



## Backup/Restore

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## About Backup and Restore

The ability to recover from a disaster is an essential part of any system maintenance plan. As part of your disaster recovery plan, we recommend that you perform periodic backups to a secure remote location.

### On-Demand Backups

You can perform on-demand backups for the management center and many threat defense devices from the management center.

For more information, see [Backing Up Management Centers or Managed Devices, on page 10](#).

### Scheduled Backups

You can use the scheduler on management center to automate backups. You can also schedule remote device backups from the management center.

The management center setup process schedules weekly configuration-only backups, to be stored locally. This is not a substitute for full off-site backups—after initial setup finishes, you should review your scheduled tasks and adjust them to fit your organization's needs.

For more information, see [Scheduled Backups](#).

### Storing Backup Files

You can store backups locally. However, we recommend you back up management centers and managed devices to a secure remote location by mounting an NFS, SMB, or SSHFS network volume as remote storage. After you do this, all subsequent backups are copied to that volume, but you can still use the management center to manage them.

For more information, see [Remote Storage Device](#) and [Manage Backups and Remote Storage](#), on page 28.

### Restoring the Management Center and Managed Devices

You restore the management center from the Backup Management page. You must use the threat defense CLI to restore threat defense devices, except for the ISA 3000 zero-touch restore, which uses an SD card and the reset button.

For more information, see [Restoring Management Centers and Managed Devices](#), on page 15.

### What Is Backed Up?

Management Center backups can include:

- Configurations.

All configurations you can set on the management center web interface are included in a configuration backup, with the exception of remote storage and audit log server certificate settings. In a multidomain deployment, you must back up configurations. You cannot back up events or TID data only.

- Events.

Event backups include all events in the management center database. However, management center event backups do not include intrusion event review status. Restored intrusion events do not appear on Reviewed Events pages.

- Threat Intelligence Director (TID) data.

For more information, see *About Backing Up and Restoring threat intelligence director Data* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#).



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**Note** Management Center and device reports are not backed up.

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Device backups are always configuration-only.

### What Is Restored?

Restoring configurations overwrites *all* backed-up configurations, with very few exceptions. On the management center, restoring events and TID data overwrites *all* existing events and TID data, with the exception of intrusion events.

Make sure you understand and plan for the following:

- You cannot restore what is not backed up.

Management Center configuration backups do not include remote storage and audit log server certificate settings, so you must reconfigure these after restore. Also, because management center event backups do not include intrusion event review status, restored intrusion events do not appear on Reviewed Events pages.

- Restoring fails VPN certificates.

The threat defense restore process removes VPN certificates and all VPN configurations from threat defense devices, including certificates added after the backup was taken. After you restore the threat defense device, you must re-add/re-enroll all VPN certificates, and redeploy the device.

- Restoring to a configured management center — instead of factory-fresh or reimaged — merges intrusion events and file lists.

The management center event restore process does not overwrite intrusion events. Instead, the intrusion events in the backup are added to the database. To avoid duplicates, delete existing intrusion events before you restore.

The management center configuration restore process does not overwrite clean and custom detection file lists used by malware defense. Instead, it merges existing file lists with the file lists in the backup. To replace file lists, delete existing file lists before you restore.

## Requirements for Backup and Restore

Backup and restore have the following requirements.

### Platform Requirements: Backup

This table lists backup support by platform. Device backup is supported for both application and container instances.

**Table 1: Backup Support by Platform**

Platform	Backup Supported?		
	Standalone	High Availability	Clusters
Management center, hardware and virtual	YES	YES	—
Threat defense hardware	YES	YES	YES
Threat defense virtual, on-prem/private cloud	VMware HyperFlex Nutanix OpenStack	VMware	VMware
Threat defense virtual, public cloud	AWS	—	—

### Platform Requirements: Restore

A replacement managed device must be the same model as the one you are replacing, with the same number of network modules and same type and number of physical interfaces.

For management centers, you can use backup and restore not only in an RMA scenario, but also to migrate configurations and events between management centers. For details, including supported target and destination models, see the [Cisco Secure Firewall Management Center Model Migration Guide](#).

### Version Requirements

As the first step in any backup, note the patch level. To restore a backup, the old and the new appliance must be running the same software version, including patches. To restore to a Firepower 4100/9300 chassis, you must be running a compatible FXOS.

For management center backups, you are *not* required to have the same VDB or SRU. Note, however, that restoring a backup replaces the existing VDB with the VDB in the backup file. If this happens, it is reported in the Message Center (requires Version 7.4.2). If the restored SRU or the VDB version is older than the one available on the Cisco Support & Download site, we recommend you install the newer version.

### License Requirements

Address licensing or orphan entitlements concerns as described in the best practices and procedures. If you notice licensing conflicts, contact Cisco TAC.

### Domain Requirements

To:

- Back up or restore the management center: Global only.
- Back up a device from the management center: Global only.
- Restore a device: None. Restore devices locally at the CLI.

In a multidomain deployment you cannot back up only events/TID data. You must also back up configurations.

## Guidelines and Limitations for Backup and Restore

Backup and restore has the following guidelines and limitations.

### Backup and Restore is for Disaster Recovery/RMA

Backup and restore is primarily intended for RMA scenarios. Before you begin the restore process of a faulty or failed physical appliance, contact Cisco TAC for replacement hardware.

You can also use backup and restore to migrate configurations and events between management centers. This makes it easier to replace management centers due to technical or business reasons such as a growing organization, migration from a physical to a virtual implementation, hardware refresh, and so on.

### Restore on a Reimaged Management Center

Always restore the management center on a freshly reimaged management center. If you are restoring without reimaging and if you had registered threat defense on the management center after backing up, then when you register the device again on the restored management center, you will encounter device registration failure due to certification error. This error occurs due to the mismatch in the restored certificate database and the non-reimaged management center backup that is restored to.

### Backup and Restore is not Configuration Import/Export

A backup file contains information that uniquely identifies an appliance, and cannot be shared. Do not use the backup and restore process to copy configurations between appliances or devices, or as a way to save configurations while testing new ones. Instead, use the import/export feature.

For example, threat defense device backups include the device's management IP address and all information the device needs to connect to its managing management center. Do not restore the threat defense backup to a device being managed by a different management center; the restored device will attempt to connect to the management center specified in the backup.

### **Restore is Individual and Local**

You restore to management centers and managed devices individually and locally. This means:

- You cannot batch-restore to high availability or clustered management centers or devices.
- You cannot use the management center to restore a device. For the management center, you can use the web interface to restore. For threat defense devices, you must use the threat defense CLI, except for the ISA 3000 zero-touch restore, which uses an SD card and the reset button.
- You cannot use management center user accounts to log into and restore one of its managed devices. The management center and devices maintain their own user accounts.

## **Configuration Import/Export Guidelines for Firepower 4100/9300**

You can use the configuration export feature to export an XML file containing logical device and platform configuration settings for your Firepower 4100/9300 chassis to a remote server or your local computer. You can later import that configuration file to quickly apply the configuration settings to your Firepower 4100/9300 chassis to return to a known good configuration or to recover from a system failure.

### **Guidelines and Restrictions**

- Do not modify the contents of the configuration file. If a configuration file is modified, configuration import using that file might fail.
- Application-specific configuration settings are not contained in the configuration file. You must use the configuration backup tools provided by the application to manage application-specific settings and configurations.
- When you import a configuration to the Firepower 4100/9300 chassis, all existing configuration on the Firepower 4100/9300 chassis (including any logical devices) are deleted and completely replaced by the configuration contained in the import file.
- Except in an RMA scenario, we recommend you only import a configuration file to the same Firepower 4100/9300 chassis where the configuration was exported.
- The platform software version of the Firepower 4100/9300 chassis where you are importing should be the same version as when the export was taken. If not, the import operation is not guaranteed to be successful. We recommend you export a backup configuration whenever the Firepower 4100/9300 chassis is upgraded or downgraded.
- The Firepower 4100/9300 chassis where you are importing must have the same Network Modules installed in the same slots as when the export was taken.
- The Firepower 4100/9300 chassis where you are importing must have the correct software application images installed for any logical devices defined in the export file that you are importing.
- To avoid overwriting existing backup files, change the file name in the backup operation or copy the existing file to another location.



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**Note** You must backup the logicl APP separately as the FXOS import/export will backup only the FXOS configuration. The FXOS configuration import will cause logical device reboot and it rebuilds the device with the factory default configuration.

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## Best Practices for Backup and Restore

Backup and restore has the following best practices.

### When to Back Up

We recommend backing up during a maintenance window or other time of low use.

While the system collects backup data, there may be a temporary pause in data correlation (management center only), and you may be prevented from changing configurations related to the backup. If you include event data, event-related features such as eStreamer are not available.

You should back up in the following situations:

- Regular scheduled or on-demand backups.

As part of your disaster recovery plan, we recommend that you perform periodic backups.

The management center setup process schedules weekly configuration-only backups, to be stored locally. This is not a substitute for full off-site backups—after initial setup finishes, you should review your scheduled tasks and adjust them to fit your organization's needs. For more information, see [Scheduled Backups](#).

- After SLR changes.

Back up the management center after you make changes to Specific Licensing Reservations (SLRs). If you make changes and then restore an older backup, you will have issues with your Specific Licensing return code and can accrue orphan entitlements.

- Before upgrade or reimage.

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.



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**Note** Restoring from a backup does not reset the password that you had configured after the reimage or an RMA.

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- After upgrade.

Back up after you upgrade, so you have a snapshot of your freshly upgraded deployment. We recommend you back up the management center *after* you upgrade its managed devices, so your new management center backup file 'knows' that its devices have been upgraded.

## Maintaining Backup File Security

Backups are stored as unencrypted archive (.tar) files.

Private keys in PKI objects—which represent the public key certificates and paired private keys required to support your deployment—are decrypted before they are backed up. The keys are reencrypted with a randomly generated key when you restore the backup.



**Note** We recommend you back up management centers and devices to a secure remote location and verify transfer success. Backups left locally may be deleted, either manually or by the upgrade process, which purges locally stored backups.

Especially because backup files are unencrypted, do *not* allow unauthorized access. If backup files are modified, the restore process will fail. Keep in mind that anyone with the Admin/Maint role can access the Backup Management page, where they can move and delete files from remote storage.

In the management center's system configuration, you can mount an NFS, SMB, or SSHFS network volume as remote storage. After you do this, all subsequent backups are copied to that volume, but you can still use the management center to manage them. For more information, see [Remote Storage Device](#) and [Manage Backups and Remote Storage](#), on page 28.

Note that only the management center mounts the network volume. Managed device backup files are routed through the management center. Make sure you have the bandwidth to perform a large data transfer between the management center and its devices. For more information, see [Guidelines for Downloading Data from the Firepower Management Center to Managed Devices](#) (Troubleshooting TechNote).

## Backup and Restore in Management Center High Availability Deployments

In management center high availability deployments, backing up one management center does not back up the other. You should regularly back up both peers. Do not restore one HA peer with the backup file from the other. A backup file contains information that uniquely identifies an appliance, and cannot be shared.

Note that you can replace an HA management center without a successful backup. For more information on replacing HA management centers, both with and without successful backups, see [Replacing Management Centers in a High Availability Pair](#).

## Backup and Restore in Threat Defense High Availability Deployments

In the threat defense High Availability deployment, you should:

- Back up the device pair from the management center, but restore individually and locally from the threat defense CLI.

The backup process produces unique backup files for threat defense High Availability devices. Do not restore one High Availability peer with the backup file from the other. A backup file contains information that uniquely identifies an appliance, and cannot be shared.

The threat defense High Availability device's role is noted in its backup file name. When you restore, make sure you choose the appropriate backup file: primary vs secondary.

- Do *not* suspend or break High Availability before you restore.

Maintaining the High Availability configuration ensures replacement devices can easily reconnect after restore. Note that you will have to resume High Availability synchronization to make this happen.

- Do *not* run the **restore** CLI command on both peers at the same time.

Assuming you have successful backups, you can replace either or both peers in the High Availability pair. Any physical replacement tasks you can perform simultaneously: unracking, racking, and so on. However, do *not* run the **restore** command on the second device until the restore process completes for the first device, including the reboot.

Note that you can replace the threat defense High Availability device without a successful backup.

### Backup and Restore in Threat Defense Clustering Deployments

In the threat defense clustering deployment, you should:

- Back up the entire cluster from the management center, but restore nodes individually and locally from the threat defense CLI.

The backup process produces a bundled tar file that includes unique backup files for each cluster node. Do not restore one node with the backup file from another. A backup file contains information that uniquely identifies a device, and cannot be shared.

The node's role is noted in its backup file name. When you restore, make sure you choose the appropriate backup file: control or data.

You cannot back up individual nodes. If a data node fails to back up, the management center will still back up all other nodes. If the control node fails to back up, the backup is canceled.

- Do *not* suspend or break clustering before you restore.

Maintaining the cluster configuration ensures replacement devices can easily reconnect after restore.

- Do *not* run the **restore** CLI command on multiple nodes at the same time. We recommend that you restore the control node first and wait until it rejoins the cluster before you restore any data nodes.

Assuming you have successful backups, you can replace multiple nodes in the cluster. Any physical replacement tasks you can perform simultaneously: unracking, racking, and so on. However, do *not* run the **restore** command on an additional node until the restore process completes for the previous node, including the reboot.

### Backup and Restore for Firepower 4100/9300 Chassis

To restore threat defense software on a Firepower 4100/9300 chassis, the chassis must be running a compatible FXOS version.

When you back up a Firepower 4100/9300 chassis, we strongly recommend you also back up FXOS configurations. For additional best practices, see [Configuration Import/Export Guidelines for Firepower 4100/9300](#), on page 5.

### Before Backup

Before you back up, you should:

- Update the VDB and SRU on the management center.

We always recommend you use the latest vulnerability database (VDB) and intrusion rules (SRU). Before you back up the management center, check the Cisco Support & Download site for newer versions.

- Check Disk Space.



Before you begin a backup, make sure you have enough disk space on the appliance or on your remote storage server. The space available is displayed on the Backup Management page.

Backups can fail if there is not enough space. Especially if you schedule backups, make sure you regularly prune backup files or allocate more disk space to the remote storage location.

### Before Restore

Before restore, you should:

- Revert licensing changes.

Revert any licensing changes made since you took the backup.

Otherwise, you may have license conflicts or orphan entitlements after the restore. However, do *not* unregister from Cisco Smart Software Manager (CSSM). If you unregister from CSSM, you must unregister again after you restore, then re-register.

After the restore completes, reconfigure licensing. If you notice licensing conflicts or orphan entitlements, contact Cisco TAC.

- Disconnect faulty appliances.

Disconnect the management interface, and for devices, the data interfaces.

Restoring threat defense devices sets the management IP address of the replacement device to the management IP address of the old device. To avoid IP conflicts, disconnect the old device from the management network before you restore the backup on its replacement.

Note that restoring the management center does *not* change the management IP address. You must set that manually on the replacement — just make sure you disconnect the old appliance from the network before you do.

- Do *not* unregister managed devices.

Whether you are restoring the management center or managed device, do not unregister devices from the management center, even if you physically disconnect an appliance from the network.

If you unregister, you will need to redo some device configurations, such as security zone to interface mappings. After you restore, the management center and devices should begin communicating normally.

- Reimage.

In an RMA scenario, the replacement appliance will arrive configured with factory defaults. However, if the replacement appliance is already configured, we recommend you reimage. Reimaging returns most settings to factory defaults, including the system password. You can only reimage to major versions, so you may need to patch after you reimage.

If you do not reimage, keep in mind that management center intrusion events and file lists are merged rather than overwritten.

### After Restore

After restore, you should:

- Reconfigure anything that was not restored.

This can include reconfiguring licensing, remote storage, and audit log server certificate settings. You also must re-add/re-enroll failed threat defense VPN certificates.

- Update the VDB and SRU on the management center.

We always recommend you use the latest vulnerability database (VDB) and intrusion rules (SRU). This is especially important for the VDB, because the VDB in the backup will overwrite the VDB on the replacement management center. Ensure that you update the VDB to the latest version before deploying any changes to the device.

- Deploy.

After you restore the management center, deploy to all managed devices. After you restore a device, you must force deploy from the Device Management page: see *Redeploy Existing Configurations to a Device* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#). Whether you are restoring the management center or the device you *must* deploy.

## Backing Up Management Centers or Managed Devices

You can perform on-demand or scheduled backups for supported appliances.

You do not need a backup profile to back up devices from the management center. However, management center backups require backup profiles. The on-demand backup process allows you to create a new backup profile.

### Back up the Management Center

Use this procedure to perform an on-demand management center backup.

#### Before you begin

You must read and understand the requirements, guidelines, limitations, and best practices. You do not want to skip any steps or ignore security concerns. Careful planning and preparation can help you avoid missteps.

- [Requirements for Backup and Restore, on page 3](#)
- [Guidelines and Limitations for Backup and Restore, on page 4](#)
- [Best Practices for Backup and Restore, on page 6](#)

#### Procedure

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**Step 1** Select **System** (⚙) > **Tools** > **Backup/Restore**.

The Backup Management page lists all locally and remotely stored backups. It also lists how much disk space you have available to store backups. Backups can fail if there is not enough space.

**Step 2** Choose whether to use an existing backup profile or start fresh.

Management Center backups require that you use or create a backup profile.

- Click **Backup Profiles** to use an existing backup profile.

Next to the profile you want to use, click the edit icon. You can then click **Start Backup** to begin the backup right now. Or, if you want to edit the profile, go on to the next step.

- Click **Firepower Management Backup** to start fresh and create a new backup profile.

Enter a **Name** for the backup profile.

**Step 3** Choose what to back up:

- **Back Up Configuration.** In high availability of management centers, if you choose to back up configuration only on an active management center, by default, both the active and standby management centers are backed up into a single unified backup file. For information of unified backup of management center in high availability, see [Unified Backup of Management Centers in High Availability](#).
- **Back Up Events**
- **Back Up Threat Intelligence Director**

In a multidomain deployment, you must back up configurations. You cannot back up events or TID data only. For details on what is and what is not backed up for each of these choices, see [About Backup and Restore, on page 1](#).

**Step 4** Note the **Storage Location** for management center backup files.

This will either be local storage in `/var/sf/backup/`, or a remote network volume. For more information, see [Manage Backups and Remote Storage, on page 28](#).

**Step 5** (Optional) Enable **Copy when complete** to copy completed management center backups to a remote server. Provide a hostname or IP address, the path to the remote directory, and a username and password. To use an SSH public key instead of a password, copy the contents of the **SSH Public Key** field to the specified user's `authorized_keys` file on the remote server.

**Note** This option is useful if you want to store backups locally and also SCP them to a remote location. If you configured SSH remote storage, do *not* copy backup files to the same directory using **Copy when complete**.

**Step 6** (Optional) Enable **Email** and enter an email address to be notified when the backup completes.

To receive email notifications, you must configure the management center to connect to a mail server: [Configuring a Mail Relay Host and Notification Address](#).

**Step 7** Click **Start Backup** to start the on-demand backup.

If you are not using an existing backup profile, the system automatically creates one and uses it. If you decide not to run the backup now, you can click **Save** or **Save As New** to save the profile. In either case, you can use the newly created profile to configure scheduled backups.

**Step 8** Monitor progress in the Message Center.

While the system collects backup data, there may be a temporary pause in data correlation, and you may be prevented from changing configurations related to the backup. If you configured remote storage or enabled **Copy when complete**, the management center may write temporary files to the remote server. These files are cleaned up at the end of the backup process.

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### What to do next

If you configured remote storage or enabled **Copy when complete**, verify transfer success of the backup file.

## Back up a Device from the Management Center

Use this procedure to perform an on-demand backup of any of the following devices:

- threat defense: physical devices, standalone, High Availability, cluster
- threat defense virtual: Private cloud, standalone, High Availability, cluster

Backup and restore is not supported for any other platforms or configurations.

### Before you begin

You must read and understand the requirements, guidelines, limitations, and best practices. You do not want to skip any steps or ignore security concerns. Careful planning and preparation can help you avoid missteps.

- [Requirements for Backup and Restore, on page 3](#)
- [Guidelines and Limitations for Backup and Restore, on page 4](#)
- [Best Practices for Backup and Restore, on page 6](#)

If you are backing up a Firepower 4100/9300 chassis, it is especially important that you also back up FXOS configurations: [Exporting an FXOS Configuration File, on page 13](#).

### Procedure

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**Step 1** Select **System** (⚙) > **Tools** > **Backup/Restore**, then click **Managed Device Backup**.

**Step 2** Select one or more **Managed Devices**.

For clustering, choose the cluster. You cannot perform backups on individual nodes.

**Step 3** Note the **Storage Location** for device backup files.

This will either be local storage in `/var/sf/remote-backup/`, or a remote network volume. For the ISA 3000, if you have an SD card installed, a copy of the backup will also be made on the SD card at `/mnt/disk3/backup`. For more information, see [Manage Backups and Remote Storage, on page 28](#).

**Step 4** If you did not configure remote storage, choose whether you want to **Retrieve to Management Center**.

- Enabled (default): Saves the backup to the management center in `/var/sf/remote-backup/`.

For clusters, this option is always checked. The individual node backup files are copied to the management center and then bundled into a single compressed tar file before it is copied to any remote storage.

- Disabled: Saves the backup to the device in `/var/sf/backup`.

**Step 5** Click **Start Backup** to start the on-demand backup.

**Step 6** Monitor progress in the Message Center.

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### What to do next

If you configured remote storage, verify if the transfer of the backup file was successful.

## Exporting an FXOS Configuration File

Use the configuration export feature to export an XML file containing logical device and platform configuration settings for your Firepower 4100/9300 chassis to a remote server or your local computer.



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**Note** This procedure explains how to use Secure Firewall chassis manager to export FXOS configurations when you back up threat defense. For the CLI procedure, see the appropriate version of the [Cisco Firepower 4100/9300 FXOS CLI Configuration Guide](#).

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### Before you begin

Review the [Configuration Import/Export Guidelines for Firepower 4100/9300](#).

### Procedure

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- Step 1** Choose **System > Configuration > Export** on the Secure Firewall chassis manager.
- Step 2** To export a configuration file to your local computer:
- Click **Local**.
  - Click **Export**.  
The configuration file is created and, depending on your browser, the file might be automatically downloaded to your default download location or you might be prompted to save the file.
- Step 3** To export the configuration file to a remote server:
- Click **Remote**.
  - Choose the protocol to use when communicating with the remote server. This can be one of the following: FTP, TFTP, SCP, or SFTP.
  - Enter the hostname or IP address of the location where the backup file should be stored. This can be a server, storage array, local drive, or any read/write media that the Firepower 4100/9300 chassis can access through the network.  
  
If you use a hostname rather than an IP address, you must configure a DNS server.
  - If you are using a non-default port, enter the port number in the **Port** field.
  - Enter the username the system should use to log in to the remote server. This field does not apply if the protocol is TFTP.
  - Enter the password for the remote server username. This field does not apply if the protocol is TFTP.  
  
**Note** The password must not exceed 64 characters. If you enter a password more than 64 character, chassis manager will display an error stating that `property pwd of org-root/cfg-exp-policy-default is out of range`.
  - In the **Location** field, enter the full path to where you want the configuration file exported including the filename.
  - Click **Export**.  
The configuration file is created and exported to the specified location.
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## Create a Backup Profile

A backup profile is a saved set of preferences—what to back up, where to store the backup file, and so on.

Management Center backups require backup profiles. Backup profiles are not required to back up a device from the management center.

When you perform an on-demand management center backup, if you do not pick an existing backup profile, the system automatically creates one and uses it. You can then use the newly created profile to configure scheduled backups.

The following procedure explains how to create a backup profile without performing an on-demand backup.

### Procedure

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**Step 1** Select **System** (⚙) > **Tools** > **Backup/Restore**, then click **Backup Profiles**.

**Step 2** Click **Create Profile** and enter a **Name**.

**Step 3** Choose what to back up.

- **Back Up Configuration**
- **Back Up Events**
- **Back Up Threat Intelligence Director**

In a multidomain deployment, you must back up configurations. You cannot back up events or TID data only. For details on what is and what is not backed up for each of these choices, see [About Backup and Restore, on page 1](#).

**Step 4** Note the **Storage Location** for backup files.

This will either be local storage in `/var/sf/backup/`, or a remote network volume. For the ISA 3000, if you have an SD card installed, a copy of the backup will also be made on the SD card at `/mnt/disk3/backup`. For more information, see [Manage Backups and Remote Storage, on page 28](#).

**Step 5** (Optional) Enable **Copy when complete** to copy completed management center backups to a remote server. Provide a hostname or IP address, the path to the remote directory, and a username and password. To use an SSH public key instead of a password, copy the contents of the **SSH Public Key** field to the specified user's `authorized_keys` file on the remote server.

**Note** This option is useful if you want to store backups locally and also SCP them to a remote location. If you configured SSHFS remote storage, do *not* copy backup files to the same directory using **Copy when complete**.

**Step 6** (Optional) Enable **Email** and enter an email address to be notified when the backup completes.

To receive email notifications, you must configure the management center to connect to a mail server: [Configuring a Mail Relay Host and Notification Address](#).

**Step 7** Click **Save**.

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# Restoring Management Centers and Managed Devices

For the management center, you use the web interface to restore from backup. For threat defense devices, you must use the threat defense CLI. You cannot use the management center to restore a device.

The following sections explain how to restore management centers and managed devices.

## Restore Management Center from Backup

When you restore management center backups, you can choose to restore any or all of the components included in the backup file (events, configurations, TID data).



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**Note** Restoring configurations overwrites *all* configurations, with very few exceptions. It also reboots the management center. Restoring events and TID data overwrites *all* existing events and TID data, with the exception of intrusion events. Make sure you are ready.

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Use this procedure to restore the management center from backup. For more information on backup and restore in management center HA deployments, see [Replacing Management Centers in a High Availability Pair](#).

### Before you begin

You must read and understand the requirements, guidelines, limitations, and best practices. You do not want to skip any steps or ignore security concerns. Careful planning and preparation can help you avoid missteps.

- [Requirements for Backup and Restore, on page 3](#)
- [Guidelines and Limitations for Backup and Restore, on page 4](#)
- [Best Practices for Backup and Restore, on page 6](#)

### Procedure

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**Step 1** Log into the management center you want to restore.

**Step 2** Select **System** (⚙) > **Tools** > **Backup/Restore**.

The Backup Management page lists all locally and remotely stored backup files. You can click a backup file to view its contents.

If the backup file is not in the list and you have it saved on your local computer, click **Upload Backup**; see [Manage Backups and Remote Storage, on page 28](#).

**Step 3** Select the backup file you want to restore and click **Restore**.

**Step 4** Select from the available components to restore, then click **Restore** again to begin.

**Step 5** Monitor progress in the Message Center.

If you are restoring configurations, you can log back in after the management center reboots.

---

### What to do next

- If necessary, reconfigure any licensing settings that you reverted before the restore. If you notice licensing conflicts or orphan entitlements, contact Cisco TAC.
- If necessary, reconfigure remote storage and audit log server certificate settings. These settings are not included in backups.
- Update the SRU and VDB. When the restored VDB is different from the system VDB, the Message Center indicates the version of the restored VDB. If the restored SRU or the VDB version is older than the one available on the Cisco Support & Download site, ensure to update the VDB to the latest version before deploying any changes to the device.
- Deploy configuration changes; see the [Cisco Secure Firewall Management Center Device Configuration Guide](#).

## Restore Threat Defense from Backup: Firepower 1000/2100, Secure Firewall 3100/4200, ISA 3000 (Non-Zero-Touch)

Device backup and restore is intended for RMA. Restoring configurations overwrites *all* configurations on the device, including the management IP address. It also reboots the device.

In case of hardware failure, this procedure outlines how to replace a Firepower 1000/2100, Secure Firewall 3100/4200, or ISA 3000 threat defense device, standalone or in a High Availability pair or as a cluster. It assumes you have access to a successful backup of the device or devices you are replacing; see [Back up a Device from the Management Center, on page 12](#). For zero-touch restore on the ISA 3000 using an SD card, see [Zero-Touch Restore Threat Defense from Backup: ISA 3000, on page 19](#).

For high availability and clustered devices, you can use this procedure to replace all peers. To replace all, perform all steps on all devices simultaneously, except the **restore** CLI command itself.



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**Note** Do *not* unregister from the management center, even when disconnecting a device from the network. For threat defense high availability and clustered devices, do *not* suspend or break high availability or clustering. Maintaining these links ensures replacement devices can automatically reconnect after restore.

---

### Before you begin

You must read and understand the requirements, guidelines, limitations, and best practices. You do not want to skip any steps or ignore security concerns. Careful planning and preparation can help you avoid missteps.

- [Requirements for Backup and Restore, on page 3](#)
- [Guidelines and Limitations for Backup and Restore, on page 4](#)
- [Best Practices for Backup and Restore, on page 6](#)

### Procedure

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#### Step 1

Contact Cisco TAC for replacement hardware.



Obtain an identical model, with the same number of network modules and same type and number of physical interfaces. You can begin the RMA process from the [Cisco Returns Portal](#).

**Step 2** Locate a successful backup of the faulty device.

Depending on your backup configuration, device backups may be stored:

- On the faulty device itself in `/var/sf/backup`.
- On the management center in `/var/sf/remote-backup`.
- In a remote storage location.

For threat defense high availability and clustered devices, you back up the group as a unit. For high availability devices, the backup process produces unique backup files, with each device's role indicated in the backup file name. For clusters, control and data node backup files are bundled together in a single compressed file. You must extract the files, which also indicate the device role.

If the only copy of the backup is on the faulty device, copy it somewhere else now. If you reimage the device, the backup will be erased. If something else goes wrong, you may not be able to recover the backup. For more information, see [Manage Backups and Remote Storage, on page 28](#).

The replacement device will need the backup, but can retrieve it with SCP during the restore process. We recommend you put the backup somewhere SCP-accessible to the replacement device. Or, you can copy the backup to the replacement device itself.

**Step 3** Remove (unrack) the faulty device.

Disconnect all interfaces. In threat defense high availability deployments, this includes the failover link. For clustering, this includes the cluster control link.

See the hardware installation and getting started guides for your model: <http://www.cisco.com/go/ftd-quick>.

**Note** Do *not* unregister from the management center, even when disconnecting a device from the network. For threat defense high availability and clustered devices, do *not* suspend or break high availability or clustering. Maintaining these links ensures replacement devices can automatically reconnect after restore.

**Step 4** Install the replacement device and connect it to the management network.

Connect the device to power and the management interface to the management network. In threat defense high availability deployments, connect the failover link. For clustering, connect the cluster control link. However, do *not* connect the data interfaces.

See the hardware installation guide for your model: <http://www.cisco.com/go/ftd-quick>.

**Step 5** (Optional) Reimage the replacement device.

In an RMA scenario, the replacement device will arrive configured with factory defaults. If the replacement device is not running the same major version as the faulty device, we recommend you reimage.

See the [Cisco Secure Firewall ASA and Secure Firewall Threat Defense Reimage Guide](#).

**Step 6** Perform initial configuration on the replacement device.

Access the threat defense CLI as the `admin` user. A setup wizard prompts you to configure the management IP address, gateway, and other basic network settings.

Do not set the same management IP address as the faulty device. This can cause problems if you need to register the device in order to patch it. The restore process will correctly reset the management IP address.

See the initial configuration topics in the getting started guide for your model: <http://www.cisco.com/go/ftd-quick>.

**Note** If you need to patch the replacement device, start the management center registration process as described in the getting started guide. If you do not need to patch, do *not* register.

**Step 7** Make sure the replacement device is running the same software version, *including patches*, as the faulty device.

Ensure that the existing device should not be deleted from the management center. The replacement device should be unmanaged from the physical network and the new hardware as well as the replacing threat defense patch should have the same version. The threat defense CLI does not have an upgrade command. To patch:

a) From the management center web interface, complete the device registration process.

Create a new AC policy and use the default action "Network Discovery". Leave this policy as is; do not add any features or modifications. This is being used to register the device and deploy a policy with no features so that you do not require licenses, and you will then be able to patch the device. Once backup is restored, it should restore the licensing and policy into the expected state.

b) Patch the device: <https://www.cisco.com/go/ftd-upgrade>.

c) Unregister the freshly patched device from the management center.

If you do not unregister, you will have a ghost device registered to the management center after the restore process brings your "old" device back up.

**Step 8** Make sure the replacement device has access to the backup file.

The restore process can retrieve the backup with SCP, so we recommend you put the backup somewhere accessible. Or, you can manually copy the backup to the replacement device itself, to `/var/sf/backup`. For clustered devices, extract the appropriate backup file from the backup bundle.

**Step 9** From the threat defense CLI, restore the backup.

Access the threat defense CLI as the `admin` user. You can use the console or you can SSH to the newly configured management interface (IP address or hostname). Keep in mind that the restore process will change this IP address.

To restore:

- With SCP: **restore remote-manager-backup location** *scp-hostname username filepath backup tar-file*
- From the local device: **restore remote-manager-backup** *backup tar-file*

In threat defense high availability and clustering deployments, make sure you choose the appropriate backup file: primary vs secondary, or control vs. data. The role is noted in the backup file name. If you are restoring all devices, do this sequentially. Do not run the **restore** command on the next device until the restore process completes for the first device, including the reboot.

**Step 10** Log into the management center and wait for the replacement device to connect.

When the restore is done, the device logs you out of the CLI, reboots, and automatically connects to the management center. At this time, the device should appear out of date.

**Step 11** Before you deploy, perform any post-restore tasks and resolve any post-restore issues:

- Resolve licensing conflicts or orphan entitlements. Contact Cisco TAC.
- Resume high availability synchronization. From the threat defense CLI, enter `configure high-availability resume`. See *Suspend and Resume High Availability* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#).
- Re-add/re-enroll all VPN certificates. The restore process removes VPN certificates from threat defense devices, including certificates added after the backup was taken. See *Managing VPN Certificates* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#).

**Step 12** Deploy configurations.

You must deploy. After you restore a device, you must force deploy from the Device Management page. See *Redeploy Existing Configurations to a Device* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#).

**Step 13** Connect the device's data interfaces.

See the hardware installation guide for your model: <http://www.cisco.com/go/ftd-quick>.

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#### What to do next

Verify that the restore succeeded and the replacement device is passing traffic as expected.

## Zero-Touch Restore Threat Defense from Backup: ISA 3000

Device backup and restore is intended for RMA. Restoring configurations overwrites *all* configurations on the device, including the management IP address. It also reboots the device.

In case of hardware failure, this procedure outlines how to replace an ISA 3000 threat defense device, either standalone or in an HA pair. It assumes you have a backup of the failed unit on an SD card; see [Back up a Device from the Management Center, on page 12](#).

For high availability and clustered devices, you can use this procedure to replace all peers. To replace all, perform all steps on all devices simultaneously, except the **restore** CLI command itself.



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**Note** Do *not* unregister from the management center, even when disconnecting a device from the network. For threat defense high availability and clustered devices, do *not* suspend or break high availability or clustering. Maintaining these links ensures replacement devices can automatically reconnect after restore.

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#### Before you begin

You must read and understand the requirements, guidelines, limitations, and best practices. You do not want to skip any steps or ignore security concerns. Careful planning and preparation can help you avoid missteps.

- [Requirements for Backup and Restore, on page 3](#)
- [Guidelines and Limitations for Backup and Restore, on page 4](#)
- [Best Practices for Backup and Restore, on page 6](#)

## Procedure

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- Step 1** Contact Cisco TAC for replacement hardware.  
Obtain an identical model, with the same number of network modules and same type and number of physical interfaces. You can begin the RMA process from the [Cisco Returns Portal](#).
- Step 2** Remove the SD card from the faulty device, and unrack the device.  
Disconnect all interfaces. In threat defense HA deployments, this includes the failover link.
- Note** Do *not* unregister from the management center, even when disconnecting a device from the network. For threat defense high availability and clustered devices, do *not* suspend or break high availability or clustering. Maintaining these links ensures replacement devices can automatically reconnect after restore.
- Step 3** Rerack the replacement device, and connect it to the management network. In threat defense HA deployments, connect the failover link. However, do *not* connect the data interfaces.  
If you need to reimage the device or apply a software patch, connect the power connector.
- Step 4** (May be required) Reimage the replacement device.  
In an RMA scenario, the replacement device will arrive configured with factory defaults. If the replacement device is not running the same major version as the faulty device, you need to reimage. Obtain the installer from <https://www.cisco.com/go/isa3000-software>.  
See the [Cisco Secure Firewall ASA and Secure Firewall Threat Defense Reimage Guide](#) to reimage.
- Step 5** (May be required) Make sure the replacement device is running the same Secure Firewall software version, *including the same patch version*, as the faulty device. If you need to patch the device, you can connect to Secure Firewall device manager (device manager) to install the patch.  
The following procedure assumes you have a factory default configuration. If you already configured the device, you can log into device manager and go directly to the **Device > Upgrades** page to install the patch.  
In either case, obtain the patch package from <https://www.cisco.com/go/isa3000-software>.
- Connect your computer directly to the inside (Ethernet 1/2) interface, and access device manager on the default IP address: **https://192.168.95.1**.
  - Enter the **admin** username and the default password **Admin123**, then click **Login**.
  - Complete the setup wizard. Keep in mind that you are not going to retain anything you configure in device manager; you only want to get past any initial configuration so you can apply the patches, so it doesn't matter what you enter in the setup wizard.
  - Go to the **Device > Upgrades** page.  
The **System Upgrade** section shows the currently running software version.
  - Upload the patch file by clicking **Browse**.
  - Click **Install** to start the installation process.
- Information next to the icon indicates whether the device will reboot during installation. You are automatically logged out of the system. Installation might take 30 minutes or more.  
Wait before logging into the system again. The Device Summary, or System monitoring dashboard, should show the new version.

**Note** Do not simply refresh the browser window. Instead, delete any path from the URL, and reconnect to the home page. This ensures that cached information gets refreshed with the latest code.

**Step 6** Insert the SD card in the replacement device.

**Step 7** Power on or reboot the device and shortly after it starts the bootup, depress and hold the Reset button for no fewer than 3 seconds and no longer than 15 seconds.

If you used device manager to install a patch, you can reboot from the **Device > System Settings > Reboot/Shutdown** page. From the threat defense CLI, use the **reboot** command. If you have not yet attached power, attach it now.

Use a standard size #1 paper clip with wire gauge 0.033 inch or smaller to depress the Reset button. The restoration process is triggered during bootup. The device restores the configuration, and then reboots. The device will then register with the management center automatically.

If you are restoring both devices in an HA pair, do this sequentially. Do not restore the second device until the restore process completes for the first device, including the reboot.

**Step 8** Log into the management center and wait for the replacement device to connect.

At this time, the device should appear out of date.

**Step 9** Before you deploy, perform any post-restore tasks and resolve any post-restore issues:

- Resolve licensing conflicts or orphan entitlements. Contact Cisco TAC.
- Resume high availability synchronization. From the threat defense CLI, enter `configure high-availability resume`. See *Suspend and Resume High Availability* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#).
- Re-add/re-enroll all VPN certificates. The restore process removes VPN certificates from threat defense devices, including certificates added after the backup was taken. See *Managing VPN Certificates* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#).

**Step 10** Deploy configurations.

You must deploy. After you restore a device, you must force deploy from the Device Management page. See *Redeploy Existing Configurations to a Device* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#).

**Step 11** Connect the device's data interfaces.

See the hardware installation guide for your model: <http://www.cisco.com/go/ftd-quick>.

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### What to do next

Verify that the restore succeeded and the replacement device is passing traffic as expected.

## Restore Threat Defense from Backup: Firepower 4100/9300 Chassis

Device backup and restore is intended for RMA. Restoring configurations overwrites *all* configurations on the device, including the management IP address. It also reboots the device.

In case of hardware failure, this procedure outlines how to replace a Firepower 4100/9300, standalone or in a High Availability pair or as a cluster. It assumes you have access to successful backups of:

- The logical device or devices you are replacing; see [Back up a Device from the Management Center, on page 12](#).
- FXOS configurations; see [Exporting an FXOS Configuration File, on page 13](#).

For high availability and clustered devices, you can use this procedure to replace all peers. To replace all, perform all steps on all devices simultaneously, except the **restore** CLI command itself.




---

**Note** Do *not* unregister from the management center, even when disconnecting a device from the network. For threat defense high availability and clustered devices, do *not* suspend or break high availability or clustering. Maintaining these links ensures replacement devices can automatically reconnect after restore.

---

### Before you begin

You must read and understand the requirements, guidelines, limitations, and best practices. You do not want to skip any steps or ignore security concerns. Careful planning and preparation can help you avoid missteps.

- [Requirements for Backup and Restore, on page 3](#)
- [Guidelines and Limitations for Backup and Restore, on page 4](#)
- [Best Practices for Backup and Restore, on page 6](#)

### Procedure

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- Step 1** Contact Cisco TAC for replacement hardware.  
Obtain an identical model, with the same number of network modules and same type and number of physical interfaces. You can begin the RMA process from the [Cisco Returns Portal](#).
- Step 2** Locate a successful backup of the faulty device.  
Depending on your backup configuration, device backups may be stored:
- On the faulty device itself in `/var/sf/backup`.
  - On the management center in `/var/sf/remote-backup`.
  - In a remote storage location.

For threat defense high availability and clustered devices, you back up the group as a unit. For high availability devices, the backup process produces unique backup files, with each device's role indicated in the backup file name. For clusters, control and data node backup files are bundled together in a single compressed file. You must extract the files, which also indicate the device role.

If the only copy of the backup is on the faulty device, copy it somewhere else now. If you reimage the device, the backup will be erased. If something else goes wrong, you may not be able to recover the backup. For more information, see [Manage Backups and Remote Storage, on page 28](#).

The replacement device will need the backup, but can retrieve it with SCP during the restore process. We recommend you put the backup somewhere SCP-accessible to the replacement device. Or, you can copy the backup to the replacement device itself.

**Step 3** Locate a successful backup of your FXOS configurations.

**Step 4** Remove (unrack) the faulty device.

Disconnect all interfaces. In threat defense high availability deployments, this includes the failover link. For clustering, this includes the cluster control link.

See the hardware installation and getting started guides for your model: <http://www.cisco.com/go/ftd-quick>.

**Note** Do *not* unregister from the management center, even when disconnecting a device from the network. For threat defense high availability and clustered devices, do *not* suspend or break high availability or clustering. Maintaining these links ensures replacement devices can automatically reconnect after restore.

**Step 5** Install the replacement device and connect it to the management network.

Connect the device to power and the management interface to the management network. In threat defense high availability deployments, connect the failover link. For clustering, connect the cluster control link. However, do *not* connect the data interfaces.

See the hardware installation guide for your model: <http://www.cisco.com/go/ftd-quick>.

**Step 6** (Optional) Reimage the replacement device.

In an RMA scenario, the replacement device will arrive configured with factory defaults. If the replacement device is not running the same major version as the faulty device, we recommend you reimage.

See the instructions on restoring the factory default configuration in the appropriate [Cisco Firepower 4100/9300 FXOS Firepower Chassis Manager Configuration Guide](#).

**Step 7** Make sure FXOS is running a compatible version.

You must be running a compatible FXOS version before you re-add logical devices. You can use chassis manager to import your backed-up FXOS configurations: [Importing a Configuration File, on page 25](#).

**Step 8** Use chassis manager to add logical devices and perform initial configurations.

Do not set the same management IP addresses as the logical device or devices on the faulty chassis. This can cause problems if you need to register a logical device in order to patch it. The restore process will correctly reset the management IP address.

See the management center deployment chapter in the getting started guide for your model: <http://www.cisco.com/go/ftd-quick>.

**Note** If you need to patch a logical device, register to the management center as described in the getting started guide. If you do not need to patch, do *not* register.

**Step 9** Make sure the replacement device is running the same software version, *including patches*, as the faulty device.

Ensure that the existing device should not be deleted from the management center. The replacement device should be unmanaged from the physical network and the new hardware as well as the replacing threat defense patch should have the same version. The threat defense CLI does not have an upgrade command. To patch:

a) From the management center web interface, complete the device registration process.

Create a new AC policy and use the default action "Network Discovery". Leave this policy as is; do not add any features or modifications. This is being used to register the device and deploy a policy with no features so that you do not require licenses, and you will then be able to patch the device. Once backup is restored, it should restore the licensing and policy into the expected state.

- b) Patch the device: <https://www.cisco.com/go/ftd-upgrade>.
- c) Unregister the freshly patched device from the management center.

If you do not unregister, you will have a ghost device registered to the management center after the restore process brings your "old" device back up.

**Step 10** Make sure the replacement device has access to the backup file.

The restore process can retrieve the backup with SCP, so we recommend you put the backup somewhere accessible. Or, you can manually copy the backup to the replacement device itself, to `/var/sf/backup`. For clustered devices, extract the appropriate backup file from the backup bundle.

**Step 11** From the threat defense CLI, restore the backup.

Access the threat defense CLI as the `admin` user. You can use the console or you can SSH to the newly configured management interface (IP address or hostname). Keep in mind that the restore process will change this IP address.

To restore:

- With SCP: **restore remote-manager-backup location** *scp-hostname username filepath backup tar-file*
- From the local device: **restore remote-manager-backup backup tar-file**

In threat defense high availability and clustering deployments, make sure you choose the appropriate backup file: primary vs secondary, or control vs. data. The role is noted in the backup file name. If you are restoring all devices, do this sequentially. Do not run the **restore** command on the next device until the restore process completes for the first device, including the reboot.

**Step 12** Log into the management center and wait for the replacement device to connect.

When the restore is done, the device logs you out of the CLI, reboots, and automatically connects to the management center. At this time, the device should appear out of date.

**Step 13** Before you deploy, perform any post-restore tasks and resolve any post-restore issues:

- Resolve licensing conflicts or orphan entitlements. Contact Cisco TAC.
- Re-add/re-enroll all VPN certificates. The restore process removes VPN certificates from threat defense devices, including certificates added after the backup was taken. See *Managing VPN Certificates* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#).

**Step 14** Deploy configurations.

You must deploy. After you restore a device, you must force deploy from the Device Management page. See *Redeploy Existing Configurations to a Device* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#).

**Step 15** Connect the device's data interfaces.



See the hardware installation guide for your model: <http://www.cisco.com/go/ftd-quick>.

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### What to do next

Verify that the restore succeeded and the replacement device is passing traffic as expected.

## Importing a Configuration File

You can use the configuration import feature to apply configuration settings that were previously exported from your Firepower 4100/9300 chassis. This feature allows you to return to a known good configuration or to recover from a system failure.



**Note** This procedure explains how to use chassis manager to import FXOS configurations before you restore the software. For the CLI procedure, see the appropriate version of the [Cisco Firepower 4100/9300 FXOS CLI Configuration Guide](#).

---

### Before you begin

Review the [Configuration Import/Export Guidelines for Firepower 4100/9300](#).

### Procedure

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- Step 1** Choose **System > Tools > Import/Export** on the chassis manager.
- Step 2** To import from a local configuration file:
- Click **Local**.
  - Click **Choose File** to navigate to and select the configuration file that you want to import.
  - Click **Import**.  
A confirmation dialog box opens asking you to confirm that you want to proceed and warning you that the chassis might need to restart.
  - Click **Yes** to confirm that you want to import the specified configuration file.  
The existing configuration is deleted and the configuration specified in the import file is applied to the Firepower 4100/9300 chassis. If there is a breakout port configuration change during the import, the Firepower 4100/9300 chassis will need to restart.
- Step 3** To import from a configuration file on a remote server:
- Click **Remote**.
  - Choose the protocol to use when communicating with the remote server. This can be one of the following: FTP, TFTP, SCP, or SFTP.
  - If you are using a non-default port, enter the port number in the **Port** field.
  - Enter the hostname or IP address of the location where the backup file is stored. This can be a server, storage array, local drive, or any read/write media that the Firepower 4100/9300 chassis can access through the network.
- If you use a hostname rather than an IP address, you must configure a DNS server.

- e) Enter the username the system should use to log in to the remote server. This field does not apply if the protocol is TFTP.
- f) Enter the password for the remote server username. This field does not apply if the protocol is TFTP.

**Note** The password must not exceed 64 characters. If you enter a password more than 64 character, chassis manager will display an error stating that `property pwd of org-root/cfg-exp-policy-default is out of range.`

- g) In the **File Path** field, enter the full path to the configuration file including the file name.
- h) Click **Import**.  
A confirmation dialog box opens asking you to confirm that you want to proceed and warning you that the chassis might need to restart.
- i) Click **Yes** to confirm that you want to import the specified configuration file.  
The existing configuration is deleted and the configuration specified in the import file is applied to the Firepower 4100/9300 chassis. If there is a breakout port configuration change during the import, the Firepower 4100/9300 chassis will need to restart.

## Restore Threat Defense Virtual from Backup

Use this procedure to replace a faulty or failed threat defense virtual device.

For high availability and clustered devices, you can use this procedure to replace all peers. To replace all, perform all steps on all devices simultaneously, except the **restore** CLI command itself.



**Note** Do *not* unregister from the management center, even when disconnecting a device from the network. For threat defense high availability and clustered devices, do *not* suspend or break high availability or clustering. Maintaining these links ensures replacement devices can automatically reconnect after restore.

### Before you begin

You must read and understand the requirements, guidelines, limitations, and best practices. You do not want to skip any steps or ignore security concerns. Careful planning and preparation can help you avoid missteps.

- [Requirements for Backup and Restore, on page 3](#)
- [Guidelines and Limitations for Backup and Restore, on page 4](#)
- [Best Practices for Backup and Restore, on page 6](#)

### Procedure

#### Step 1

Locate a successful backup of the faulty device.

Depending on your backup configuration, device backups may be stored:

- On the faulty device itself in `/var/sf/backup`.
- On the management center in `/var/sf/remote-backup`.

- In a remote storage location.

For threat defense high availability and clustered devices, you back up the group as a unit. For high availability devices, the backup process produces unique backup files, with each device's role indicated in the backup file name. For clusters, control and data node backup files are bundled together in a single compressed file. You must extract the files, which also indicate the device role.

If the only copy of the backup is on the faulty device, copy it somewhere else now. If you reimage the device, the backup will be erased. If something else goes wrong, you may not be able to recover the backup. For more information, see [Manage Backups and Remote Storage, on page 28](#).

The replacement device will need the backup, but can retrieve it with SCP during the restore process. We recommend you put the backup somewhere SCP-accessible to the replacement device. Or, you can copy the backup to the replacement device itself.

**Step 2** Remove the faulty device.

Shut down, power off, and delete the virtual machine. For procedures, see the documentation for your virtual environment.

**Step 3** Deploy a replacement device.

See <https://www.cisco.com/go/ftdv-quick>.

**Step 4** Perform initial configuration on the replacement device.

Use the console to access the threat defense CLI as the `admin` user. A setup wizard prompts you to configure the management IP address, gateway, and other basic network settings.

Do not set the same management IP address as the faulty device. This can cause problems if you need to register the device in order to patch it. The restore process will correctly reset the management IP address.

See the CLI setup topics in the getting started guide: <https://www.cisco.com/go/ftdv-quick>.

**Note** If you need to patch the replacement device, start the management center registration process as described in the getting started guide. If you do not need to patch, do *not* register.

**Step 5** Make sure the replacement device is running the same software version, *including patches*, as the faulty device.

Ensure that the existing device should not be deleted from the management center. The replacement device should be unmanaged from the physical network and the new hardware as well as the replacing threat defense patch should have the same version. The threat defense CLI does not have an upgrade command. To patch:

a) From the management center web interface, complete the device registration process.

Create a new AC policy and use the default action "Network Discovery". Leave this policy as is; do not add any features or modifications. This is being used to register the device and deploy a policy with no features so that you do not require licenses, and you will then be able to patch the device. Once backup is restored, it should restore the licensing and policy into the expected state.

b) Patch the device: <https://www.cisco.com/go/ftd-upgrade>.

c) Unregister the freshly patched device from the management center.

If you do not unregister, you will have a ghost device registered to the management center after the restore process brings your "old" device back up.

**Step 6** Make sure the replacement device has access to the backup file.

The restore process can retrieve the backup with SCP, so we recommend you put the backup somewhere accessible. Or, you can manually copy the backup to the replacement device itself, to `/var/sf/backup`. For clustered devices, extract the appropriate backup file from the backup bundle.

**Step 7** From the threat defense CLI, restore the backup.

Access the threat defense CLI as the `admin` user. You can use the console or you can SSH to the newly configured management interface (IP address or hostname). Keep in mind that the restore process will change this IP address.

To restore:

- With SCP: **restore remote-manager-backup location** `scp-hostname username filepath backup tar-file`
- From the local device: **restore remote-manager-backup** `backup tar-file`

In threat defense high availability and clustering deployments, make sure you choose the appropriate backup file: primary vs secondary, or control vs. data. The role is noted in the backup file name. If you are restoring all devices, do this sequentially. Do not run the **restore** command on the next device until the restore process completes for the first device, including the reboot.

**Step 8** Log into the management center and wait for the replacement device to connect.

When the restore is done, the device logs you out of the CLI, reboots, and automatically connects to the management center. At this time, the device should appear out of date.

**Step 9** Before you deploy, perform any post-restore tasks and resolve any post-restore issues:

- Resolve licensing conflicts or orphan entitlements. Contact Cisco TAC.
- Re-add/re-enroll all VPN certificates. The restore process removes VPN certificates from threat defense devices, including certificates added after the backup was taken. See *Managing VPN Certificates* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#).

**Step 10** Deploy configurations.

You must deploy. After you restore a device, you must force deploy from the Device Management page. See *Redeploy Existing Configurations to a Device* in the [Cisco Secure Firewall Management Center Device Configuration Guide](#).

**Step 11** Add and configure data interfaces.

See the getting started guide: <https://www.cisco.com/go/ftdv-quick>.

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### What to do next

Verify that the restore succeeded and the replacement device is passing traffic as expected.

## Manage Backups and Remote Storage

Backups are stored as unencrypted archive (.tar) files. The file name includes identifying information that can include:

- The name of the backup profile or scheduled task associated with the backup.

- The display name or IP address of the backed-up appliance.
- The appliance's role, such as a member of an HA pair.

We recommend you back up appliances to a secure remote location and verify transfer success. Backups left on an appliance may be deleted, either manually or by the upgrade process; upgrades purge locally stored backups. For more information on your options, see [Backup Storage Locations, on page 30](#).



**Caution** Especially because backup files are unencrypted, do *not* allow unauthorized access. If backup files are modified, the restore process will fail. Keep in mind that anyone with the Admin/Maint role can access the Backup Management page, where they can move and delete files from remote storage.

The following procedure describes how to manage backup files.

### Procedure

**Step 1** Select **System** (⚙️) > **Tools** > **Backup/Restore**.

The Backup Management page lists available backups. It also lists how much disk space you have available to store backups. Backups can fail if there is not enough space.

**Step 2** Do one of the following:

**Table 2: Remote Storage and Backup File Management**

To	Do This
Enable or disable remote storage for backups without having to edit the management center system configuration.	<p>Click <b>Enable Remote Storage for Backups</b>.</p> <p>This option appears only after you configure remote storage. Toggling it here also toggles it in the system configuration (<b>System</b> &gt; <b>Configuration</b> &gt; <b>Remote Storage Device</b>).</p> <p><b>Tip</b> To quickly access your remote storage configuration, click <b>Remote Storage</b> at the upper right of the Backup Management page.</p> <p><b>Note</b> To store backup on the remote storage location, you must also enable the <b>Retrieve to Management Center</b> option (see <a href="#">Back up a Device from the Management Center, on page 12</a>).</p>
Move a file between the management center and the remote storage location.	<p>Click <b>Move</b>.</p> <p>You can move a file back and forth as many times as you want. This will delete—not copy—the file from the current location.</p> <p>When you move a backup file from remote storage to the management center, where it is stored on the management center depends on the kind of backup:</p> <ul style="list-style-type: none"> <li>• Management Center backups: <code>/var/sf/backup</code></li> <li>• Device backups: <code>/var/sf/remote-backup</code></li> </ul>

To	Do This
View the contents of the backup.	Click the backup file.
Delete a backup file.	Choose a backup file and click <b>Delete</b> . You can delete both locally and remotely stored backup files.
Upload a backup file from your computer.	Click <b>Upload Backup</b> , choose a backup file, and click <b>Upload Backup</b> again.
Download a backup to your computer.	Choose a backup file and click <b>Download</b> . Unlike moving a backup file, this does not delete the backup from the management center. Store your downloaded backup in a secure location.

## Backup Storage Locations

The following table describes backup storage options for management centers and managed devices.

**Table 3: Backup Storage Locations**

Location	Details
Remote, by mounting a network volume (NFS, SMB, SSHFS).	<p><b>Note</b> Backup is stored on a remote storage location only when you have configured remote storage and enabled the <b>Retrieve to Management Center</b> option (see <a href="#">Back up a Device from the Management Center, on page 12</a>).</p> <p>In the management center's system configuration, you can mount an NFS, SMB, or SSHFS network volume as remote storage for management center and device backups; see <a href="#">Remote Storage Device</a>.)</p> <p>After you do this, all subsequent management center backups <i>and management center-initiated device backups</i> are copied to that volume, but you can still use the management center to manage them (restore, download, upload, delete, move).</p> <p>Note that only the management center mounts the network volume. Managed device backup files are routed through the management center. Make sure you have the bandwidth to perform a large data transfer between the management center and its devices. For more information, see <a href="#">Guidelines for Downloading Data from the Firepower Management Center to Managed Devices</a> (Troubleshooting TechNote).</p>

Location	Details
Remote, by copying (SCP).	<p><b>Note</b> Backup is stored on a remote storage location only when you have configured remote storage and enabled the <b>Retrieve to Management Center</b> option (see <a href="#">Back up a Device from the Management Center, on page 12</a>).</p> <p>For the management center, you can use a <b>Copy when complete</b> option to securely copy (SCP) completed backups to a remote server.</p> <p>Compared with remote storage by mounting a network volume, <b>Copy when complete</b> cannot copy to NFS or SMB volumes. You cannot provide CLI options or set a disk space threshold, and it does not affect remote storage of reports. You also cannot manage backup files after they are copied out.</p> <p>This option is useful if you want to store backups locally <i>and</i> SCP them to a remote location.</p> <p><b>Note</b> If you configure SSHFS remote storage in the management center system configuration, do <i>not</i> copy backup files to the same directory using <b>Copy when complete</b>.</p>
Local, on the management center.	<p>If you do not configure remote storage by mounting a network volume, you can save backup files on the management center:</p> <ul style="list-style-type: none"> <li>• management center backups are saved to <code>/var/sf/backup</code>.</li> <li>• Device backups are saved to <code>/var/sf/remote-backup</code> on the management center if you enable the <b>Retrieve to Management Center</b> option when you perform the backup.</li> </ul>
Local, on the device internal flash memory.	<p>Device backup files are saved to <code>/var/sf/backup</code> on the device if you:</p> <ul style="list-style-type: none"> <li>• Do not configure remote storage by mounting a network volume.</li> <li>• Do not enable <b>Retrieve to Management Center</b>.</li> </ul>
Local, on the device SD card.	<p>For the ISA 3000, when you back up the device to the local <code>/var/sf/backup</code> internal flash memory location, if you have an SD card installed, the backup is automatically copied to the SD card at <code>/mnt/disk3/backup/</code> for use with zero-touch restore.</p>

## History for Backup and Restore

Feature	Minimum Management Center	Minimum Threat Defense	Details
Single backup file for high availability management centers.	7.4.1 7.2.6	Any	When performing a configuration-only backup of the active management center in a high availability pair, the system now creates a single backup file which you can use to restore either unit.  Other version restrictions: Not supported with management center Version 7.3.x or 7.4.0.
Back up and restore device clusters.	7.3.0	Any	You can now use the management center to back up device clusters, except in the public cloud (threat defense virtual for AWS). To restore, use the device CLI.  New/modified screens: <b>System &gt; Tools &gt; Backup/Restore &gt; Managed Device Backup</b>  New/modified commands: <b>restore remote-manager-backup</b>
Back up and restore threat defense virtual for AWS.	7.2.0	Any	You can now use the management center to back up threat defense virtual for AWS, except device clusters. To restore, use the device CLI.
Zero-touch restore for the ISA 3000 using the SD card.	7.0.0	7.0.0	When you perform a local backup, the backup file is copied to the SD card if present. To restore the configuration on a replacement device, simply install the SD card in the new device, and depress the Reset button for 3 to 15 seconds during the device bootup.
Back up and restore FTD container instances.	6.7.0	6.7.0	You can now use the FMC to perform on-demand remote backups of FTD container instances on the Firepower 4100/9300.
No longer need to match VDBs to restore.	6.6.0	Any	Restoring the FMC from backup now replaces the existing VDB with the VDB in the backup file. You no longer need to match VDB versions before you restore.
Automatically scheduled backups.	6.5.0	Any	For new or reimaged FMCs, the setup process creates a weekly scheduled task to back up FMC configurations and store them locally.
On-demand remote backups of managed devices.	6.3.0	6.3.0	You can now use the FMC to perform on-demand remote backups of certain managed devices.  For supported platforms, see <a href="#">Requirements for Backup and Restore, on page 3</a> .  New/modified screens: <b>System &gt; Tools &gt; Backup/Restore &gt; Managed Device Backup</b>  New/modified FTD CLI commands: <b>restore</b>