



Cisco Secure Firewall Threat Defense Upgrade Guide for Cloud-delivered Firewall Management Center

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CHAPTER 1

Planning Your Upgrade

Use this guide to plan and complete threat defense upgrades. Upgrades can be major (A.x), maintenance (A.x.y), or patch (A.x.y.z) releases. We also may provide hotfixes, which are minor updates that address particular, urgent issues.

- [Compatibility, on page 1](#)
- [Important Upgrade Guidelines, on page 1](#)
- [Upgrade Path, on page 2](#)
- [Upgrade Packages, on page 4](#)
- [Upgrade Readiness, on page 9](#)

Compatibility

Before you upgrade, make sure the target version is compatible with your deployment. If you cannot upgrade due to incompatibility, contact your Cisco representative or partner contact for refresh information.

For compatibility information, see:

- [Cisco Secure Firewall Threat Defense Compatibility Guide](#)
- [Cisco Firepower 4100/9300 FXOS Compatibility](#)

Important Upgrade Guidelines

Especially with major upgrades, upgrading may cause or require significant configuration changes either before or after upgrade.

Threat Defense Upgrade Guidelines and Bugs

For release-specific upgrade guidelines, including features with upgrade impact, check the release notes for your target version. For bugs that could affect your deployment, check all release notes between your current and target version.

Table 1: Cisco Secure Firewall Threat Defense Release Notes

Target Version	Release Notes
7.4.x	https://cisco.com/go/fmc-ftd-release-notes-74
7.3.x	https://cisco.com/go/fmc-ftd-release-notes-73
7.2.x	https://cisco.com/go/fmc-ftd-release-notes-72
7.1.x	Cisco Firepower Release Notes, Version 7.1.x
7.0.x	Cisco Firepower Release Notes, Version 7.0.x

Chassis Upgrade Guidelines for the Firepower 4100/9300

For release-specific FXOS upgrade guidelines, check the release notes for your target version. For bugs that could affect your deployment, check the release notes between your current and target version.

Table 2: Cisco Firepower 4100/9300 FXOS Release Notes

Target Version	Release Notes
2.14	Cisco Firepower 4100/9300 FXOS Release Notes, 2.14(1)
2.13	Cisco Firepower 4100/9300 FXOS Release Notes, 2.13
2.12	Cisco Firepower 4100/9300 FXOS Release Notes, 2.12
2.10	Cisco Firepower 4100/9300 FXOS Release Notes, 2.10(1)

For firmware upgrade guidelines, check the firmware upgrade guide: [Cisco Firepower 4100/9300 FXOS Firmware Upgrade Guide](#).

Upgrade Path

Planning your upgrade path is especially important for large deployments, multi-hop upgrades, and situations where you need to coordinate related upgrades—operating systems, firmware, chassis, hosting environments, and so on.

Upgrade Path for Threat Defense

This table lists the minimum version to upgrade threat defense. If you are not running the minimum version, you will need to perform a multi-step upgrade. If a chassis upgrade is required, threat defense upgrade is blocked; see [Upgrade Path for Threat Defense with Chassis Upgrade, on page 3](#).

Table 3: Minimum Version to Upgrade Threat Defense

Target Version	Minimum Version to Upgrade
7.4	7.0.3

Target Version	Minimum Version to Upgrade
7.3	7.0.3
7.2	7.0.3

Upgrade Path for Threat Defense with Chassis Upgrade

For the Firepower 4100/9300, major threat defense upgrades require chassis (FXOS and firmware) upgrades. Maintenance releases and patches rarely do. Chassis upgrades to FXOS 2.14.1+ include firmware, otherwise, see the [Cisco Firepower 4100/9300 FXOS Firmware Upgrade Guide](#).

Because you upgrade the chassis first, you will briefly run a supported—but not recommended—combination, where the operating system is "ahead" of threat defense. If the chassis is already well ahead of its devices, further chassis upgrades can be blocked. In this case you will need to perform a three (or more) step upgrade: devices first, then the chassis, then devices again. In high availability or clustered deployments, upgrade one chassis at a time; see [Upgrade Path for High Availability or Clustered Threat Defense with Chassis Upgrade, on page 3](#).

This table lists the minimum versions to upgrade threat defense when a chassis upgrade is required.

Table 4: Minimum Versions to Upgrade Threat Defense Chassis

Target Versions	Minimum Versions to Upgrade
Threat Defense 7.4 on FXOS 2.14.1.131+	Threat Defense 7.0.3 on FXOS 2.10
Threat Defense 7.3 on FXOS 2.13.0.198+	Threat Defense 7.0.3 on FXOS 2.10
Threat Defense 7.2 on FXOS 2.12.0.31+	Threat Defense 7.0.3 on FXOS 2.10

Upgrade Path for High Availability or Clustered Threat Defense with Chassis Upgrade

In high availability or clustered deployments, upgrade one chassis at a time.

Table 5: Chassis Upgrade Order for the Firepower 4100/9300

Threat Defense Deployment	Upgrade Order
Standalone	<ol style="list-style-type: none"> 1. Upgrade chassis. 2. Upgrade threat defense.

Threat Defense Deployment	Upgrade Order
High availability	Upgrade both chassis before you upgrade threat defense. To minimize disruption, always upgrade the standby. <ol style="list-style-type: none"> 1. Upgrade chassis with the standby. 2. Switch roles. 3. Upgrade chassis with the new standby. 4. Upgrade threat defense.
Intra-chassis cluster (units on the same chassis)	<ol style="list-style-type: none"> 1. Upgrade chassis. 2. Upgrade threat defense.
Inter-chassis cluster (units on different chassis)	Upgrade all chassis before you upgrade threat defense. To minimize disruption, always upgrade an all-data unit chassis. <ol style="list-style-type: none"> 1. Upgrade the all-data unit chassis. 2. Switch the control module to the chassis you just upgraded. 3. Upgrade all remaining chassis. 4. Upgrade threat defense.

Upgrade Packages

Uploading and Downloading Upgrade Packages to the Management Center

Manage upgrade packages on **System** (⚙) > **Product Upgrades**.

The page lists all upgrade packages that apply to you, with suggested releases specially marked. You can easily choose and direct-download packages from Cisco, or upload packages you manually downloaded: [Upgrade Packages on Cisco.com, on page 8](#).

Table 6: Managing Upgrade Packages on the Management Center


To...	Do This...
Refresh the list of available upgrade packages.	Click Refresh (↻) at the bottom left of the page.
Download an upgrade package to the management center from Cisco.	Click Download next to the upgrade package or version you want to download. Each family of devices has its own upgrade packages, so depending on your deployment you may need to download more than one upgrade package.

To...	Do This...
Manually upload an upgrade package to the management center.	Click Add Upgrade Package at the bottom right of the page, then Choose File .
Configure threat defense devices to get upgrade packages from an internal server.	Click Add Upgrade Package at the bottom right of the page, then Specify Remote Location . See Copy Upgrade Packages from an Internal Server, on page 6 .
Delete an upgrade package from the management center.	Click the Ellipsis (...) next to the package you want to delete and select Delete . This deletes the package (or the pointer to the package) from the management center. It does not delete the package from any devices where you already copied the package. In most cases, upgrading threat defense removes the related upgrade package from the device.

Copying Upgrade Packages to Managed Devices

To upgrade, the upgrade package must be on the device.

Copying Threat Defense Upgrade Packages

For threat defense upgrades, the easiest way to do this is to use the Product Upgrades page (**System**  > **Product Upgrades**) on the management center to download the upgrade package from Cisco, then let the upgrade wizard prompt you to copy the package over.

The following table goes into more details about this and your other options.

Table 7: Copying Threat Defense Upgrade Packages to Managed Devices

Requirements	When to Use
<p>Cisco → Management Center → Devices</p> <p>Major, maintenance, or patch upgrade (not a hotfix) that applies to the device <i>right now</i>.</p> <p>Adequate disk space on the management center.</p> <p>Adequate bandwidth between the management center and devices.</p>	<p>Strongly recommended when all requirements are met.</p> <p>See: Uploading and Downloading Upgrade Packages to the Management Center, on page 4</p>

Requirements	When to Use
<p>Cisco → Your Computer → Management Center → Devices</p> <p>Adequate disk space on the management center.</p> <p>Adequate bandwidth between management center and devices.</p>	<p>You meet disk space and bandwidth requirements but you cannot direct-download; for example, for device hotfixes.</p> <p>See: Upgrade Packages on Cisco.com, on page 8</p>
<p>Cisco → Your Computer → Internal Server → Devices</p> <p>Internal web server that devices can access.</p>	<p>You do not meet disk space requirements and/or bandwidth requirements.</p> <p>The cloud-delivered Firewall Management Center in particular has limited disk space for device upgrade packages.</p> <p>See: Copy Upgrade Packages from an Internal Server, on page 6</p>
<p>Device → Device</p> <p>Version 7.2+ standalone devices managed by the same management center.</p> <p>At least one device that has obtained the upgrade package by another method.</p>	<p>You need to copy the upgrade package to devices without relying on the management center to mediate the transfer.</p> <p>See: Copy Threat Defense Upgrade Packages between Devices, on page 7</p>

Copying Firepower 4100/9300 Chassis Upgrade Packages

For Firepower 4100/9300 chassis upgrade packages, download the upgrade package from Cisco, then use the chassis manager or CLI (FTP, SCP, SFTP, or TFTP) to copy the package to the device. See [Upgrade Packages on Cisco.com, on page 8](#) and the upgrade procedure for your deployment.

Copy Upgrade Packages from an Internal Server

You can store threat defense upgrade packages on an internal server instead of the management center. This is especially useful if you have limited bandwidth between the management center and its devices. It also saves space on the management center.


After you get the packages from Cisco and set up your server, configure pointers to them. On the management center, start like you are uploading a package: on the Product Upgrades page (**System**  > **Product Upgrades**, click **Add Upgrade Package**. But instead of choosing a file on your computer, click **Specify Remote Location** and provide the appropriate details. When it is time to get the package, the device will copy it from the internal server.

Table 8: Options for Copying Threat Defense Upgrade Packages from an Internal Server

Field	Description
URL	<p>The source URL, including protocol (HTTP/HTTPS) and full path to the upgrade package; for example:</p> <pre>https://internal_web_server/upgrade_package.sh.REL.tar.</pre>

Field	Description
CA Certificates	For secure web servers (HTTPS), the server's digital certificate (PEM format). Copy and paste the entire block of text, including the BEGIN CERTIFICATE and END CERTIFICATE lines. You should be able to obtain the certificate from the server's administrator. You may also be able to use your browser, or a tool like OpenSSL, to view the server's certificate details and export or copy the certificate.

Copy Threat Defense Upgrade Packages between Devices

Instead of copying upgrade packages to each device from the management center or internal web server, you can use the threat defense CLI to copy upgrade packages between devices ("peer to peer sync"). This secure and reliable resource-sharing goes over the management network but does not rely on the management center. Each device can accommodate 5 package concurrent transfers.

This feature is supported for Version 7.2+ standalone devices managed by the same management center. It is not supported for:

- Container instances.
- Device high availability pairs and clusters. These devices get the package from each other as part of their normal sync process. Copying the upgrade package to one group member automatically syncs it to all group members.
- Devices added to an on-prem management center in analytics mode.
- Devices separated by a NAT gateway.
- Devices upgrading from Version 7.0.x.

Repeat the following procedure for all devices that need the upgrade package. For detailed information on all the CLI commands associated with this feature, see the [Cisco Secure Firewall Threat Defense Command Reference](#).

Before you begin

- Upload the threat defense upgrade package to the management center or to an internal server.
- Copy the upgrade package to at least one device.

Step 1 As `admin`, SSH to any device that needs the package.

Step 2 Enable the feature.

configure p2psync enable

Step 3 If you do not already know, determine where you can get the upgrade package you need.

show peers: Lists the other eligible devices that also have this feature enabled.

show peer details ip_address: For the device at the IP address you specify, list the available upgrade packages and their paths.

Step 4 Copy the package from any device that has the package you need, by specifying the IP address and path you just discovered.

sync-from-peer *ip_address package_path*

After you confirm that you want to copy the package, the system displays a sync status UUID that you can use to monitor this transfer.

Step 5 Monitor transfer status from the CLI.

show p2p-sync-status: Shows the sync status for the last five transfers to this device, including completed and failed transfers.

show p2p-sync-status *sync_status_UUID*: Shows the sync status for a particular transfer to this device.

Upgrade Packages on Cisco.com

Manually download upgrade packages from Cisco when you cannot direct-download; for example, for hotfixes. You must also manually obtain upgrade packages if you plan to configure devices to get them from an internal server. And, you must manually obtain chassis upgrade packages for the Firepower 4100/9300.

Packages are available on the Cisco Support & Download site: <https://www.cisco.com/go/ftd-software>

Threat Defense Packages

You use the same upgrade package for all models in a family or series. To find the correct one, select or search for your model on the Cisco Support & Download site, then browse to the software download page for the appropriate version. Available upgrade packages are listed along with installation packages, hotfixes, and other applicable downloads. Upgrade package file names reflect the platform, package type (upgrade, patch, hotfix), software version, and build. Upgrade packages are signed, and terminate in .sh.REL.tar. Do not untar or rename them.

Table 9: Threat Defense Packages

Platform	Package
Firepower 1000 series	Cisco_FTD_SSP-FP1K_Upgrade-Version-build.sh.REL.tar
Firepower 2100 series	Cisco_FTD_SSP-FP2K_Upgrade-Version-build.sh.REL.tar
Secure Firewall 3100 series	Cisco_FTD_SSP-FP3K_Upgrade-Version-build.sh.REL.tar
Secure Firewall 4200 series	Cisco_Secure_FW_TD_4200-Version-build.sh.REL.tar
Firepower 4100/9300	Cisco_FTD_SSP_Upgrade-Version-build.sh.REL.tar
ASA 5500-X series	Cisco_FTD_Upgrade-Version-build.sh.REL.tar
Threat Defense Virtual	Cisco_FTD_Upgrade-Version-build.sh.REL.tar
ISA 3000 with FTD	Cisco_FTD_Upgrade-Version-build.sh.REL.tar

Chassis Packages for the Firepower 4100/9300

To find the correct FXOS package, select or search for your device model and browse to the *Firepower Extensible Operating System* download page for your target FXOS version and build. The FXOS package is listed along with recovery and MIB packages.

Table 10: FXOS Packages

Platform	Package
Firepower 4100/9300	fxos-k9.fxos_version.SPA

Upgrades to FXOS 2.14.1+ include firmware. If you are upgrading to an earlier version of FXOS, select or search for your device model and browse to the *Firepower Extensible Operating System* download page. Firmware packages are under *All Releases > Firmware*.

Table 11: Firmware Packages

Platform	Package
Firepower 4100	fxos-k9-fpr4k-firmware.firmware_version.SPA
Firepower 9300	fxos-k9-fpr9k-firmware.firmware_version.SPA

Upgrade Readiness

Network and Infrastructure Checks

Appliance Access

Devices can stop passing traffic during the upgrade or if the upgrade fails. Before you upgrade, make sure traffic from your location does not have to traverse the device itself to access the device's management interface. You should also be able to access the management center's management interface without traversing the device.

Bandwidth

Make sure your management network has the bandwidth to perform large data transfers. Whenever possible, upload upgrade packages ahead of time. If you transfer an upgrade package to a device at the time of upgrade, insufficient bandwidth can extend upgrade time or even cause the upgrade to time out. See [Guidelines for Downloading Data from the Firepower Management Center to Managed Devices](#) (Troubleshooting TechNote).

Configuration and Deployment Checks

Configurations

Make sure you have made any required pre-upgrade configuration changes, and are prepared to make required post-upgrade configuration changes. Resolve any change management workflows. Deploy configuration changes.



Note You will need to deploy again after upgrade. Deploying can affect traffic flow and inspection; see [Traffic Flow and Inspection for Threat Defense Upgrades](#).

Deployment Health

Make sure your deployment is healthy and successfully communicating. If there are any issues reported by the health monitor, resolve them before continuing. You should especially make sure all appliances are synchronized with any NTP server you are using to serve time. Although the health monitor alerts if clocks are out of sync by more than 10 seconds, you should still check manually. Being out of sync can cause upgrade failure.

To check time:

- Management Center: Choose **System** (⚙) > **Configuration** > **Time**.
- Threat Defense: Use the **show time** CLI command.

Running and Scheduled Tasks

Make sure essential tasks are complete, including the final deploy. Tasks running when the upgrade begins are stopped, become failed tasks, and cannot be resumed.

Upgrades automatically postpone scheduled tasks. Any task scheduled to begin during the upgrade will begin five minutes after the post-upgrade reboot. If you do not want this to happen, check for tasks that are scheduled to run during the upgrade and cancel or postpone them.

Backups

With the exception of hotfixes, upgrade deletes all backups stored on the system. We *strongly* recommend you back up to a secure remote location and verify transfer success, both before and after any upgrade:

- Before upgrade: If an upgrade fails catastrophically, you may have to reimage and restore. Reimaging returns most settings to factory defaults, including the system password. If you have a recent backup, you can return to normal operations more quickly.
- After upgrade: This creates a snapshot of your freshly upgraded deployment.

Table 12: Backups

Backup	Guide
Threat defense	Cisco Secure Firewall Management Center Administration Guide: Backup/Restore Backup is not supported for clustered threat defense virtual for KVM devices or threat defense virtual in the public cloud.
Firepower 4100/9300 chassis	Cisco Firepower 4100/9300 FXOS Configuration Guide: Configuration Import/Export

Backup	Guide
ASA on a Firepower 9300 chassis	Cisco ASA Series General Operations Configuration Guide: <i>Software and Configurations</i> For a Firepower 9300 chassis with threat defense and ASA logical devices, use ASDM or the ASA CLI to back up ASA configurations and other critical files, especially if there is an ASA configuration migration.

Software Upgrade Readiness Checks

Besides the checks you perform yourself, the system can also check its own upgrade readiness. The threat defense upgrade wizard prompts you to run the checks at the appropriate time. Although you can disable readiness checks, we recommend against it. Passing all checks greatly reduces the chance of upgrade failure. If the checks expose issues that you cannot resolve, do not begin the upgrade.

You can run readiness checks outside a maintenance window. The time required to run a readiness check varies depending on model and database size. Do not manually reboot or shut down during readiness checks.



CHAPTER 2

Upgrade Threat Defense

- [Upgrade Threat Defense, on page 13](#)

Upgrade Threat Defense

Use this procedure to upgrade threat defense. As you proceed, the threat defense wizard displays basic information about your selected devices, as well as the current upgrade-related status. This includes any reasons why you cannot upgrade. If a device does not "pass" a stage in the wizard, it does not appear in the next stage.

If you navigate away from the wizard, your progress is preserved and other users cannot start a new upgrade workflow for any devices you have already selected. (Exception: if you are logged in with a CAC, your progress is cleared 24 hours after you log out.) To return to your workflow, choose **Devices > Threat Defense Upgrade**.

Device upgrade does not start until you complete the wizard and click **Start Upgrade**. All steps up to that point can be performed outside of a maintenance window, including downloading upgrade packages, copying them to devices, running readiness checks, and choosing upgrade options. For information on traffic handling during the upgrade and the first post-upgrade deploy, see [Traffic Flow and Inspection, on page 47](#).



Caution Do not deploy configuration changes during upgrade. Even if the system appears inactive, do not manually reboot or shut down. In most cases, do not restart an upgrade in progress. You could place the system in an unusable state and require a reimage. Devices may reboot multiple times during the upgrade. This is expected behavior. If you encounter issues with the upgrade, including a failed upgrade or unresponsive device, see [Unresponsive and Failed Threat Defense Upgrades, on page 47](#).

Before you begin

Make sure you are ready to upgrade:

- Determine if you can run the target version: [Compatibility, on page 1](#)
- Plan the upgrade path: [Upgrade Path, on page 2](#)
- Review upgrade guidelines: [Important Upgrade Guidelines, on page 1](#)
- Check infrastructure and network: [Network and Infrastructure Checks, on page 9](#)

- Check configurations, tasks, and overall deployment health: [Configuration and Deployment Checks, on page 9](#)
- Perform backups: [Backups, on page 10](#)
- Upgrade chassis, if required: [Upgrade the Firepower 4100/9300 Chassis, on page 19](#)

Step 1 On the management center, choose **System** (⚙) > **Product Upgrades**.

The Product Upgrades page provides an upgrade-centered overview of your deployment—how many devices you have, when they were last upgraded, whether there is an upgrade in progress, and so on.

Step 2 Get the device upgrade packages onto the management center.

Before you copy upgrade packages to managed devices, you must upload the packages to the management center (or to an internal server that the devices can access). The Product Upgrades page lists all upgrade packages that apply to your current deployment, with suggested releases specially marked. In most cases, you can just click **Download** next to the upgrade package or version you want. For more information, see [Uploading and Downloading Upgrade Packages to the Management Center, on page 4](#) and [Troubleshooting Upgrade Packages, on page 45](#).

Step 3 Launch the upgrade wizard.

Click **Upgrade** next to the target version. If you are given a drop-down menu, select **Threat Defense**.

The threat defense upgrade wizard appears. It has two panes: Device Selection on the left, and Device Details on the right. Click a device link in the Device Selection pane (such as '4 devices') to show the Device Details for those devices. Your target version is pre-selected in the **Upgrade to** menu. The system determines which devices can be upgraded to that version and displays them in the Device Details pane.

Step 4 Select devices to upgrade.

In the Device Details pane, select the devices you want to upgrade and click **Add to Selection**.

You can use the device links on the Device Selection pane to toggle the Device Details pane between selected devices, remaining upgrade candidates, ineligible devices (with reasons why), devices that need the upgrade package, and so on. You can add and remove devices from your selection, or click **Reset** to clear your device selection and start over. Note that you do not have to remove ineligible devices; they are automatically excluded from upgrade. You must upgrade the members of device clusters and high availability pairs together.

Tip After you select devices to upgrade, you can begin upgrade in unattended mode (**Unattended Mode > Start**). After you specify a few options, the system automatically copies needed upgrade packages to devices, performs compatibility and readiness checks, and begins the upgrade. After the upgrade completes, pick up with the verification and post-upgrade tasks. For more information, see [Upgrade Threat Defense in Unattended Mode, on page 17](#).

Step 5 Copy upgrade packages to devices.

Click **Copy Upgrade Package** and wait for the transfer to complete.

Step 6 Click **Next** to run compatibility and readiness checks.

Compatibility and other quick prechecks are automatic. For example, the system alerts you immediately if you need to deploy configurations. Other checks take more time. To begin these, click **Run Readiness Check**.

Do not deploy changes to, manually reboot, or shut down a device while running readiness checks. Although you can skip checks by disabling the **Require passing compatibility and readiness checks** option, we recommend against it.

Passing all checks greatly reduces the chance of upgrade failure. If the checks expose issues that you cannot resolve, do not begin the upgrade.

Step 7 Click **Next** to choose upgrade options.

These options allow you to revert from both successful and unsuccessful upgrades, to generate troubleshooting files, and to upgrade Snort. For information on why you might disable these options, see [Threat Defense Upgrade Options, on page 16](#).

Step 8 Reconfirm you are ready to upgrade.

We recommend revisiting the configuration and deployment health checks you performed earlier: [Configuration and Deployment Checks, on page 9](#).

Step 9 Click **Start Upgrade**, then confirm that you want to upgrade and reboot the devices.

The wizard shows your overall upgrade progress, which you can also monitor in the Message Center. For detailed status, click **View Details** next to the device you want to see. This detailed status is also available from the Upgrade tab on the Device Management page.

Tip If you need to cancel a failed or in-progress upgrade, or retry a failed upgrade, do it from the detailed status pop-up. If you have not cleared your workflow, you can view the detailed status by returning to the wizard. If you have, use the Upgrade tab on the Device Management page. You can also use the threat defense CLI.

Step 10 Verify success.

After the upgrade completes, choose **Devices > Device Management** and confirm that the devices you upgraded have the correct software version.

Step 11 (Optional) In high availability/scalability deployments, examine device roles.

The upgrade process switches device roles so that it is always upgrading a standby unit or data node. It does not return devices to the roles they had before upgrade. If you have preferred roles for specific devices, make those changes now.

Step 12 Update intrusion rules (SRU/LSP) and the vulnerability database (VDB).

If the component available on the Cisco Support & Download site is newer than the version currently running, install the newer version. Note that when you update intrusion rules, you do not need to automatically reapply policies. You will do that later.

Step 13 Complete any required post-upgrade configuration changes.

Step 14 Redeploy configurations to the devices you just upgraded.

Before you deploy, you may want to review the changes made by the upgrade (as well as any changes you have made since upgrade). Choose **Deploy > Advanced Deploy**, select the devices you just upgraded, and click **Pending Changes Reports**. After they finish generating, you can download change reports from the Tasks tab on the Message Center.

What to do next

- (Optional) Clear the wizard by clicking **Clear Upgrade Information**. Until you do this, it continues to display details about the upgrade you just performed. After you clear the wizard, use the Upgrade tab on the Device Management page to see last-upgrade information for managed devices.
- Back up again: [Backups, on page 10](#)

Threat Defense Upgrade Options

Table 13: Threat Defense Upgrade Options

Option	When to Disable	Details
Require passing compatibility and readiness checks.	At the direction of Cisco TAC.	If you disable this option, you can begin the upgrade without passing compatibility and readiness checks. However, we recommend against it. Passing all checks greatly reduces the chance of upgrade failure. If the checks expose issues that you cannot resolve, do not begin the upgrade.
Automatically cancel on upgrade failure and roll back to the previous version.	To force manual (instead of automatic) cancel and retry of failed upgrades.	With this option enabled, the device automatically returns to its pre-upgrade state upon upgrade failure. In a high availability or clustered deployment, auto-cancel applies to each device individually. That is, if the upgrade fails on one device, only that device is reverted.
Generate troubleshooting files before upgrade begins.	To save time and disk space.	With upgrades to Version 7.3+, you can skip the automatic pre-upgrade generating of troubleshooting files. To manually generate troubleshooting files for a threat defense device, choose System (⚙️) > Health > Monitor , click the device in the left panel, then View System & Troubleshoot Details , then Generate Troubleshooting Files .
Upgrade Snort 2 to Snort 3.	To prevent Snort 3 upgrades.	With upgrades to Version 7.2+, eligible devices will upgrade from Snort 2 to Snort 3 when you deploy configurations. With upgrades to Version 7.3+, you can no longer disable this option. Although you can switch individual devices back, Snort 2 will be deprecated in a future release and we strongly recommend you stop using it now. For devices that are ineligible because they use custom intrusion or network analysis policies, we strongly recommend you manually upgrade to Snort 3. For migration assistance, see the Cisco Secure Firewall Management Center Snort 3 Configuration Guide for your version.
Enable revert after successful upgrade.	To save time and disk space.	With upgrades to 7.1+, you have 30 days to revert threat defense upgrades. Reverting returns the software to its state just before the last upgrade, also called a <i>snapshot</i> . If you revert an upgrade after installing a patch, you revert the patch as well as the upgrade. Not supported for container instances, patches, or hotfixes.

Upgrade Threat Defense in Unattended Mode

The threat defense upgrade wizard has an optional *unattended mode*. You just need to select the target version and the devices you want to upgrade, specify a few upgrade options, and step away. You can even log out or close the browser.

With an unattended upgrade, the system automatically copies needed upgrade packages to devices, performs compatibility and readiness checks, and begins the upgrade. Just as happens when you manually step through the wizard, any devices that do not "pass" a stage in the upgrade (for example, failing checks) are not included in the next stage. After the upgrade completes, pick up with the verification and post-upgrade tasks.

Table 14:

To...	Do This
Start an unattended upgrade.	In the threat defense upgrade wizard, select the target version and the devices you want to upgrade. Choose Unattended Mode > Start , choose upgrade options, and click Start again.
Pause an unattended upgrade during copy and checks phases.	<p>In the threat defense upgrade wizard, choose Unattended Mode > Stop.</p> <p>You can pause and restart unattended mode during the copy and checks phases. However, pausing unattended mode does <i>not</i> stop tasks in progress. Copies and checks that have started will run to completion. Note that you must pause unattended mode to perform any manual upgrade actions.</p> <p>Once the actual device upgrade begins, you cannot cancel it by stopping unattended mode. Instead, use the Upgrade Status pop-up, accessible from the Upgrade tab on the Device Management page.</p>
Monitor an unattended upgrade.	<p>To monitor an unattended upgrade:</p> <ul style="list-style-type: none"> • Copy and check status: Unattended Mode > View Status • Overall upgrade status: Message Center • Detailed upgrade status: Upgrade Status pop-up, accessible from the Upgrade tab on the Device Management page



CHAPTER 3

Upgrade the Firepower 4100/9300 Chassis

For the Firepower 4100/9300, major threat defense upgrades require chassis (FXOS and firmware) upgrades. Maintenance releases and patches rarely do. Chassis upgrades to FXOS 2.14.1+ include firmware, otherwise, see the [Cisco Firepower 4100/9300 FXOS Firmware Upgrade Guide](#).

- [Upgrade FXOS on the Firepower 4100/9300 with Chassis Manager, on page 19](#)
- [Upgrade FXOS on the Firepower 4100/9300 with the CLI, on page 26](#)

Upgrade FXOS on the Firepower 4100/9300 with Chassis Manager

Upgrade FXOS for Standalone FTD Logical Devices or an FTD Intra-chassis Cluster Using Firepower Chassis Manager

This section describes how to upgrade the FXOS platform bundle for a standalone Firepower 4100/9300 chassis.

The section describes the upgrade process for the following types of devices:

- A Firepower 4100 series chassis that is configured with a FTD logical device and is not part of a failover pair or inter-chassis cluster.
- A Firepower 9300 chassis that is configured with one or more standalone FTD logical devices that are not part of a failover pair or inter-chassis cluster.
- A Firepower 9300 chassis that is configured with FTD logical devices in an intra-chassis cluster.

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- Download the FXOS platform bundle software package to which you are upgrading.
- Back up your FXOS and FTD configurations.

Step 1 In Firepower Chassis Manager, choose **System > Updates**.

The Available Updates page shows a list of the FXOS platform bundle images and application images that are available on the chassis.

Step 2 Upload the new platform bundle image:

- a) Click **Upload Image** to open the Upload Image dialog box.
- b) Click **Choose File** to navigate to and select the image that you want to upload.
- c) Click **Upload**.
The selected image is uploaded to the Firepower 4100/9300 chassis.
- d) For certain software images you will be presented with an end-user license agreement after uploading the image. Follow the system prompts to accept the end-user license agreement.

Step 3 After the new platform bundle image has been successfully uploaded, click **Upgrade** for the FXOS platform bundle to which you want to upgrade.

The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade.

Step 4 Click **Yes** to confirm that you want to proceed with installation, or click **No** to cancel the installation.

The system unpacks the bundle and upgrades/reloads the components.

Step 5 Firepower Chassis Manager will be unavailable during upgrade. You can monitor the upgrade process using the FXOS CLI:

- a) Enter **scope system**.
- b) Enter **show firmware monitor**.
- c) Wait for all components (FPRM, Fabric Interconnect, and Chassis) to show `Upgrade-Status: Ready`.

Note After the FPRM component is upgraded, the system will reboot and then continue upgrading the other components.

Example:

```
FP9300-A# scope system
FP9300-A /system # show firmware monitor
FPRM:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Fabric Interconnect A:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Chassis 1:
  Server 1:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready
  Server 2:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready
```

Step 6 After all components have successfully upgraded, enter the following commands to verify the status of the security modules/security engine and any installed applications:

- a) Enter **top**.
- b) Enter **scope ssa**.
- c) Enter **show slot**.

- d) Verify that the Admin State is `Ok` and the Oper State is `Online` for the security engine on a Firepower 4100 series appliance or for any security modules installed on a Firepower 9300 appliance.
 - e) Enter **show app-instance**.
 - f) Verify that the Oper State is `Online` for any logical devices installed on the chassis.
-

Upgrade FXOS on an FTD Inter-chassis Cluster Using Firepower Chassis Manager

If you have Firepower 9300 or Firepower 4100 series security appliances that have FTD logical devices configured as an inter-chassis cluster, use the following procedure to update the FXOS platform bundle on your Firepower 9300 or Firepower 4100 series security appliances:

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- Download the FXOS platform bundle software package to which you are upgrading.
- Back up your FXOS and FTD configurations.

Step 1

Enter the following commands to verify the status of the security modules/security engine and any installed applications:

- a) Connect to the FXOS CLI on Chassis #2 (this should be a chassis that does not have the control unit).
- b) Enter **top**.
- c) Enter **scope ssa**.
- d) Enter **show slot**.
- e) Verify that the Admin State is `Ok` and the Oper State is `Online` for the security engine on a Firepower 4100 series appliance or for any security modules installed on a Firepower 9300 appliance.
- f) Enter **show app-instance**.
- g) Verify that the Oper State is `Online` and that the Cluster State is `In Cluster` for any logical devices installed on the chassis. Also verify that the correct FTD software version is shown as the Running Version.

Important Verify that the control unit is not on this chassis. There should not be any Firepower Threat Defense instance with Cluster Role set to `Master`.

- h) For any security modules installed on a Firepower 9300 appliance or for the security engine on a Firepower 4100 series appliance, verify that the FXOS version is correct:

scope server 1/slot_id, where *slot_id* is 1 for a Firepower 4100 series security engine.

show version.

Step 2

Connect to Firepower Chassis Manager on Chassis #2 (this should be a chassis that does not have the control unit).

Step 3

In Firepower Chassis Manager, choose **System > Updates**.

The Available Updates page shows a list of the FXOS platform bundle images and application images that are available on the chassis.

Step 4

Upload the new platform bundle image:

- a) Click **Upload Image** to open the Upload Image dialog box.

- b) Click **Choose File** to navigate to and select the image that you want to upload.
- c) Click **Upload**.
The selected image is uploaded to the Firepower 4100/9300 chassis.
- d) For certain software images you will be presented with an end-user license agreement after uploading the image.
Follow the system prompts to accept the end-user license agreement.

Step 5 After the new platform bundle image has successfully uploaded, click **Upgrade** for the FXOS platform bundle to which you want to upgrade.

The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade.

Step 6 Click **Yes** to confirm that you want to proceed with installation, or click **No** to cancel the installation.

The system unpacks the bundle and upgrades/reloads the components.

Step 7 Firepower Chassis Manager will be unavailable during upgrade. You can monitor the upgrade process using the FXOS CLI:

- a) Enter **scope system**.
- b) Enter **show firmware monitor**.
- c) Wait for all components (FPRM, Fabric Interconnect, and Chassis) to show `Upgrade-Status: Ready`.

Note After the FPRM component is upgraded, the system will reboot and then continue upgrading the other components.

- d) Enter **top**.
- e) Enter **scope ssa**.
- f) Enter **show slot**.
- g) Verify that the Admin State is `Ok` and the Oper State is `Online` for the security engine on a Firepower 4100 series appliance or for any security modules installed on a Firepower 9300 appliance.
- h) Enter **show app-instance**.
- i) Verify that the Oper State is `Online`, that the Cluster State is `In Cluster` and that the Cluster Role is `Slave` for any logical devices installed on the chassis.

Example:

```
FP9300-A# scope system
FP9300-A /system # show firmware monitor
FPRM:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Fabric Interconnect A:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Chassis 1:
  Server 1:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready
  Server 2:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready

FP9300-A /system #
FP9300-A /system # top
FP9300-A# scope ssa
```

```

FP9300-A /ssa # show slot

Slot:
  Slot ID   Log Level Admin State Oper State
  -----
  1         Info     Ok       Online
  2         Info     Ok       Online
  3         Info     Ok       Not Available
FP9300-A /ssa #

FP9300-A /ssa # show app-instance
App Name   Slot ID   Admin State Oper State   Running Version Startup Version Profile Name
Cluster State Cluster Role
-----
ftd        1         Enabled   Online      6.2.2.81    6.2.2.81
Cluster   Slave
ftd        2         Enabled   Online      6.2.2.81    6.2.2.81
Cluster   Slave
ftd        3         Disabled  Not Available 6.2.2.81
Applicable None
FP9300-A /ssa #

```

Step 8 Set one of the security modules on Chassis #2 as control.

After setting one of the security modules on Chassis #2 to control, Chassis #1 no longer contains the control unit and can now be upgraded.

Step 9 Repeat Steps 1-7 for all other Chassis in the cluster.

Step 10 To return the control role to Chassis #1, set one of the security modules on Chassis #1 as control.

Upgrade FXOS on an FTD High Availability Pair Using Firepower Chassis Manager

If you have Firepower 9300 or Firepower 4100 series security appliances that have FTD logical devices configured as a high availability pair, use the following procedure to update the FXOS platform bundle on your Firepower 9300 or Firepower 4100 series security appliances:

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- Download the FXOS platform bundle software package to which you are upgrading.
- Back up your FXOS and FTD configurations.

Step 1 Connect to Firepower Chassis Manager on the Firepower security appliance that contains the *standby* Firepower Threat Defense logical device:

Step 2 In Firepower Chassis Manager, choose **System > Updates**.
The Available Updates page shows a list of the FXOS platform bundle images and application images that are available on the chassis.

Step 3 Upload the new platform bundle image:

- a) Click **Upload Image** to open the Upload Image dialog box.
- b) Click **Choose File** to navigate to and select the image that you want to upload.
- c) Click **Upload**.
The selected image is uploaded to the Firepower 4100/9300 chassis.
- d) For certain software images you will be presented with an end-user license agreement after uploading the image. Follow the system prompts to accept the end-user license agreement.

Step 4 After the new platform bundle image has successfully uploaded, click **Upgrade** for the FXOS platform bundle to which you want to upgrade.

The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade.

Step 5 Click **Yes** to confirm that you want to proceed with installation, or click **No** to cancel the installation.

The system unpacks the bundle and upgrades/reloads the components.

Step 6 Firepower Chassis Manager will be unavailable during upgrade. You can monitor the upgrade process using the FXOS CLI:

- a) Enter **scope system**.
- b) Enter **show firmware monitor**.
- c) Wait for all components (FPRM, Fabric Interconnect, and Chassis) to show `Upgrade-Status: Ready`.

Note After the FPRM component is upgraded, the system will reboot and then continue upgrading the other components.

Example:

```
FP9300-A# scope system
FP9300-A /system # show firmware monitor
FPRM:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Fabric Interconnect A:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Chassis 1:
  Server 1:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready
  Server 2:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready
```


Step 7 After all components have successfully upgraded, enter the following commands to verify the status of the security modules/security engine and any installed applications:

- a) Enter **top**.
- b) Enter **scope ssa**.
- c) Enter **show slot**.
- d) Verify that the Admin State is `Ok` and the Oper State is `Online` for the security engine on a Firepower 4100 series appliance or for any security modules installed on a Firepower 9300 appliance.
- e) Enter **show app-instance**.

f) Verify that the Oper State is `Online` for any logical devices installed on the chassis.

Step 8

Make the unit that you just upgraded the *active* unit so that traffic flows to the upgraded unit:

- a) Connect to Firepower Management Center.
- b) Choose **Devices > Device Management**.
- c) Next to the high availability pair where you want to change the active peer, click the Switch Active Peer icon ()
- d) Click **Yes** to immediately make the standby device the active device in the high availability pair.

Step 9

Connect to Firepower Chassis Manager on the Firepower security appliance that contains the *new standby* Firepower Threat Defense logical device:

Step 10

In Firepower Chassis Manager, choose **System > Updates**.

The Available Updates page shows a list of the FXOS platform bundle images and application images that are available on the chassis.

Step 11

Upload the new platform bundle image:

- a) Click **Upload Image** to open the Upload Image dialog box.
- b) Click **Choose File** to navigate to and select the image that you want to upload.
- c) Click **Upload**.
The selected image is uploaded to the Firepower 4100/9300 chassis.
- d) For certain software images you will be presented with an end-user license agreement after uploading the image. Follow the system prompts to accept the end-user license agreement.

Step 12

After the new platform bundle image has successfully uploaded, click **Upgrade** for the FXOS platform bundle to which you want to upgrade.

The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade.

Step 13

Click **Yes** to confirm that you want to proceed with installation, or click **No** to cancel the installation.

The system unpacks the bundle and upgrades/reloads the components. The upgrade process can take up to 30 minutes to complete.

Step 14

Firepower Chassis Manager will be unavailable during upgrade. You can monitor the upgrade process using the FXOS CLI:

- a) Enter **scope system**.
- b) Enter **show firmware monitor**.
- c) Wait for all components (FPRM, Fabric Interconnect, and Chassis) to show `Upgrade-Status: Ready`.

Note After the FPRM component is upgraded, the system will reboot and then continue upgrading the other components.

Example:


```
FP9300-A# scope system
FP9300-A /system # show firmware monitor
FPRM:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Fabric Interconnect A:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready
```

```

Chassis 1:
  Server 1:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready
  Server 2:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready

```

- Step 15** After all components have successfully upgraded, enter the following commands to verify the status of the security modules/security engine and any installed applications:
- Enter **top**.
 - Enter **scope ssa**.
 - Enter **show slot**.
 - Verify that the Admin State is `Ok` and the Oper State is `Online` for the security engine on a Firepower 4100 series appliance or for any security modules installed on a Firepower 9300 appliance.
 - Enter **show app-instance**.
 - Verify that the Oper State is `Online` for any logical devices installed on the chassis.
- Step 16** Make the unit that you just upgraded the *active* unit as it was before the upgrade:
- Connect to Firepower Management Center.
 - Choose **Devices > Device Management**.
 - Next to the high availability pair where you want to change the active peer, click the Switch Active Peer icon ()
 - Click **Yes** to immediately make the standby device the active device in the high availability pair.

Upgrade FXOS on the Firepower 4100/9300 with the CLI

Upgrade FXOS for Standalone FTD Logical Devices or an FTD Intra-chassis Cluster Using the FXOS CLI

This section describes how to upgrade the FXOS platform bundle for a standalone Firepower 4100/9300 chassis.

The section describes the FXOS upgrade process for the following types of devices:

- A Firepower 4100 series chassis that is configured with a FTD logical device and is not part of a failover pair or inter-chassis cluster.
- A Firepower 9300 chassis that is configured with one or more standalone FTD devices that are not part of a failover pair or inter-chassis cluster.
- A Firepower 9300 chassis that is configured with FTD logical devices in an intra-chassis cluster.

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- Download the FXOS platform bundle software package to which you are upgrading.

- Back up your FXOS and FTD configurations.
- Collect the following information that you will need to download the software image to the Firepower 4100/9300 chassis:
 - IP address and authentication credentials for the server from which you are copying the image.
 - Fully qualified name of the image file.

Step 1 Connect to the FXOS CLI.

Step 2 Download the new platform bundle image to the Firepower 4100/9300 chassis:

a) Enter firmware mode:

```
Firepower-chassis-a # scope firmware
```

b) Download the FXOS platform bundle software image:

```
Firepower-chassis-a /firmware # download image URL
```

Specify the URL for the file being imported using one of the following syntax:

- **ftp://username@hostname/path/image_name**
- **scp://username@hostname/path/image_name**
- **sftp://username@hostname/path/image_name**
- **tftp://hostname:port-num/path/image_name**

c) To monitor the download process:

```
Firepower-chassis-a /firmware # scope download-task image_name
```

```
Firepower-chassis-a /firmware/download-task # show detail
```

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis-a # scope firmware
Firepower-chassis-a /firmware # download image scp://user@192.168.1.1/images/fxos-k9.2.3.1.58.SPA
Firepower-chassis-a /firmware # scope download-task fxos-k9.2.3.1.58.SPA
Firepower-chassis-a /firmware/download-task # show detail
Download task:
  File Name: fxos-k9.2.3.1.58.SPA
  Protocol: scp
  Server: 192.168.1.1
  Userid:
  Path:
  Downloaded Image Size (KB): 853688
  State: Downloading
  Current Task: downloading image fxos-k9.2.3.1.58.SPA from
192.168.1.1 (FSM-STAGE:sam:dme:FirmwareDownloaderDownload:Local)
```

Step 3 If necessary, return to firmware mode:

```
Firepower-chassis-a /firmware/download-task # up
```

Step 4 Enter auto-install mode:

```
Firepower-chassis-a /firmware # scope auto-install
```

Step 5 Install the FXOS platform bundle:

```
Firepower-chassis-a /firmware/auto-install # install platform platform-vers version_number
```

version_number is the version number of the FXOS platform bundle you are installing--for example, 2.3(1.58).

Step 6 The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade.

Enter **yes** to confirm that you want to proceed with verification.

Step 7 Enter **yes** to confirm that you want to proceed with installation, or enter **no** to cancel the installation.

The system unpacks the bundle and upgrades/reloads the components.

Step 8 To monitor the upgrade process:

- a) Enter **scope system**.
- b) Enter **show firmware monitor**.
- c) Wait for all components (FPRM, Fabric Interconnect, and Chassis) to show `Upgrade-Status: Ready`.

Note After the FPRM component is upgraded, the system will reboot and then continue upgrading the other components.

Example:

```
FP9300-A# scope system
FP9300-A /system # show firmware monitor
FPRM:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Fabric Interconnect A:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Chassis 1:
  Server 1:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready
  Server 2:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready

FP9300-A /system #
```

Step 9 After all components have successfully upgraded, enter the following commands to verify the status of the security modules/security engine and any installed applications:

- a) Enter **top**.
- b) Enter **scope ssa**.
- c) Enter **show slot**.
- d) Verify that the Admin State is `Ok` and the Oper State is `Online` for the security engine on a Firepower 4100 series appliance or for any security modules installed on a Firepower 9300 appliance.

- e) Enter **show app-instance**.
- f) Verify that the Oper State is `Online` for any logical devices installed on the chassis.

Upgrade FXOS on an FTD Inter-chassis Cluster Using the FXOS CLI

If you have Firepower 9300 or Firepower 4100 series security appliances with FTD logical devices configured as an inter-chassis cluster, use the following procedure to update the FXOS platform bundle on your Firepower 9300 or Firepower 4100 series security appliances:

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- Download the FXOS platform bundle software package to which you are upgrading.
- Back up your FXOS and FTD configurations.
- Collect the following information that you will need to download the software image to the Firepower 4100/9300 chassis:
 - IP address and authentication credentials for the server from which you are copying the image.
 - Fully qualified name of the image file.

Step 1

Connect to the FXOS CLI on Chassis #2 (this should be a chassis that does not have the control unit).

Step 2

Enter the following commands to verify the status of the security modules/security engine and any installed applications:

- a) Enter **top**.
- b) Enter **scope ssa**.
- c) Enter **show slot**.
- d) Verify that the Admin State is `Ok` and the Oper State is `Online` for the security engine on a Firepower 4100 series appliance or for any security modules installed on a Firepower 9300 appliance.
- e) Enter **show app-instance**.
- f) Verify that the Oper State is `Online` and that the Cluster State is `In Cluster` for any logical devices installed on the chassis. Also verify that the correct FTD software version is shown as the `Running Version`.

Important Verify that the control unit is not on this chassis. There should not be any Firepower Threat Defense instance with Cluster Role set to `Master`.

- g) For any security modules installed on a Firepower 9300 appliance or for the security engine on a Firepower 4100 series appliance, verify that the FXOS version is correct:

scope server 1/slot_id, where *slot_id* is 1 for a Firepower 4100 series security engine.

show version.

Step 3

Download the new platform bundle image to the Firepower 4100/9300 chassis:

- a) Enter **top**.
- b) Enter firmware mode:

Firepower-chassis-a # **scope firmware**

- c) Download the FXOS platform bundle software image:

Firepower-chassis-a /firmware # **download image** *URL*

Specify the URL for the file being imported using one of the following syntax:

- **ftp://username@hostname/path/image_name**
- **scp://username@hostname/path/image_name**
- **sftp://username@hostname/path/image_name**
- **tftp://hostname:port-num/path/image_name**

- d) To monitor the download process:

Firepower-chassis-a /firmware # **scope download-task** *image_name*

Firepower-chassis-a /firmware/download-task # **show detail**

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis-a # scope firmware
Firepower-chassis-a /firmware # download image scp://user@192.168.1.1/images/fxos-k9.2.3.1.58.SPA
Firepower-chassis-a /firmware # scope download-task fxos-k9.2.3.1.58.SPA
Firepower-chassis-a /firmware/download-task # show detail
Download task:
  File Name: fxos-k9.2.3.1.58.SPA
  Protocol: scp
  Server: 192.168.1.1
  Userid:
  Path:
  Downloaded Image Size (KB): 853688
  State: Downloading
  Current Task: downloading image fxos-k9.2.3.1.58.SPA from
192.168.1.1 (FSM-STAGE:sam:dme:FirmwareDownloaderDownload:Local)
```

- Step 4** If necessary, return to firmware mode:

Firepower-chassis-a /firmware/download-task # **up**

- Step 5** Enter auto-install mode:

Firepower-chassis /firmware # **scope auto-install**

- Step 6** Install the FXOS platform bundle:

Firepower-chassis /firmware/auto-install # **install platform platform-vers** *version_number*

version_number is the version number of the FXOS platform bundle you are installing—for example, 2.3(1.58).

- Step 7** The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade.

Enter **yes** to confirm that you want to proceed with verification.

- Step 8** Enter **yes** to confirm that you want to proceed with installation, or enter **no** to cancel the installation.

The system unpacks the bundle and upgrades/reloads the components.

Step 9

To monitor the upgrade process:

- a) Enter **scope system**.
- b) Enter **show firmware monitor**.
- c) Wait for all components (FPRM, Fabric Interconnect, and Chassis) to show `Upgrade-Status: Ready`.

Note After the FPRM component is upgraded, the system will reboot and then continue upgrading the other components.

- d) Enter **top**.
- e) Enter **scope ssa**.
- f) Enter **show slot**.
- g) Verify that the Admin State is `Ok` and the Oper State is `Online` for the security engine on a Firepower 4100 series appliance or for any security modules installed on a Firepower 9300 appliance.
- h) Enter **show app-instance**.
- i) Verify that the Oper State is `Online`, that the Cluster State is `In Cluster` and that the Cluster Role is `Slave` for any logical devices installed on the chassis.

Example:

```

FP9300-A# scope system
FP9300-A /system # show firmware monitor
FPRM:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Fabric Interconnect A:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Chassis 1:
  Server 1:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready
  Server 2:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready

FP9300-A /system #
FP9300-A /system # top
FP9300-A# scope ssa
FP9300-A /ssa # show slot

Slot:
  Slot ID   Log Level  Admin State  Oper State
  -----
  1         Info      Ok           Online
  2         Info      Ok           Online
  3         Info      Ok           Not Available

FP9300-A /ssa #

FP9300-A /ssa # show app-instance
App Name   Slot ID   Admin State  Oper State   Running Version  Startup Version  Profile Name
Cluster State  Cluster Role
-----
ftd        1         Enabled     Online       6.2.2.81        6.2.2.81        In
Cluster   Slave
ftd        2         Enabled     Online       6.2.2.81        6.2.2.81        In

```

```

Cluster      Slave
ftd          3          Disabled   Not Available   6.2.2.81       Not
Applicable  None
FP9300-A /ssa #

```

Step 10 Set one of the security modules on Chassis #2 as control.

After setting one of the security modules on Chassis #2 to control, Chassis #1 no longer contains the control unit and can now be upgraded.

Step 11 Repeat Steps 1-9 for all other Chassis in the cluster.

Step 12 To return the control role to Chassis #1, set one of the security modules on Chassis #1 as control.

Upgrade FXOS on an FTD High Availability Pair Using the FXOS CLI

If you have Firepower 9300 or Firepower 4100 series security appliances that have FTD logical devices configured as a high availability pair, use the following procedure to update the FXOS platform bundle on your Firepower 9300 or Firepower 4100 series security appliances:

Before you begin

Before beginning your upgrade, make sure that you have already done the following:

- Download the FXOS platform bundle software package to which you are upgrading.
- Back up your FXOS and FTD configurations.
- Collect the following information that you will need to download the software image to the Firepower 4100/9300 chassis:
 - IP address and authentication credentials for the server from which you are copying the image.
 - Fully qualified name of the image file.

Step 1 Connect to FXOS CLI on the Firepower security appliance that contains the *standby* Firepower Threat Defense logical device:

Step 2 Download the new platform bundle image to the Firepower 4100/9300 chassis:

a) Enter firmware mode:

```
Firepower-chassis-a # scope firmware
```

b) Download the FXOS platform bundle software image:

```
Firepower-chassis-a /firmware # download image URL
```

Specify the URL for the file being imported using one of the following syntax:

- `ftp://username@hostname/path/image_name`
- `scp://username@hostname/path/image_name`
- `sftp://username@hostname/path/image_name`

- `tftp://hostname:port-num/path/image_name`

c) To monitor the download process:

```
Firepower-chassis-a /firmware # scope download-task image_name
```

```
Firepower-chassis-a /firmware/download-task # show detail
```

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis-a # scope firmware
Firepower-chassis-a /firmware # download image scp://user@192.168.1.1/images/fxos-k9.2.3.1.58.SPA
Firepower-chassis-a /firmware # scope download-task fxos-k9.2.3.1.58.SPA
Firepower-chassis-a /firmware/download-task # show detail
Download task:
  File Name: fxos-k9.2.3.1.58.SPA
  Protocol: scp
  Server: 192.168.1.1
  Userid:
  Path:
  Downloaded Image Size (KB): 853688
  State: Downloading
  Current Task: downloading image fxos-k9.2.3.1.58.SPA from
192.168.1.1 (FSM-STAGE:sam:dme:FirmwareDownloaderDownload:Local)
```

Step 3 If necessary, return to firmware mode:

```
Firepower-chassis-a /firmware/download-task # up
```

Step 4 Enter auto-install mode:

```
Firepower-chassis-a /firmware # scope auto-install
```

Step 5 Install the FXOS platform bundle:

```
Firepower-chassis-a /firmware/auto-install # install platform platform-vers version_number
```

version_number is the version number of the FXOS platform bundle you are installing; for example, 2.3(1.58).

Step 6 The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade.

Enter **yes** to confirm that you want to proceed with verification.

Step 7 Enter **yes** to confirm that you want to proceed with installation, or enter **no** to cancel the installation.

The system unpacks the bundle and upgrades/reloads the components.

Step 8 To monitor the upgrade process:

a) Enter **scope system**.

b) Enter **show firmware monitor**.

c) Wait for all components (FPRM, Fabric Interconnect, and Chassis) to show `Upgrade-Status: Ready`.

Note After the FPRM component is upgraded, the system will reboot and then continue upgrading the other components.

Example:

```


FP9300-A# scope system
FP9300-A /system # show firmware monitor
FPRM:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Fabric Interconnect A:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Chassis 1:
  Server 1:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready
  Server 2:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready

FP9300-A /system #

```

- Step 9** After all components have successfully upgraded, enter the following commands to verify the status of the security modules/security engine and any installed applications:
- Enter **top**.
 - Enter **scope ssa**.
 - Enter **show slot**.
 - Verify that the Admin State is `Ok` and the Oper State is `Online` for the security engine on a Firepower 4100 series appliance or for any security modules installed on a Firepower 9300 appliance.
 - Enter **show app-instance**.
 - Verify that the Oper State is `Online` for any logical devices installed on the chassis.
- Step 10** Make the unit that you just upgraded the *active* unit so that traffic flows to the upgraded unit:
- Connect to Firepower Management Center.
 - Choose **Devices > Device Management**.
 - Next to the high availability pair where you want to change the active peer, click the Switch Active Peer icon ()
 - Click **Yes** to immediately make the standby device the active device in the high availability pair.
- Step 11** Connect to FXOS CLI on the Firepower security appliance that contains the *new standby* Firepower Threat Defense logical device:
- Step 12** Download the new platform bundle image to the Firepower 4100/9300 chassis:
- Enter firmware mode:
Firepower-chassis-a # **scope firmware**
 - Download the FXOS platform bundle software image:
Firepower-chassis-a /firmware # **download image** *URL*
Specify the URL for the file being imported using one of the following syntax:
 - **ftp://username@hostname/path/image_name**
 - **scp://username@hostname/path/image_name**
 - **sftp://username@hostname/path/image_name**

- `tftp://hostname:port-num/path/image_name`

c) To monitor the download process:

```
Firepower-chassis-a /firmware # scope download-task image_name
```

```
Firepower-chassis-a /firmware/download-task # show detail
```

Example:

The following example copies an image using the SCP protocol:

```
Firepower-chassis-a # scope firmware
Firepower-chassis-a /firmware # download image scp://user@192.168.1.1/images/fxos-k9.2.3.1.58.SPA
Firepower-chassis-a /firmware # scope download-task fxos-k9.2.3.1.58.SPA
Firepower-chassis-a /firmware/download-task # show detail
Download task:
  File Name: fxos-k9.2.3.1.58.SPA
  Protocol: scp
  Server: 192.168.1.1
  Userid:
  Path:
  Downloaded Image Size (KB): 853688
  State: Downloading
  Current Task: downloading image fxos-k9.2.3.1.58.SPA from
192.168.1.1 (FSM-STAGE:sam:dme:FirmwareDownloaderDownload:Local)
```

Step 13 If necessary, return to firmware mode:

```
Firepower-chassis-a /firmware/download-task # up
```

Step 14 Enter auto-install mode:

```
Firepower-chassis-a /firmware # scope auto-install
```

Step 15 Install the FXOS platform bundle:

```
Firepower-chassis-a /firmware/auto-install # install platform platform-vers version_number
```

version_number is the version number of the FXOS platform bundle you are installing; for example, 2.3(1.58).

Step 16 The system will first verify the software package that you want to install. It will inform you of any incompatibility between currently installed applications and the specified FXOS platform software package. It will also warn you that any existing sessions will be terminated and that the system will need to be rebooted as part of the upgrade.

Enter **yes** to confirm that you want to proceed with verification.

Step 17 Enter **yes** to confirm that you want to proceed with installation, or enter **no** to cancel the installation.

The system unpacks the bundle and upgrades/reloads the components.

Step 18 To monitor the upgrade process:

a) Enter **scope system**.

b) Enter **show firmware monitor**.

c) Wait for all components (FPRM, Fabric Interconnect, and Chassis) to show `Upgrade-Status: Ready`.

Note After the FPRM component is upgraded, the system will reboot and then continue upgrading the other components.

Example:

```

FP9300-A# scope system
FP9300-A /system # show firmware monitor
FPRM:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Fabric Interconnect A:
  Package-Vers: 2.3(1.58)
  Upgrade-Status: Ready

Chassis 1:
  Server 1:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready
  Server 2:
    Package-Vers: 2.3(1.58)
    Upgrade-Status: Ready

FP9300-A /system #

```


Step 19

After all components have successfully upgraded, enter the following commands to verify the status of the security modules/security engine and any installed applications:

- a) Enter **top**.
- b) Enter **scope ssa**.
- c) Enter **show slot**.
- d) Verify that the Admin State is **Ok** and the Oper State is **Online** for the security engine on a Firepower 4100 series appliance or for any security modules installed on a Firepower 9300 appliance.
- e) Enter **show app-instance**.
- f) Verify that the Oper State is **Online** for any logical devices installed on the chassis.

Step 20

Make the unit that you just upgraded the *active* unit as it was before the upgrade:

- a) Connect to Firepower Management Center.
 - b) Choose **Devices > Device Management**.
 - c) Next to the high availability pair where you want to change the active peer, click the Switch Active Peer icon ()
 - d) Click **Yes** to immediately make the standby device the active device in the high availability pair.
-



CHAPTER 4

Revert or Uninstall the Upgrade

If an upgrade succeeds but the system does not function to your expectations, you may be able to revert or uninstall:

- Revert is supported for major and maintenance upgrades to threat defense Version 7.2+.
- Uninstall is supported for patches to threat defense.

If this will not work for you and you still need to return to an earlier version, you must reimage.

- [Revert Threat Defense, on page 37](#)
- [Uninstall a Patch, on page 41](#)

Revert Threat Defense

About Reverting Threat Defense

Reverting threat defense returns the software to its state just before the last major or maintenance upgrade. Reverting after patching necessarily removes patches as well. You must enable revert when you upgrade the device, so the system can save a revert snapshot.

Reverted Configurations

Configurations that are reverted include:

- Snort version.
- Device-specific configurations.

General device settings, routing, interfaces, inline sets, DHCP, SNMP — anything you configure on the **Devices > Device Management** page.

- Objects used by your device-specific configurations.

These include access list, AS path, key chain, interface, network, port, route map, and SLA monitor objects. If you edited these objects after you upgraded the device, the system creates new objects or configure object overrides for the reverted device to use. This allows your other devices to continue handling traffic according to their current configuration.

After a successful revert, we recommend you examine the objects used by the reverted device and make any necessary adjustments.

Configurations Not Reverted

Configurations that are not reverted include:

- Shared policies that can be used by multiple devices; for example, platform settings or access control policies.

A successfully reverted device is marked out-of-date and you should redeploy configurations.

- For the Firepower 4100/9300, interface changes made using the Secure Firewall chassis manager or the FXOS CLI.

Sync interface changes after a successful revert.

- For the Firepower 4100/9300, FXOS and firmware.

If you are required to run the recommended combination of FXOS and threat defense, you may need a full reimage; see [Guidelines for Reverting Threat Defense, on page 38](#).

Guidelines for Reverting Threat Defense

System Requirements

Revert is supported for major and maintenance upgrades to threat defense Version 7.2+.

Revert is not supported for:

- Upgrades to earlier versions.
- Patches and hotfixes.
- Container instances.

Reverting High Availability or Clustered Devices

When you use the management center web interface to revert threat defense, you cannot select individual high availability units or clustered nodes.

Revert is more successful when all units/nodes are reverted simultaneously. When you initiate revert from the management center, the system automatically does this. If you need to use the device CLI, do this manually—open sessions with all units/nodes, verify that revert is possible on each, then start the processes at the same time. Simultaneous revert means that interruptions to traffic flow and inspection depend on interface configurations only, as if every device were standalone.

Note that revert is supported for fully and partially upgraded groups. In the case of a partially upgraded group, the system removes the upgrade from the upgraded units/nodes only. Revert will not break high availability or clusters, but you can break a group and revert its newly standalone devices.

Revert Does Not Downgrade FXOS

For the Firepower 4100/9300, major threat defense versions have a specially qualified and recommended companion FXOS version. After you return to the earlier version of threat defense, you may be running a non-recommended version of FXOS (too new).

Although newer versions of FXOS are backwards compatible with older threat defense versions, we do perform enhanced testing for the recommended combinations. You cannot manually downgrade FXOS, so if you find yourself in this situation and you want to run a recommended combination, you will need a full reimage.

Scenarios Preventing Revert

If you attempt to revert in any of these situations, the system displays an error.

Table 15: Scenarios Preventing Revert

Scenario	Solution
Revert snapshot is not available because: <ul style="list-style-type: none"> You did not enable revert when you upgraded the device. You deleted the snapshot from either the management center or the device, or it expired. You upgraded the device with a different management center. 	None. If you think you might need to revert after a successful upgrade, use System (⚙️) > Updates to upgrade threat defense. This is the only way to set the Enable revert after successful upgrade option, and is in contrast to our usual recommendation to use the threat defense upgrade wizard. The revert snapshot is saved on the management center <i>and</i> the device for thirty days, after which it is automatically deleted and you can no longer revert. You can manually delete the snapshot from either appliance to save disk space, but this removes your ability to revert.
Last upgrade failed.	Return the device to its pre-upgrade state by canceling the upgrade. Or, fix the issues and try again. Revert is for situations where the upgrade succeeds, but the upgraded system does not function to your expectations. Reverting is not the same as canceling a failed or in-progress upgrade. If you cannot revert or cancel, you will have to reimage.
Management access interface changed since the upgrade.	Switch it back and try again.
Clusters where the units were upgraded from different versions.	Remove units until all match, reconcile cluster members, then revert the smaller cluster. You may also be able to revert the newly standalone units.
Clusters where one or more units were added to the cluster after upgrade.	Remove the new units, reconcile cluster members, then revert the smaller cluster. You may also be able to revert the newly standalone units.
Clusters where the management center and FXOS identify a different number of cluster units.	Reconcile cluster members and try again, although you may not be able to revert all units.

Revert Threat Defense with Management Center

You must use the management center to revert the device, unless communications between the management center and device are disrupted. In those cases, you can use the **upgrade revert** CLI command on the device. To see what version the system will revert to, use **show upgrade revert-info**.



Caution Reverting from the CLI can cause configurations between the device and the management center to go out of sync, depending on what you changed post-upgrade. This can cause further communication and deployment issues.

Threat Defense History:

- 7.2: Initial support.

Before you begin

- Make sure revert is supported. Read and understand the guidelines.
- Back up to a secure external location. A failed revert may require a reimage, which returns most settings to factory defaults.

-
- Step 1** Choose **Devices > Device Management**.
- Step 2** Next to the device you want to revert, click **More** (⋮) and select **Revert Upgrade**.
With the exception of high availability pairs and clusters, you cannot select multiple devices to revert.
- Step 3** Confirm that you want to revert and reboot.
Interruptions to traffic flow and inspection during revert depend on interface configurations only, as if every device were standalone. This is because even in high availability/scalability deployments, the system reverts all units simultaneously.
- Step 4** Monitor revert progress.
In high availability/scalability deployments, traffic flow and inspection resume when the first unit comes back online. If the system shows no progress for several minutes or indicates that the revert has failed, contact Cisco TAC.
- Step 5** Verify revert success.
After the revert completes, choose **Devices > Device Management** and confirm that the devices you reverted have the correct software version.
- Step 6** (Firepower 4100/9300) Sync any interface changes you made to threat defense logical devices using the chassis manager or the FXOS CLI.
On the management center, choose **Devices > Device Management**, edit the device, and click **Sync**.
- Step 7** Complete any other necessary post-revert configuration changes.
For example, if you edited objects used by device-specific configurations after you upgraded the device, the system creates new objects or configures object overrides for the reverted device to use. We recommend you examine the objects used by the reverted device and make any necessary adjustments.
- Step 8** Redeploy configurations to the devices you just reverted.

A successfully reverted device is marked out-of-date. Because the device will be running an older version, newer configurations may not be supported even after a successful deploy.

Uninstall a Patch

Uninstalling a threat defense patch returns you to the version you upgraded from, and does not change configurations. Uninstall is not supported for hotfixes.

Uninstall Order for High Availability/Scalability

In high availability/scalability deployments, minimize disruption by uninstalling from one appliance at a time. Unlike upgrade, the system does not do this for you. Wait until the patch has fully uninstalled from one unit before you move on to the next.

Table 16: Uninstall Order for Threat Defense High Availability and Clusters

Configuration	Uninstall Order
Threat Defense high availability	<p>You cannot uninstall a patch from devices configured for high availability. You must break high availability first.</p> <ol style="list-style-type: none"> 1. Break high availability. 2. Uninstall from the former standby. 3. Uninstall from the former active. 4. Reestablish high availability.
Threat Defense cluster	<p>Uninstall from one unit at a time, leaving the control unit for last. Clustered units operate in maintenance mode while the patch uninstalls.</p> <ol style="list-style-type: none"> 1. Uninstall from the data modules one at a time. 2. Make one of the data modules the new control module. 3. Uninstall from the former control.

Uninstall Threat Defense Patches

Use the Linux shell (*expert mode*) to uninstall patches. You must have access to the device shell as the `admin` user for the device, or as another local user with CLI configuration access. You cannot use a management center user account. If you disabled shell access, contact Cisco TAC to reverse the lockdown.



Caution Do not make or deploy configuration changes during uninstall. Even if the system appears inactive, do not manually reboot, shut down, or restart an uninstall in progress. You could place the system in an unusable state and require a reimage. If you encounter issues with the uninstall, including a failed uninstall or unresponsive appliance, contact Cisco TAC.

Before you begin

- Break threat defense high availability pairs; see [Uninstall Order for High Availability/Scalability](#), on page 41.
- Make sure your deployment is healthy and successfully communicating.

Step 1 If the device's configurations are out of date, deploy now from the management center.

Deploying before you uninstall reduces the chance of failure. Make sure the deployment and other essential tasks complete. Tasks running when the uninstall begins are stopped, become failed tasks, and cannot be resumed. You can manually delete failed status messages later.

Step 2 Access the threat defense CLI on the device. Log in as `admin` or another CLI user with configuration access.

You can either SSH to the device's management interface (hostname or IP address) or use the console. If you use the console, some devices default to the operating system CLI and require an extra step to access the threat defense CLI, as listed in the following table.

Firepower 1000 series	<code>connect ftd</code>
Firepower 2100 series	<code>connect ftd</code>
Secure Firewall 3100 series	<code>connect ftd</code>
Secure Firewall 4200 series	<code>connect ftd</code>
Firepower 4100/9300	<code>connect module slot_number console, then connect ftd (first login only)</code>

Step 3 Use the `expert` command to access the Linux shell.

Step 4 Verify the uninstall package is in the upgrade directory.

```
ls /var/sf/updates
```

Patch uninstallers are named like upgrade packages, but have `Patch_Uninstaller` instead of `Patch` in the file name. When you patch a device, the uninstaller for that patch is automatically created in the upgrade directory. If the uninstaller is not there, contact Cisco TAC.

Step 5 Run the uninstall command, entering your password when prompted.

```
sudo install_update.pl --detach /var/sf/updates/uninstaller_name
```

Caution The system does *not* ask you to confirm. Entering this command starts the uninstall, which includes a device reboot. Interruptions in traffic flow and inspection during an uninstall are the same as the interruptions that occur during an upgrade. Make sure you are ready. Note that using the `--detach` option ensures the uninstall process is not killed if your SSH session times out, which can leave the device in an unstable state.

Step 6 Monitor the uninstall until you are logged out.
For a detached uninstall, use `tail` or `tailf` to display logs:

```
tail /ngfw/var/log/sf/update.status
```

Otherwise, monitor progress in the console or terminal.

Step 7 Verify uninstall success.

After the uninstall completes, confirm that the devices have the correct software version. On the management center, choose **Devices > Device Management**.

Step 8 In high availability/scalability deployments, repeat steps 2 through 6 for each unit.

For clusters, never uninstall from the control unit. After you uninstall from all the data units, make one of them the new control, then uninstall from the former control.

Step 9 Redeploy configurations.

Exception: Do not deploy to mixed-version high availability pairs or device clusters. Deploy before you uninstall from the first device, but not again until you have uninstalled the patch from all group members.

What to do next

- For high availability, reestablish high availability.
- For clusters, if you have preferred roles for specific devices, make those changes now.



CHAPTER 5

Troubleshooting and Reference

- [Troubleshooting Upgrade Packages](#), on page 45
- [Troubleshooting Threat Defense Upgrade](#), on page 46
- [Unresponsive and Failed Threat Defense Upgrades](#), on page 47
- [Traffic Flow and Inspection](#), on page 47
- [Time and Disk Space](#), on page 50
- [Upgrade Feature History](#), on page 52

Troubleshooting Upgrade Packages

Table 17:

Issue	Solution
No available upgrades even after I refresh.	You are already running the latest version available for your deployment, and you have no upgrade packages loaded/configured.
Suggested release is not marked.	The suggested release is listed only if you are eligible for it. It is not listed if you are already running the suggested release or higher, or if you cannot upgrade that far. Note that patches to suggested releases are not marked as suggested, although we do recommend you apply them.
I don't see the packages I want.	Only major, maintenance, and patch upgrades that apply to your deployment <i>right now</i> are listed and available for direct download. Unless you manually upload, the following are not listed: <ul style="list-style-type: none">• Device upgrades (major and maintenance) to a particular version, unless you have a device that supports that version.• Device patches, unless you have at least one device at the appropriate maintenance release.• Hotfixes. You must manually upload these.

Troubleshooting Threat Defense Upgrade

Table 18:

Issue	Solution
<p>Upgrade button missing for my target version.</p>	<p>Either of:</p> <ul style="list-style-type: none"> • You still need the upgrade package. • You do not have anything that can be upgraded to that version right now.
<p>Devices not listed in the upgrade wizard.</p>	<p>If you accessed the wizard directly from Devices > Threat Defense Upgrade, the workflow may be blank.</p> <p>To begin, choose a target version from the Upgrade to menu. The system determines which devices can be upgraded to that version and displays them in the Device Details pane. Note that the choices in the Upgrade to menu correspond to the device upgrade packages on the management center. If your target version is not listed, click Manage Upgrade Packages to upload it; see Uploading and Downloading Upgrade Packages to the Management Center, on page 4.</p> <p>If you have a target version but the wizard still does not list any devices, you have no devices that can be upgraded to that version. If you still think you should see devices here, your user role could be prohibiting you from managing (and therefore upgrading) devices.</p>
<p>Copying upgrade packages from the management center to managed devices times out.</p>	<p>This often happens when there is limited bandwidth between the management center and its devices.</p> <p>You can try one of:</p> <ul style="list-style-type: none"> • Configure devices to get upgrade packages directly from an internal web server. <p>To do this, delete the upgrade package from the management center (optional but saves disk space), then re-add the upgrade package except this time specify a pointer (URL) to its location instead. See Copy Upgrade Packages from an Internal Server, on page 6.</p> <ul style="list-style-type: none"> • Copy upgrade packages from another device. <p>If you can get the upgrade package to at least one standalone device, you can then use the threat defense CLI to copy upgrade packages ("peer to peer sync") to the other standalone devices managed by the same standalone management center. See Copy Threat Defense Upgrade Packages between Devices, on page 7.</p>

Unresponsive and Failed Threat Defense Upgrades

Table 19:

Issue	Solution
Cannot reach the device.	<p>Devices can stop passing traffic during the upgrade or if the upgrade fails. Before you upgrade, make sure traffic from your location does not have to traverse the device itself to access the device's management interface.</p> <p>You should also be able to access the management center's management interface without traversing the device.</p>
Device appears inactive or is unresponsive.	<p>You can manually cancel in-progress major and maintenance upgrades. If the device is unresponsive, or if you cannot cancel the upgrade, contact Cisco TAC. Do not manually reboot or shut down. You could place the system in an unusable state and require a reimage.</p>
Upgrade failed.	<p>When you initiate a major or maintenance upgrade, you use the Automatically cancel on upgrade failure... (auto-cancel) option to choose what happens if upgrade fails, as follows:</p> <ul style="list-style-type: none"> • Auto-cancel enabled (default): If upgrade fails, the upgrade cancels and the device automatically reverts to its pre-upgrade state. Correct any issues and try again later. • Auto-cancel disabled: If upgrade fails, the device remains as it is. Correct the issues and retry immediately, or manually cancel the upgrade and try again later. <p>For high availability and clustered devices, auto-cancel applies to each device individually. That is, if the upgrade fails on one device, only that device is reverted.</p> <p>If you cannot retry or cancel, or if you continue to have issues, contact Cisco TAC.</p>
I want to retry or cancel a failed upgrade.	<p>Use the Upgrade Status pop-up, accessible from the Upgrade tab on the Device Management page.</p>
I want to cancel an in-progress upgrade.	<p>Use the Upgrade Status pop-up, accessible from the Upgrade tab on the Device Management page.</p>

Traffic Flow and Inspection

Schedule maintenance windows when upgrade will have the least impact, considering any effect on traffic flow and inspection.

Traffic Flow and Inspection for Threat Defense Upgrades

Software Upgrades for Standalone Devices

Devices operate in maintenance mode while they upgrade. Entering maintenance mode at the beginning of the upgrade causes a 2-3 second interruption in traffic inspection. Interface configurations determine how a standalone device handles traffic both then and during the upgrade.

Table 20: Traffic Flow and Inspection: Software Upgrades for Standalone Devices

Interface Configuration		Traffic Behavior
Firewall interfaces	Routed or switched including EtherChannel, redundant, subinterfaces. Switched interfaces are also known as bridge group or transparent interfaces.	Dropped. For bridge group interfaces on the ISA 3000 only, you can use a FlexConfig policy to configure hardware bypass for power failure. This causes traffic to drop during software upgrades but pass without inspection while the device completes its post-upgrade reboot.
IPS-only interfaces	Inline set, hardware bypass force-enabled: Bypass: Force	Passed without inspection until you either disable hardware bypass, or set it back to standby mode.
	Inline set, hardware bypass standby mode: Bypass: Standby	Dropped during the upgrade, while the device is in maintenance mode. Then, passed without inspection while the device completes its post-upgrade reboot.
	Inline set, hardware bypass disabled: Bypass: Disabled	Dropped.
	Inline set, no hardware bypass module.	Dropped.
	Inline set, tap mode.	Egress packet immediately, copy not inspected.
	Passive, ERSPAN passive.	Uninterrupted, not inspected.

Software Upgrades for High Availability and Clustered Devices

You should not experience interruptions in traffic flow or inspection while upgrading high availability or clustered devices. For high availability pairs, the standby device upgrades first. The devices switch roles, then the new standby upgrades.

For clusters, the data security module or modules upgrade first, then the control module. During the control security module upgrade, although traffic inspection and handling continues normally, the system stops logging events. Events for traffic processed during the logging downtime appear with out-of-sync timestamps after the upgrade is completed. However, if the logging downtime is significant, the system may prune the oldest events before they can be logged.

Note that hitless upgrades are not supported for single-unit clusters. Interruptions to traffic flow and inspection depend on interface configurations of the active unit, just as with standalone devices.

Software Revert (Major/Maintenance Releases)

You should expect interruptions to traffic flow and inspection during revert, even in a high availability/scalability deployment. This is because revert is more successful when all units are reverted simultaneously. Simultaneous revert means that interruptions to traffic flow and inspection depend on interface configurations only, as if every device were standalone.

Software Uninstall (Patches)

For standalone devices, interruptions to traffic flow and inspection during patch uninstall are the same as for upgrade. In high availability/scalability deployments, you must explicitly plan an uninstall order that minimizes disruption. This is because you uninstall patches from devices individually, even those that you upgraded as a unit.

Traffic Flow and Inspection for Chassis Upgrades

Upgrading FXOS reboots the chassis. For FXOS upgrades to Version 2.14.1+ that include firmware upgrades, the device reboots twice—once for FXOS and once for the firmware.

Even in high availability or clustered deployments, you upgrade FXOS on each chassis independently. To minimize disruption, upgrade one chassis at a time. For more information, see [Upgrade Path for High Availability or Clustered Threat Defense with Chassis Upgrade, on page 3](#).

Table 21: Traffic Flow and Inspection: FXOS Upgrades

Threat Defense Deployment	Traffic Behavior	Method
Standalone	Dropped.	—
High availability	Unaffected.	Best Practice: Update FXOS on the standby, switch active peers, upgrade the new standby.
	Dropped until one peer is online.	Upgrade FXOS on the active peer before the standby is finished upgrading.
Inter-chassis cluster	Unaffected.	Best Practice: Upgrade one chassis at a time so at least one module is always online.
	Dropped until at least one module is online.	Upgrade chassis at the same time, so all modules are down at some point.
Intra-chassis cluster (Firepower 9300 only)	Passed without inspection.	Hardware bypass enabled: Bypass: Standby or Bypass-Force .
	Dropped until at least one module is online.	Hardware bypass disabled: Bypass: Disabled .
	Dropped until at least one module is online.	No hardware bypass module.

Traffic Flow and Inspection when Deploying Configurations

Snort typically restarts during the first deployment immediately after upgrade. This means that for management center upgrades, Snort could restart on all managed devices. Snort does not restart after subsequent deployments unless, before deploying, you modify specific policy or device configurations.

Restarting the Snort process briefly interrupts traffic flow and inspection on all devices, including those configured for high availability/scalability. Interface configurations determine whether traffic drops or passes without inspection during the interruption. When you deploy without restarting Snort, resource demands may result in a small number of packets dropping without inspection.

Table 22: Traffic Flow and Inspection: Deploying Configuration Changes

Interface Configuration		Traffic Behavior
Firewall interfaces	Routed or switched including EtherChannel, redundant, subinterfaces. Switched interfaces are also known as bridge group or transparent interfaces.	Dropped.
IPS-only interfaces	Inline set, Failsafe enabled or disabled.	Passed without inspection. A few packets might drop if Failsafe is disabled and Snort is busy but not down.
	Inline set, Snort Fail Open: Down: disabled.	Dropped.
	Inline set, Snort Fail Open: Down: enabled.	Passed without inspection.
	Inline set, tap mode.	Egress packet immediately, copy not inspected.
	Passive, ERSPAN passive.	Uninterrupted, not inspected.

Time and Disk Space

Time to Upgrade

We recommend you track and record your own upgrade times so you can use them as future benchmarks. The following table lists some things that can affect upgrade time.



Caution Do not make or deploy configuration changes during upgrade. Even if the system appears inactive, do not manually reboot or shut down. In most cases, do not restart an upgrade in progress. You could place the system in an unusable state and require a reimage. If you encounter issues with the upgrade, including a failed upgrade or unresponsive appliance, see [Unresponsive and Failed Threat Defense Upgrades, on page 47](#).

Table 23: Upgrade Time Considerations

Consideration	Details
Versions	Upgrade time usually increases if your upgrade skips versions.
Models	Upgrade time usually increases with lower-end models.
Virtual appliances	Upgrade time in virtual deployments is highly hardware dependent.
High availability and clustering	In a high availability or clustered configuration, devices upgrade one at a time to preserve continuity of operations, with each device operating in maintenance mode while it upgrades. Upgrading a device pair or entire cluster, therefore, takes longer than upgrading a standalone device.
Configurations	Upgrade time can increase with the complexity of your configurations.
Components	You may need additional time to perform operating system or virtual hosting upgrades, upgrade package transfers, readiness checks, VDB and intrusion rule (SRU/LSP) updates, configuration deployment, and other related tasks.

Disk Space to Upgrade

You must have enough space on the management center (in either /Volume or /var) for device upgrade packages. Or, you can use an internal server to store them. After you copy upgrade packages to the devices, readiness checks should indicate whether you have enough disk space to perform the upgrade. Without enough free disk space, the upgrade fails.

Table 24: Checking Disk Space

Platform	Command
Management center	Choose System (⚙️) > Monitoring > Statistics and select the management center. Under Disk Usage, expand the By Partition details.
Threat defense	Choose System (⚙️) > Monitoring > Statistics and select the device you want to check. Under Disk Usage, expand the By Partition details.

Upgrade Feature History

Table 25: 20240203

Feature	Min. Threat Defense	Description
Improved upgrade starting page and package management.	Any	<p>A new upgrade page makes it easier to choose, download, manage, and apply upgrades to your entire deployment. The page lists all upgrade packages that apply to your current deployment, with suggested releases specially marked. You can easily choose and direct-download packages from Cisco, as well as manually upload and delete packages.</p> <p>Patches are not listed unless you have at least one appliance at the appropriate maintenance release (or you manually uploaded the patch). You must manually upload hotfixes.</p> <p>New/modified screens:</p> <ul style="list-style-type: none"> • System (⚙️) > Product Upgrades is now where you upgrade devices, as well as manage upgrade packages. • System (⚙️) > Content Updates is now where you update intrusion rules, the VDB, and the GeoDB. • Devices > Threat Defense Upgrade takes you directly to the threat defense upgrade wizard. <p>Deprecated screens/options:</p> <ul style="list-style-type: none"> • System (⚙️) > Updates is deprecated. All threat defense upgrades now use the wizard. • The Add Upgrade Package button on the threat defense upgrade wizard has been replaced by a Manage Upgrade Packages link to the new upgrade page. <p>See: Cisco Secure Firewall Threat Defense Upgrade Guide for Cloud-Delivered Firewall Management Center</p>
Enable revert from the threat defense upgrade wizard.	Any, if upgrading to 7.1+	<p>You can now enable revert from the threat defense upgrade wizard.</p> <p>Other version restrictions: You must be upgrading threat defense to Version 7.2+.</p> <p>See: Cisco Secure Firewall Threat Defense Upgrade Guide for Cloud-Delivered Firewall Management Center</p>
View detailed upgrade status from the threat defense upgrade wizard.	Any	<p>The final page of the threat defense upgrade wizard now allows you to monitor upgrade progress. This is in addition to the existing monitoring capability on the Upgrade tab on the Device Management page, and on the Message Center. Note that as long as you have not started a new upgrade flow, Devices > Threat Defense Upgrade brings you back to this final wizard page, where you can view the detailed status for the current (or most recently complete) device upgrade.</p> <p>See: Cisco Secure Firewall Threat Defense Upgrade Guide for Cloud-Delivered Firewall Management Center</p>

Feature	Min. Threat Defense	Description
Suggested release notifications.	Any	The management center now notifies you when a new suggested release is available. If you don't want to upgrade right now, you can have the system remind you later, or defer reminders until the next suggested release. The new upgrade page also indicates suggested releases. See: Cisco Secure Firewall Management Center New Features by Release
Firmware upgrades included in FXOS upgrades.	Any	Chassis/FXOS upgrade impact. Firmware upgrades cause an extra reboot. For the Firepower 4100/9300, FXOS upgrades to Version 2.14.1 now include firmware upgrades. If any firmware component on the device is older than the one included in the FXOS bundle, the FXOS upgrade also updates the firmware. If the firmware is upgraded, the device reboots twice—once for FXOS and once for the firmware. Just as with software and operating system upgrades, do not make or deploy configuration changes during firmware upgrade. Even if the system appears inactive, do not manually reboot or shut down during firmware upgrade. See: Cisco Firepower 4100/9300 FXOS Firmware Upgrade Guide
Updated internet access requirements for direct-downloading software upgrades.	Any	The management center has changed its direct-download location for software upgrade packages from sourcefire.com to amazonaws.com. See: Internet Access Requirements
Scheduled tasks download patches and VDB updates only.	Any	The Download Latest Update scheduled task no longer downloads maintenance releases; now it only downloads the latest applicable patches and VDB updates. To direct-download maintenance (and major) releases to the management center, use System (⚙️) > Product Upgrades . See: Software Update Automation

Table 26: December 13, 2022

Feature	Min. Threat Defense	Description
Choose and direct-download upgrade packages to the management center from Cisco.	Any	You can now choose which threat defense upgrade packages you want to direct download to the management center. Use the new Download Updates sub-tab on > Updates > Product Updates . Other version restrictions: this feature is replaced by an improved package management system in Version 20240203. See: Download Upgrade Packages with the Management Center
Upload upgrade packages to the management center from the threat defense wizard.	Any	You now use the wizard to upload threat defense upgrade packages or specify their location. Previously you used System (⚙️) > Updates . Minimum management center: 7.3.0 See: Upgrade Threat Defense

Feature	Min. Threat Defense	Description
Select devices to upgrade from the threat defense upgrade wizard.	Any	<p>Use the wizard to select devices to upgrade.</p> <p>You can now use the threat defense upgrade wizard to select or refine the devices to upgrade. On the wizard, you can toggle the view between selected devices, remaining upgrade candidates, ineligible devices (with reasons why), devices that need the upgrade package, and so on. Previously, you could only use the Device Management page and the process was much less flexible.</p> <p>See: Cisco Secure Firewall Threat Defense Upgrade Guide for Management Center</p>
Unattended threat defense upgrades.	Any	<p>The threat defense upgrade wizard now supports unattended upgrades, using a new Unattended Mode menu. You just need to select the target version and the devices you want to upgrade, specify a few upgrade options, and step away. You can even log out or close the browser.</p> <p>See: Cisco Secure Firewall Threat Defense Upgrade Guide for Cloud-Delivered Firewall Management Center</p>
Simultaneous threat defense upgrade workflows by different users.	Any	<p>We now allow simultaneous upgrade workflows by different users, as long as you are upgrading different devices. The system prevents you from upgrading devices already in someone else's workflow. Previously, only one upgrade workflow was allowed at a time across all users.</p> <p>See: Cisco Secure Firewall Threat Defense Upgrade Guide for Management Center</p>
Skip pre-upgrade troubleshoot generation for threat defense devices.	Any	<p>You can now skip the automatic generating of troubleshooting files before major and maintenance upgrades by disabling the new Generate troubleshooting files before upgrade begins option. This saves time and disk space.</p> <p>To manually generate troubleshooting files for a threat defense device, choose System (⚙) > Health > Monitor, click the device in the left panel, then View System & Troubleshoot Details, then Generate Troubleshooting Files.</p> <p>See: Cisco Secure Firewall Threat Defense Upgrade Guide for Management Center</p>
Auto-upgrade to Snort 3 after successful threat defense upgrade is no longer optional.	Any	<p>Upgrade impact.</p> <p>When you upgrade threat defense to Version 7.3+, you can no longer disable the Upgrade Snort 2 to Snort 3 option.</p> <p>After the software upgrade, all eligible devices will upgrade from Snort 2 to Snort 3 when you deploy configurations. Although you can switch individual devices back, Snort 2 will be deprecated in a future release and we strongly recommend you stop using it now.</p> <p>For devices that are ineligible for auto-upgrade because they use custom intrusion or network analysis policies, we strongly recommend you manually upgrade to Snort 3 for improved detection and performance. For migration assistance, see the Cisco Secure Firewall Management Center Snort 3 Configuration Guide for your version.</p>

Feature	Min. Threat Defense	Description
<p>Combined upgrade and install package for Secure Firewall 3100.</p>	<p>7.3.0</p>	<p>Reimage Impact.</p> <p>In Version 7.3, we combined the threat defense install and upgrade package for the Secure Firewall 3100, as follows:</p> <ul style="list-style-type: none"> • Version 7.1–7.2 install package: <code>cisco-ftd-fp3k.version.SPA</code> • Version 7.1–7.2 upgrade package: <code>Cisco_FTD_SSP_FP3K_Upgrade-version-build.sh.REL.tar</code> • Version 7.3+ combined package: <code>Cisco_FTD_SSP_FP3K_Upgrade-version-build.sh.REL.tar</code> <p>Although you can upgrade threat defense without issue, you cannot reimage from older threat defense and ASA versions directly to threat defense Version 7.3+. This is due to a ROMMON update required by the new image type. To reimage from those older versions, you must "go through" ASA 9.19+, which is supported with the old ROMMON but also updates to the new ROMMON. There is no separate ROMMON updater.</p> <p>To get to threat defense Version 7.3+, your options are:</p> <ul style="list-style-type: none"> • Upgrade from threat defense Version 7.1 or 7.2 — use the normal upgrade process. See the appropriate Upgrade Guide. • Reimage from threat defense Version 7.1 or 7.2 — reimage to ASA 9.19+ first, then reimage to threat defense Version 7.3+. See <i>Threat Defense→ASA: Firepower 1000, 2100; Secure Firewall 3100</i> and then <i>ASA→Threat Defense: Firepower 1000, 2100 Appliance Mode; Secure Firewall 3100</i> in the Cisco Secure Firewall ASA and Secure Firewall Threat Defense Reimage Guide. • Reimage from ASA 9.17 or 9.18 — upgrade to ASA 9.19+ first, then reimage to threat defense Version 7.3+. See the Cisco Secure Firewall ASA Upgrade Guide and then <i>ASA→Threat Defense: Firepower 1000, 2100 Appliance Mode; Secure Firewall 3100</i> in the Cisco Secure Firewall ASA and Secure Firewall Threat Defense Reimage Guide. • Reimage from threat defense Version 7.3+ — use the normal reimage process. See <i>Reimage the System with a New Software Version</i> in the Cisco FXOS Troubleshooting Guide for the Firepower 1000/2100 and Secure Firewall 3100/4200 with Firepower Threat Defense.

Content Updates

Feature	Min. Threat Defense	Description
Automatic VDB downloads.	Any	<p>The initial setup on the management center schedules a weekly task to download the latest available software updates, which now includes the latest vulnerability database (VDB). We recommend you review this weekly task and adjust if necessary. Optionally, schedule a new weekly task to actually update the VDB and deploy configurations.</p> <p>New/modified screens: The Vulnerability Database check box is now enabled by default in the system-created Weekly Software Download scheduled task.</p>
Install any VDB.	Any	<p>Starting with VDB 357, you can now install any VDB as far back as the baseline VDB for that management center.</p> <p>After you update the VDB, deploy configuration changes. If you based configurations on vulnerabilities, application detectors, or fingerprints that are no longer available, examine those configurations to make sure you are handling traffic as expected. Also, keep in mind a scheduled task to update the VDB can undo a rollback. To avoid this, change the scheduled task or delete any newer VDB packages.</p> <p>New/modified screens: On System (⚙️) > Updates > Product Updates > Available Updates, if you upload an older VDB, a new Rollback icon appears instead of the Install icon.</p>