory of flash:/
-rwx    293168526      Nov  4 22:17  EOS4.11.0.swi
-rwx         36      Nov  8 10:24  boot-config
-rwx     37339      Jun 16 14:18  cfg_06162014
```

<-----OUTPUT OMITTED FROM EXAMPLE----->

```
606638080 bytes total (602841088 bytes free)
```

And, finally, ensure that any extensions running on the primary supervisor are also available on the secondary supervisor.

8.4.2.2 Transfer the Image File to the Primary Supervisor

Load the desired image to the file system on the primary supervisor, typically into the flash. Use the CLI **copy** command to load files to the flash on the primary supervisor, then confirm that the new image file has been correctly transferred.

These command examples transfer an image file to flash from various locations.

USB Memory

Command

```
copy usb1:/sourcefile flash:/destfile
```

Example

```
Sch#copy usb1:/EOS-4.13.2.swi flash:/EOS-4.13.2.swi
```

FTP Server

Command

```
copy ftp:/ftp-source/sourcefile flash:/destfile
```

Example

```
Sch#copy ftp:/user:password@10.0.0.3/EOS-4.13.2.swi flash:/EOS-4.13.2.swi
```

SCP

Command

```
copy scp://scp-source/sourcefile flash:/destfile
```

Example

```
sch#copy scp://user:password@10.1.1.8/user/EOS-4.13.2.swi flash:/EOS-4.13.2.swi
```

HTTP**Command**

```
copy http://http-source/sourcefile flash:/destfile
```

Example

```
sch#copy http://10.0.0.10/EOS-4.13.2.swi flash:/EOS-4.13.2.swi
```

Once the file has been transferred, verify that it is present in the directory, then confirm the MD5 checksum using the **verify** command. The MD5 checksum for each available image can be found on the EOS download page of the Arista website.

```
switch#dir flash:
Directory of flash:/
-rwx   293168526      Nov  4 22:17  EOS4.11.0.swi
-rwx           36      Nov  8 10:24  boot-config
-rwx      37339      Jun 16 14:18  cfg_06162014
-rwx   394559902      May 30 02:57  EOS-4.12.2.swi
```

<-----OUTPUT OMITTED FROM EXAMPLE----->

```
606638080 bytes total (208281186 bytes free)
switch#53#verify /md5 flash:EOS-4.13.2.swi
verify /md5 (flash:EOS-4.13.2.swi) =c277a965d0ed48534de6647b12a86991
```

8.4.2.3 Install the New EOS Image

Once the EOS image has been copied to the flash drive of the primary supervisor, use the **install** command to update the **boot-config**, copy the new image to the secondary supervisor and reload both supervisors. When upgrading to a new image, both supervisors will briefly be unavailable; using the **install** command minimizes packet loss during reload.

```
switch(config)#install source EOS-4.13.2.swi reload
Preparing new boot-config... done.
Copying new software image to standby supervisor... done.
Copying new boot-config to standby supervisor... done.
Committing changes on standby supervisor... done.
Reloading standby supervisor... done.
Committing changes on this supervisor... done.
Reloading this supervisor...
```

8.4.2.4 Verify the New Image

After the switch finishes reloading, log into the switch and use the **show version** command to confirm the correct image is loaded. The **Software image version** line displays the version of the active image file.

```
switch#show version
Arista DCS-7504
Hardware version:    01.01
Serial number:       JPE13120819
System MAC address:  001c.7326.fd0c

Software image version: 4.13.2F
Architecture:         i386
Internal build version: 4.13.2F-1649184.4132F.2
Internal build ID:     eeb3c212-b4bd-4c19-ba34-1b0aa36e43f1

Uptime:               1 hour and 36 minutes
Total memory:         4017088 kB
Free memory:          1473280 kB

switch#
```

8.5 Upgrade/Downgrade Commands

- `install`
- `reload fast-boot`
- `reload hitless`

install

The **install** command copies the specified EOS image onto the switch (if the source is external), configures the **boot-config** file to point to the specified EOS image, copies the image to the standby supervisor (on dual-supervisor switches), and optionally reloads the switch to run the new EOS.

Command Mode

Privileged EXEC

Command Syntax

```
install source source_path [destination destination_path] [now] [reload]
```

Parameters

- **source_path** file path and name of EOS image. If no file path is specified, the switch will look for the image on the flash drive of the primary supervisor.
- **destination destination_path** destination file path and name of the EOS image. If no destination or name is specified, the EOS image will be stored on the flash drive with its original file name.
- **now** command is executed immediately without further prompts.
- **reload** supervisor is reloaded after the image and updated **boot-config** file are installed. On dual-supervisor switches, reloads both supervisors, after which control is returned to the primary supervisor.

Example

- This command updates the **boot-config** file to point to the EOS.swi file on the primary supervisor's flash drive, copies the image and **boot-config** file to the secondary supervisor, and reboots both.

```
switch(config)#install source EOS.swi reload  
Preparing new boot-config... done.  
Copying new software image to standby supervisor... done.  
Copying new boot-config to standby supervisor... done.  
Committing changes on standby supervisor... done.  
Reloading standby supervisor... done.  
Committing changes on this supervisor... done.  
Reloading this supervisor...
```

reload fast-boot

The **reload fast-boot** command starts the Accelerated Software Upgrade (ASU) process using the EOS image specified by the **boot-config** file (configured by the **boot system** command).

ASU significantly decreases downtime and packet loss during a software upgrade, but the data plane is still restarted after the control plane has loaded, resulting in approximately 30 seconds of downtime. If available, Arista recommends using Smart System Upgrade (SSU) instead.

ASU shortens downtime and minimizes packet loss during EOS upgrades in three ways:

- performing time-intensive tasks (including copying the EOS image) before rebooting the control plane
- forwarding packets in hardware (based on the last known good state) while the control-plane is offline
- optimizing the boot process by performing only tasks essential for software upgrade

Command Mode

Privileged EXEC

Command Syntax

```
reload fast-boot
```

Guidelines

- ASU is supported only for upgrades (not downgrades).
- ASU is not supported if the EOS upgrade requires an FPGA upgrade.
- Enough free space must be available on the flash drive to store two copies of the target EOS image.

Example

- This command starts the Accelerated Software Upgrade process.

```
switch#reload fast-boot
Proceed with reload? [confirm]
```

When the **reload fast-boot** command is entered, the switch sends a message prompting the user to save the configuration if it contains unsaved modifications, then asks the user to confirm the reload request.

reload hitless

The **reload hitless** command starts the Smart System Upgrade (SSU) process using the EOS image specified by the **boot-config** file (configured by the **boot system** command).

Command Mode

Privileged EXEC

Command Syntax

```
reload hitless
```

Guidelines

- SSU is supported only for upgrades (not downgrades).
- SSU is not supported if the EOS upgrade requires an FPGA upgrade.
- Enough free space must be available on the flash drive to store two copies of the target EOS image. It is also recommended that an *additional* 240MB be available to store diagnostic information.

Example

- This command starts the SSU process.

```
switch#reload hitless
Proceed with reload? [confirm]
```

If there are issues with the current switch configuration that will prevent SSU from being performed, the switch lists the changes that must be made before SSU can begin.

```
switch#reload hitless
switch#'reload hitless' cannot proceed due to the following:
  Spanning-tree portfast is not enabled for one or more ports
  Spanning-tree BPDU guard is not enabled for one or more ports
switch#
```

When the **reload hitless** command is entered, the switch sends a message prompting the user to save the configuration if it contains unsaved modifications, then asks the user to confirm the reload request.

```
switch#reload hitless
System configuration has been modified. Save? [yes/no/cancel/diff]:y
Copy completed successfully.
Proceed with reload? [confirm]y
```