Device Settings

After you add a device, you can edit device-related settings on the **Device** page.

1. Choose **Devices** > **Device Management**.
2. Next to the device you want to modify, click **Edit** ( ).
3. Click **Device**.

Edit General Settings

The **General** section of the **Device** page displays the settings described in the table below.

Figure 1: General

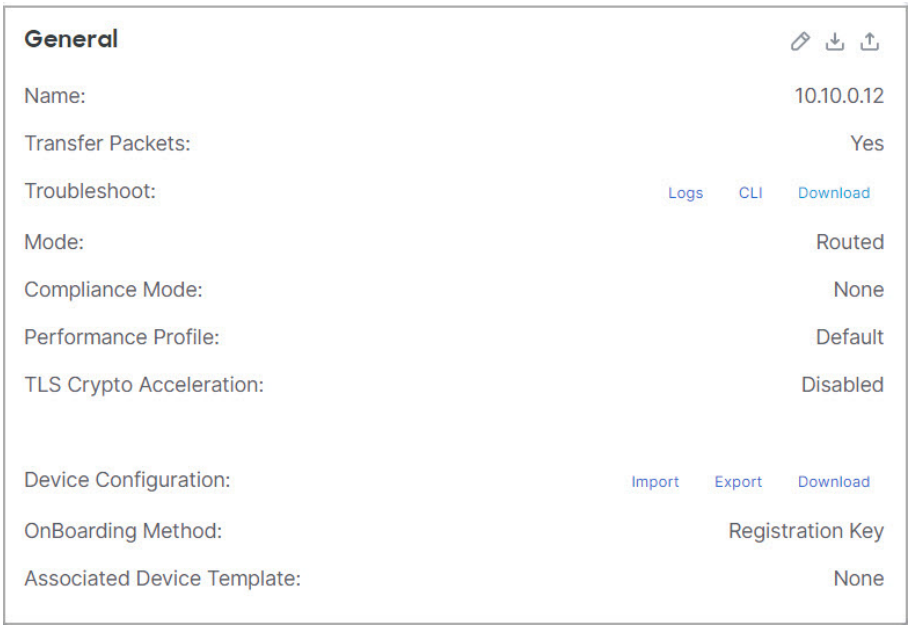


Table 1: General Section Table Fields

Field	Description
Name	The display name of the device on the Firewall Management Center.
Transfer Packets	This displays whether or not the managed device sends packet data with the events to the Firewall Management Center.
Troubleshoot	Lets you generate and download troubleshooting files and also see CLI command output. See Generate Troubleshooting Files, on page 3 and View CLI Output, on page 6.
Mode	The displays the mode of the management interface for the device: **routed** or **transparent**.
Compliance Mode	This displays the security certifications compliance for a device. Valid values are CC, UCAPL and None.
Performance Profile	This displays the core allocation performance profile for the device, as configured in the platform settings policy.
TLS Crypto Acceleration:	Shows whether TLS crypto acceleration is enabled or disabled.
Device Configuration	Lets you copy, export, or import a configuration. See Copy a Configuration to Another Device, on page 8 and Export and Import the Device Configuration, on page 10.
OnBoarding Method	Shows whether the device was registered using a registration key or using the serial number (zero-touch provisioning).

You can edit some of these settings from this section.

Procedure

Step 1 Choose **Devices** > **Device Management**.

Step 2 Next to the device you want to modify, click **Edit** (✎).

Step 3 Click **Device**.

Step 4 In the **General** section, click **Edit** (✎).

a) Enter a **Name** for the managed device.

b) Check **Transfer Packets** to allow packet data to be stored with events on the Firewall Management Center.

c) Click **Force Deploy** to force deployment of current policies and device configuration to the device.

Note
Force-deploy consumes more time than the regular deployment since it involves the complete generation of the policy rules to be deployed on the Firewall Threat Defense.

Step 5 For **Troubleshoot** actions, see Generate Troubleshooting Files, on page 3 and View CLI Output, on page 6.

Step 6 For **Device Configuration** actions, see Copy a Configuration to Another Device, on page 8 and Export and Import the Device Configuration, on page 10.

Step 7 Click **Deploy**.

What to do next

- Deploy configuration changes; see Deploy Configuration Changes.

Generate Troubleshooting Files

You can generate and download troubleshooting files for each device and also for all cluster nodes. For a cluster, you can download all files as a single compressed file. You can also include cluster logs for the cluster for cluster nodes.

You can alternatively trigger file generation from the **Devices** > **Device Management**, from the **More** (⋮) drop-down list, choose **Troubleshoot Files**.

Procedure

Step 1 Choose **Devices** > **Device Management**.

Step 2 Next to the device or cluster you want to view, click **Edit** (✎).

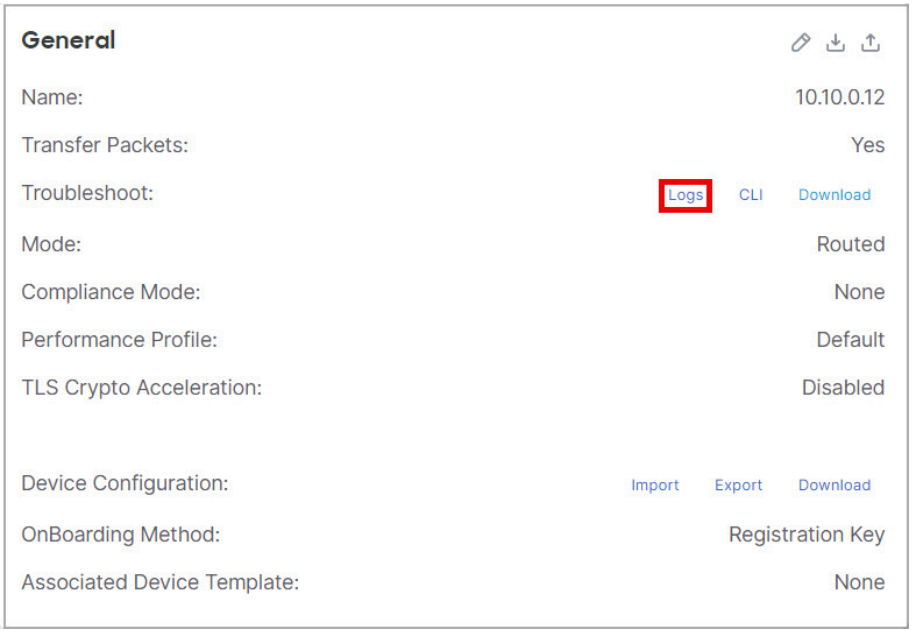
In a multidomain deployment, if you are not in a leaf domain, the system prompts you to switch.

Step 3 Click **Device** or **Cluster**.

Step 4 Generate logs for the device or for all cluster nodes.

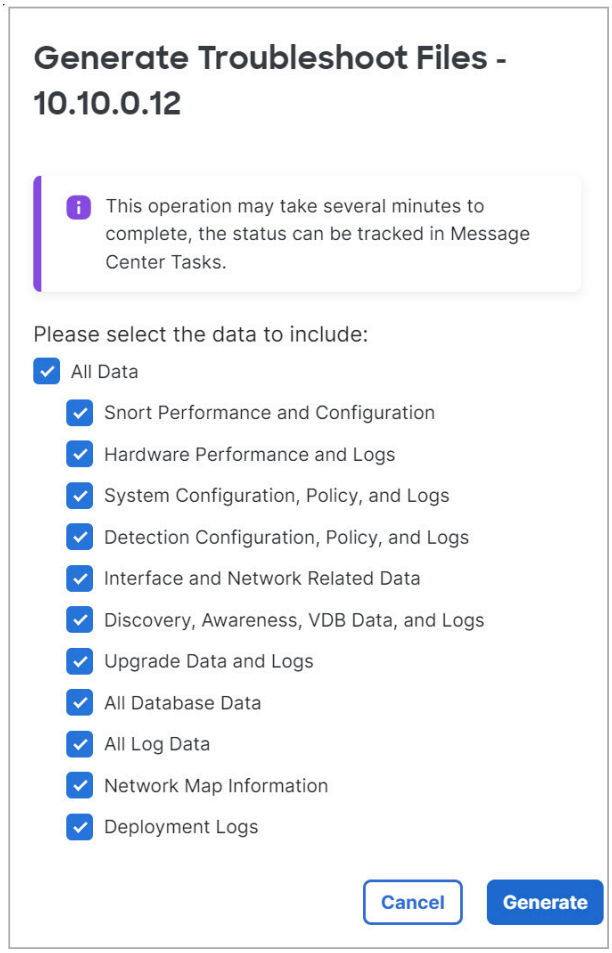
a) In the **General** area, **Troubleshoot** section, click **Logs**.

Figure 2: Logs



b) You are prompted to choose the logs you want to include. For a cluster, under **Device**, you can choose **All Devices** or an individual node. A cluster also has the **Cluster Logs** available.

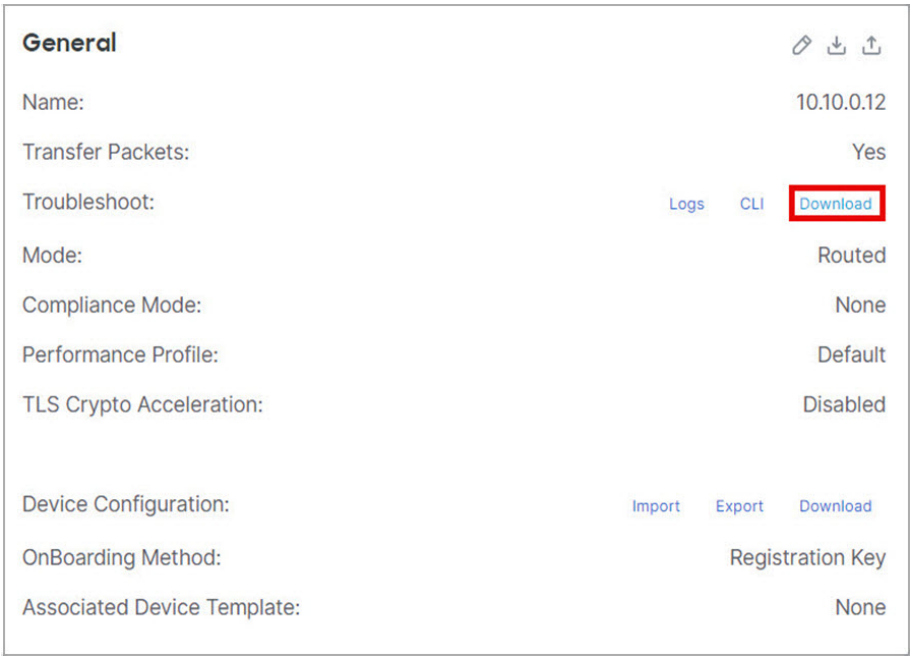
Figure 3: Generate Troubleshoot Files



c) Click **Generate**.

Step 5 To download the generated logs, in the **General** area, **Troubleshoot** section, click **Download**.

Figure 4: Download



The logs are downloaded to your computer.

View CLI Output

You can view a set of pre-defined CLI outputs that can help you troubleshoot the device or cluster. You can also enter any **show** command and see the output.

For a device, the following commands are executed:

- **show version**
- **show asp drop**
- **show counters**
- **show int ip brief**
- **show blocks**
- **show cpu detailed**

For a cluster or cluster node:

- **show running-config cluster**
- **show cluster info**
- **show cluster info health**
- **show cluster info transport cp**

- **show version**
- **show asp drop**
- **show counters**
- **show arp**
- **show int ip brief**
- **show blocks**
- **show cpu detailed**
- **show interface** *ccl_interface*
- **ping** *ccl_ip* **size** *ccl_mtu* **repeat 2**

Procedure

Step 1 Choose **Devices** > **Device Management**.

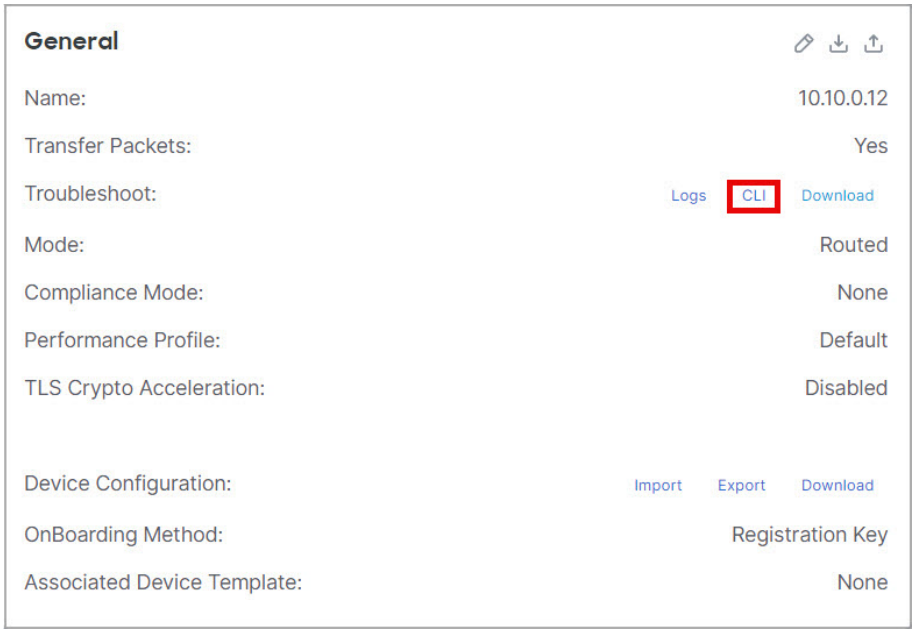
Step 2 Next to the device or cluster you want to view, click **Edit** (✎).

In a multidomain deployment, if you are not in a leaf domain, the system prompts you to switch.

Step 3 Click **Device** or **Cluster**.

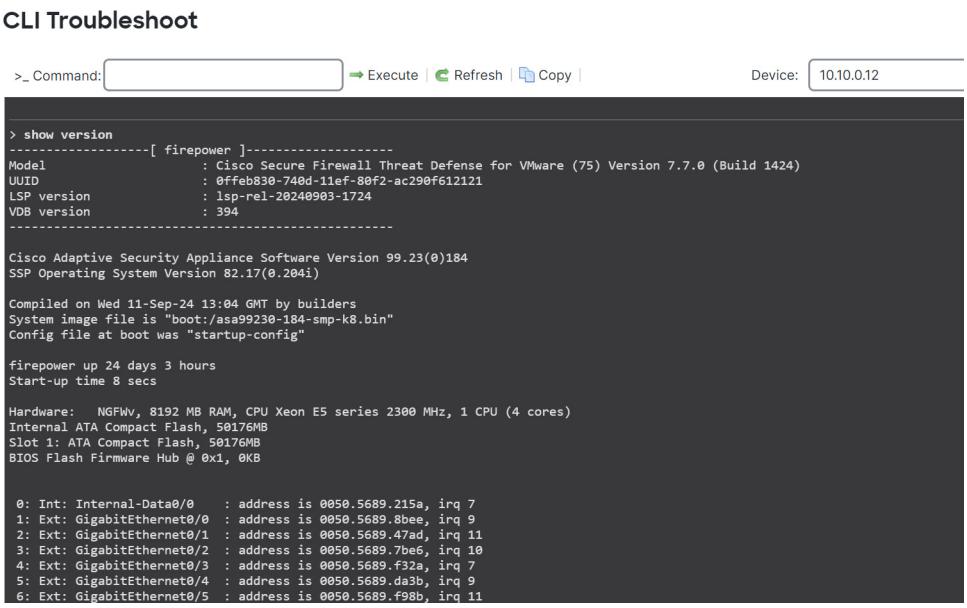
Step 4 In the **General** area, **Troubleshoot** section, click **CLI**.

Figure 5: CLI



The **CLI Troubleshoot** dialog box appears with the pre-defined CLIs executed.

Figure 6: CLI Troubleshoot



Step 5 On the **CLI Troubleshoot** dialog box, you can perform the following tasks.

- Enter a **show** command in the **Command** field, and click **Execute**. The new command output will be added to the window.
- Click **Refresh** to re-run the predefined CLIs.
- Click **Copy** to copy the output to your clipboard.
- For a cluster, choose a different node from the **Device** drop-down list.

Step 6 Click **Close**.

Copy a Configuration to Another Device

When a new device is deployed in the network you can easily copy configurations and policies from a pre-configured device, instead of manually reconfiguring the new device.

Before you begin

Confirm that:

- The source and destination devices are the same model and are running the same version of the software.
- The source is either a standalone device or a high availability pair.
- The destination device is a standalone device.
- The source and destination devices have the same number of physical interfaces.
- The source and destination devices are in the same firewall mode: routed or transparent.

- The source and destination devices are in the same security-certifications-compliance mode.
- The source and destination devices are in the same domain.
- Configuration deployment is not in progress on either the source or the destination devices.

Procedure

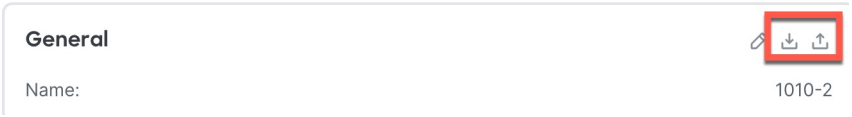
Step 1 Choose **Devices** > **Device Management**.

Step 2 Next to the device you want to modify, click **Edit** ( ).

Step 3 Click **Device**.

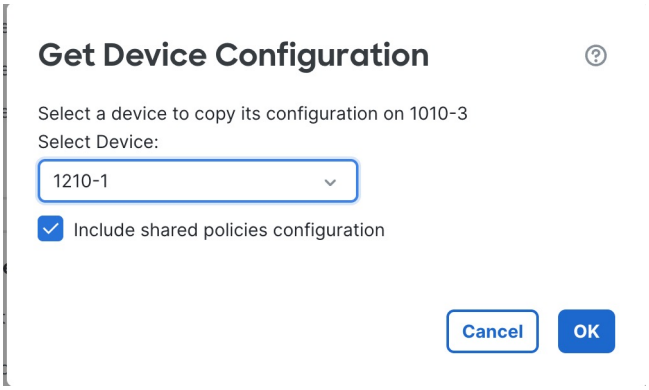
Step 4 In the **General** section, do one of the following:

Figure 7: Copy or Push Device Configuration



- Click **Get Device Configuration** ( ) to copy device configuration from another device to the new device. On the **Get Device Configuration** page, select the source device in the **Select Device** drop-down list.

Figure 8: Select Device



- Click **Push Device Configuration** ( ) to copy device configuration from the current device to the new device. On the **Push Device Configuration** page, select the destination to which configuration is to be copied in the **Target Device** drop-down list.

Step 5 (Optional) Check **Include shared policies configuration** check box to copy policies.

Shared policies like AC policy, NAT, Platform Settings and FlexConfig policies can be shared across multiple devices.

Step 6 Click **OK**.

You can monitor the status of the copy device configuration task on **Tasks** in the Message Center.

When the copy device configuration task is initiated, it erases the configuration on the target device and copies the configuration of the source device to the destination device.

Warning When you have completed the copy device configuration task, you cannot revert the target device to its original configuration.

Export and Import the Device Configuration

Note

- Export and import of device configuration between on-prem Firewall Management Center and Cloud-Delivered Firewall Management Center is not supported for shared policy and device policy.
- Export and import for the Cloud-Delivered Firewall Management Center is not supported for drop versions if underlying models are changed for policy in different drops.
- Export and import of device configuration is supported only if the device UUID, model and version are same.

You can export all of the the device-specific configuration configurable on the Device pages, including:

- Interfaces
- Inline Sets
- Routing
- DHCP
- VTEP
- Associated objects

You can then import the saved configuration for the same device in the following use cases:

- Moving the device to a different Firewall Management Center—First unregister the device from the original Firewall Management Center, then add the device to the new Firewall Management Center. Then you can import the saved configuration.
- Moving the device between domains—When you move a device between domains, some device-specific configuration is not retained because supporting objects (such as interface groups for security zones) do not exist in the new domain. By importing the configuration after the domain move, any necessary objects are created for that domain, and the device configuration is restored.
- Restore an old configuration—If you deployed changes that negatively impacted the operation of the device, you can import a backup copy of a known working configuration to restore a previous operational state.
- Reregistering a device—If you unregister a device from the Firewall Management Center, but then want to add it back, you can import the saved configuration.

See the following guidelines:

- You can only import the configuration to the same device (the UUID must match). You cannot import a configuration to a different device, even if it is the same model.
- Do not change the version running on the device between exporting and importing; the version must match.
- If you make inventory changes after your export (such as adding or deleting network modules or configuring or joining breakout ports), the device inventory will not match the Firewall Management Center. In this case, the device inventory will be maintained, and you will be prompted to sync the interfaces (see Sync Interface Changes with the Firewall Management Center) and discard incompatible configuration in the Firewall Management Center when you try to deploy. You will have to repeat the inventory changes and related configuration in the Firewall Management Center.
- If you export a standalone configuration, you cannot import it to a high availability pair or vice versa.
- When moving the device to a different Firewall Management Center, the target Firewall Management Center version must be the same as the source version.
- If an object doesn't exist, it will be created. If an object exists, but the value is different, see below:

Table 2: Object Import Action

Scenario	Import Action
Object exists with the same name and value.	Reuse existing objects.
Object exists with the same name but different value.	Network and Port objects: Create object overrides for this device. See Object Overrides. Interface objects: Create new objects. For example, if both the type (security zone or interface group) and the interface type (routed or switched, for example) do not match, then a new object is created. All other objects: Reuse existing objects even though the values are different.
Object doesn't exist.	Create new objects.

Procedure

Step 1 Choose **Devices** > **Device Management**.

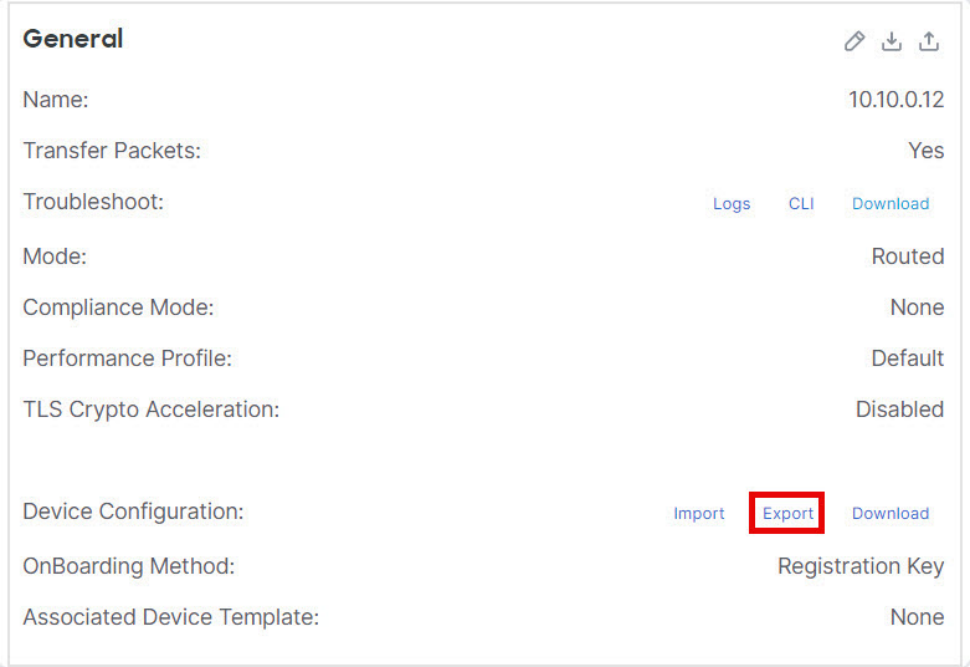
Step 2 Next to the device you want to edit, click **Edit** ( ).

Step 3 Click **Device**.

Step 4 Export the configuration.

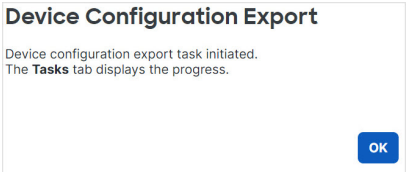
a) In the **General** area, click **Export**.

Figure 9: Export Device Configuration



You are prompted to acknowledge the export; click **OK**.

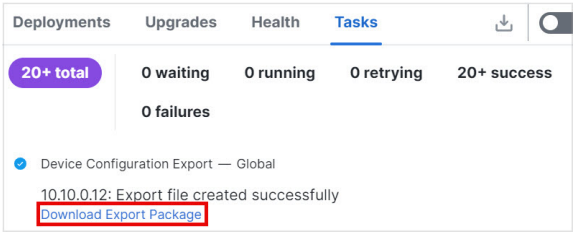
Figure 10: Acknowledge Export



You can view the export progress in the **Tasks** page.

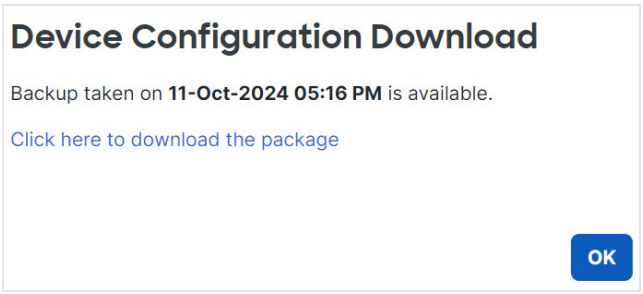
b) Click **Notifications**, and then click the **Tasks** tab. Verify if the export has completed, and then click **Download Export Package**. Alternatively, you can click the **Download** button in the **General** area.

Figure 11: Export Task



You are prompted to download the package; click **Click here to download the package** to save the file locally, and then click **OK** to exit the dialog box.

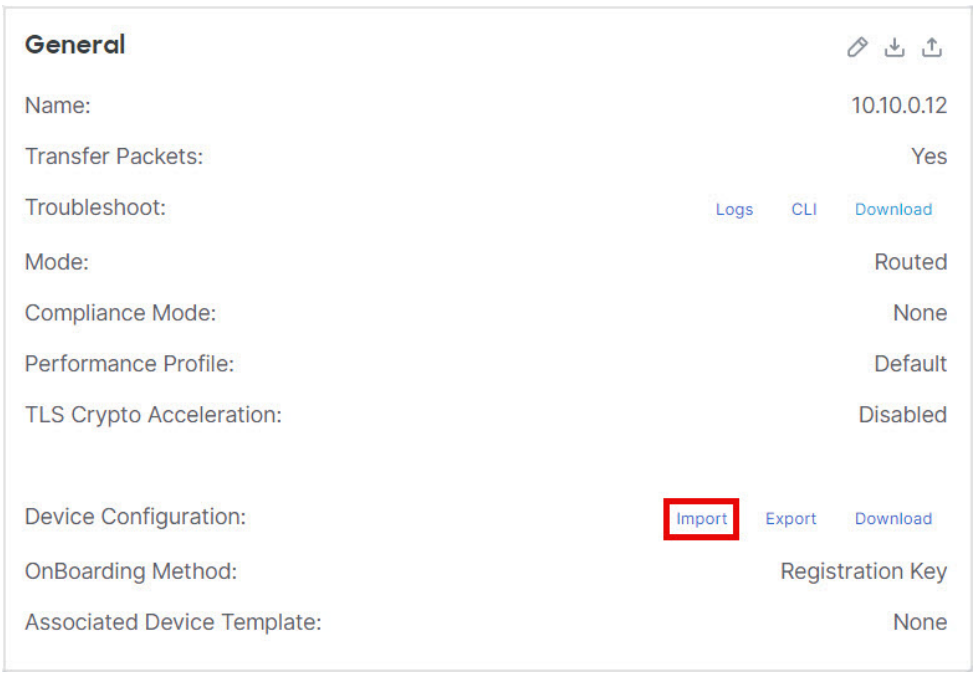
Figure 12: Download Package



Step 5 Import the configuration.

a) In the **General** area, click **Import**.

Figure 13: Import Device Configuration



You are prompted to acknowledge that the current configuration will be replaced. Click **Yes** and then navigate to the configuration package (with the suffix .sfo; note that this file is different from the Backup/Restore files).

Figure 14: Import Package

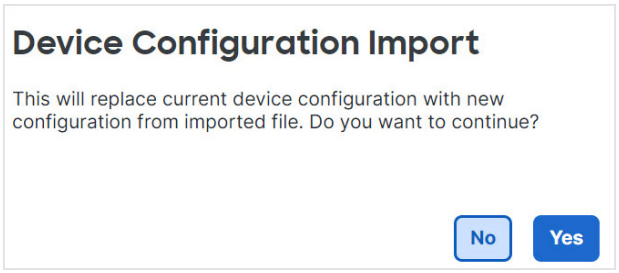
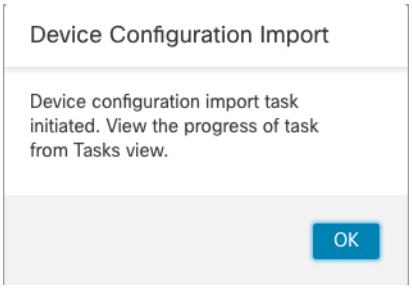


Figure 15: Navigate to Package

You are prompted to acknowledge the import; click **OK**.

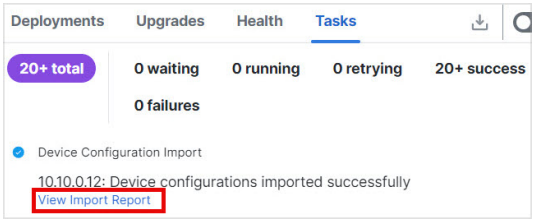
Figure 16: Acknowledge Import



You can view the import progress in the **Tasks** page.

b) To view the import reports so that you can see what was imported, click **Notifications**, and then click the **Tasks** tab. Click **View Import Report**.

Figure 17: View Import Report



The **Device Configuration Import Reports** page provides links to available reports.

Device	Shared Policies	Device Configurations
0ffeb830-740d-11ef-80f2-ac290f612121	Report does not exist	Device configurations import report

c) Deploy configuration changes; see Deploy Configuration Changes.

Edit License Settings

The **License** section of the **Device** page displays the licenses enabled for the device.

You can enable licenses on your device if you have available licenses on your Firewall Management Center.

Procedure

Step 1 Choose **Devices** > **Device Management**.

Step 2 Next to the device where you want to enable or disable licenses, click **Edit** ( ).

Step 3 Click **Device**.

Step 4 In the **License** section, click **Edit** ( ).

Step 5 Check or clear the check box next to the license you want to enable or disable for the managed device.

Step 6 Click **Save**.

What to do next

- Deploy configuration changes; see Deploy Configuration Changes.

View System information

The **System** section of the **Device** page displays a read-only table containing system information, as described in the following table.

You can also shut down or restart the device from this pane, using the icons at the top-right corner.

Figure 18: System

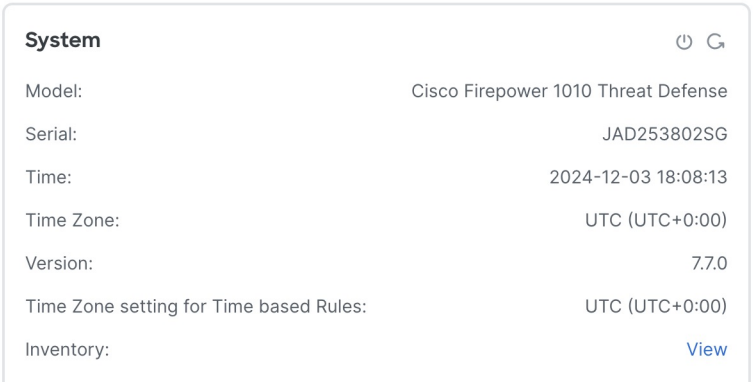


Table 3: System Section Table Fields

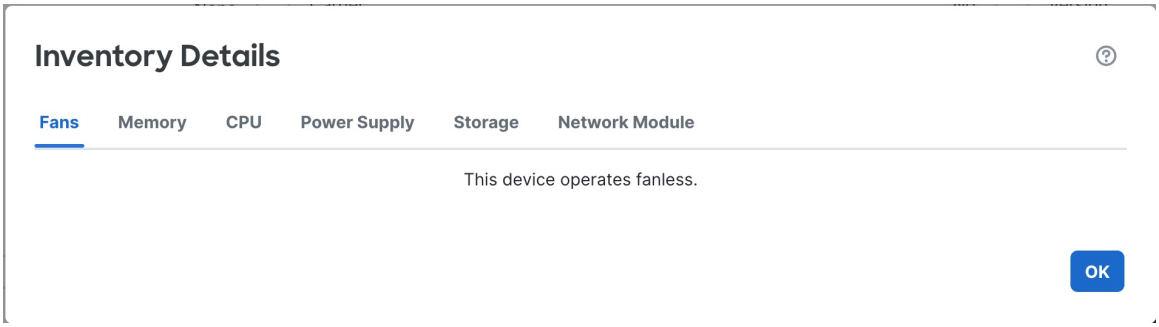
Field	Description
Shut Down Device ( )	Shuts down the device. See Shut Down or Restart the Device.
Restart Device ( )	Restarts the device. See Shut Down or Restart the Device.
Model	Model name and number.
Serial	PCB (circuit board) serial number. The firewall includes two serial numbers: the chassis serial number and the PCB serial number. The chassis serial number is shown in the Inventory section.
Time	Current system time of the device.
Time Zone	Time zone.
Version	Version of the software currently installed on the managed device.
Time Zone setting for Time based rules	Current system time of the device in the time zone specified in device platform settings.
Inventory	Inventory details. See View Device Inventory.

View Device Inventory

Click **View** next to **Inventory** in the **System** section to view a table of device inventory information including Fans, Memory, CPU, Power Supply, Storage, and Network Modules.

The **Inventory Details** table displays information about all the Cisco products installed in the Firewall Threat Defense devices assigned with a product identifier (PID). The PID is the product name using which the product can be ordered.

Figure 19: Inventory Details



The **Memory** tab in the **Inventory Details** table displays information about the field-replaceable memory modules for supported Firewall Threat Defense devices. It also includes information about the operational status of the memory module, which helps to improve its field serviceability. The status can be one of the following:

- **Operable**: Indicates that a field-replaceable memory module is installed in the Firewall Threat Defense device, and it has the expected capacity for the device platform.

- **Degraded**: Indicates that the capacity of the installed memory module does not match the expected capacity of the Firewall Threat Defense device platform, or that an uncorrectable error is detected. Contact Cisco Technical Assistance Center for further assistance.
- **Inoperable**: Indicates that the dual-inline memory module cannot be detected by the Firewall Threat Defense device.

View the Inspection Engine

The Inspection Engine section of the **Device** page shows the inspection engine that is used on your device. Snort 3 is the only engine available for devices on version 7.7 and later.

Edit Health Settings

The **Health** section of the **Device** page displays the information described in the table below.

Figure 20: Health

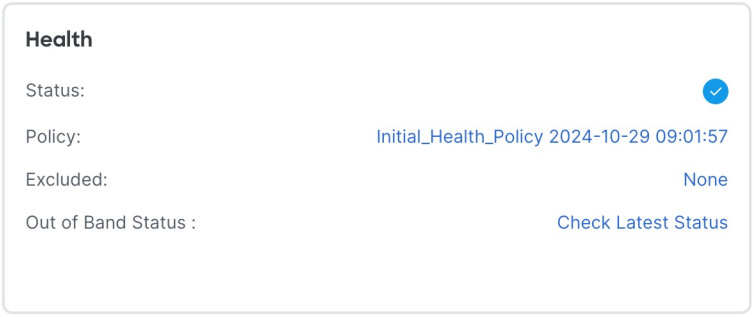


Table 4: Health Section Table Fields

Field	Description
Status	An icon that represents the current health status of the device. Clicking the icon displays the Health Monitor for the appliance.
Policy	A link to a read-only version of the health policy currently deployed at the device.
Excluded	A link to the **Health Exclude** page, where you can enable and disable health exclusion modules.
Out of Band Status	A link to the **Out-of-Band configuration details** dialog box where you can view out-of-band configuration changes made at the device CLI. You must acknowledge the configuration differences and manually match any changes you want to keep in the Firewall Management Center before the next deployment. See Out-of-Band Configuration Detection, on page 18.

Out-of-Band Configuration Detection

If you lose the management connection to your device, you can make select configuration changes directly at the device CLI to:

- Restore the management connection if you are using a data interface for manager access
- Make select configuration changes that can't wait until the connection is restored

Caution You are expected to know the commands that are required for recovery or emergency use. Do not use this feature to experiment with configuration changes. If you do not know which commands are required or are unsure about the effect of a command, we recommend that you contact Cisco TAC for guidance.

After the management connection is restored, the Firewall Management Center will detect the configuration changes on the device. It does not automatically update the device configuration in the Firewall Management Center; you must view the configuration differences, acknowledge that the device configuration is different, and then manually make the same changes in the Firewall Management Center before you deploy.

Caution When you deploy after acknowledgment, any configurations not present in the Firewall Management Center configuration will be overwritten on the device.

Guidelines for Out-of-Band Configuration

Supported Feature Areas in Recovery-Config Mode

You can configure the following feature areas at the diagnostic CLI in recovery-config mode:

- Interfaces
- Static Routes
- Dynamic Routing: BGP and OSPF
- Prefilters
- Site-to-site VPN
- NAT

Like other diagnostic CLI commands, refer to the ASA command reference for more information about each command.

Unsupported Features

- Not supported in multi-instance mode.
- You cannot add or delete EtherChannels.

High Availability and Clustering

- Recovery-config mode is only available on the active/control node.

- The following interface commands are not supported in recovery-config mode on the cluster control link or failover link:
  - **duplex**
  - **fec**
  - **negotiate-auto**
  - **shutdown**
  - **speed**
- If a failover or cluster switchover occurs before you exit the recovery-config-mode session, the Firewall Management Center will not detect the change on the new active/control node. We recommend re-entering recovery-config mode on the new active/control node and making a small change to trigger discovery of all of your previous changes. Otherwise, if you do not manually match the changes in the Firewall Management Center, they will be overwritten at deployment without any notification.
- If you make out-of-band-configuration changes on the active/control node, but then, prior to a configuration sync, the high availability/cluster ends up in "split brain" mode (where multiple nodes become active/control because of a failover/cluster-control-link failure), then when the high availability/cluster returns to a healthy state, and a different node becomes active/control, then the configuration changes will be lost.
- If you have an active recovery-config-mode session, then new nodes cannot join or rejoin the high availability/cluster until the session is exited.

NAT

- Recovery-config mode lets you create overlapping PAT pool rules like this:

  nat (eth_12_subintf_one,any) source dynamic any pat-pool pat_pool_4

  nat (eth_12_subintf_one,any) source dynamic any pat-pool pat_pool_4 include-reserve

  The Firewall Management Center does not allow this overlap. If the purpose was to add **include-reserve** to the existing NAT rule, first delete the rule using the **no** command, and then re-add it with the **include-reserve** option.
- If you create service objects in recovery-config mode to use in a NAT rule like this:

  object service obj_mapped_svc

  service tcp source eq www

  object service obj_real_svc

  service tcp source eq 7080

  nat (any,any) source dynamic obj_two obj_dyn_host service obj_real_svc obj_mapped_svc

  Then when you recreate the rule in the Firewall Management Center, the Firewall Management Center will replace the service object names with auto-generated names. Because the NAT rules will not match at deployment, the recovery-config mode rule will be removed before the new Firewall Management Center rule is applied, causing a small traffic disruption.

Additional Guidelines

- To modify an existing rule or route, you should delete the existing command using the **no** form of the command and then re-add the modified rule. This method avoids conflicts and errors. For example:

  Incorrect:

```
firepower# show running-config route
route outside 10.0.0.0 255.0.0.0 20.1.1.1 1
firepower# configure recovery-config

 CAUTION: The config CLI is for emergency use only. Use the config CLI if the management
 center is
unreachable, and use it only under exceptional circumstances, such as loss of connectivity
 or
to restore manager access. Do not change management center's auto-generated
configurations.

 After your management center is reachable, manually make the same configuration changes
 in the
management center. The management center cannot implement them automatically. When you
 deploy
from the management center, out-of-band configuration changes will be overwritten. Also,
 node join
will be blocked till config CLI session is active, so make sure to exit from the config
 CLI after
changes are made.

Would you like to proceed ? [Y]es/[N]o: y
firepower(recovery-config)# route outside 10.0.0.0 255.0.0.0 30.1.1.1
firepower(recovery-config)# exit
Unsaved changes are not kept if you reboot.Save changes to memory ? [Y]es/[N]o: y
Cryptochecksum: ccfc11a8 4e46d55e 0c99b5ae 3b18a8f1

3939 bytes copied in 0.70 secs
firepower# show running-config route
route outside 10.0.0.0 255.0.0.0 20.1.1.1 1
route outside 10.0.0.0 255.0.0.0 30.1.1.1 1
firepower#
```

  In this case, a second route is added instead of replacing the first route.

  Correct:

```
firepower# show running-config route
route outside 10.0.0.0 255.0.0.0 20.1.1.1 1
firepower# configure recovery-config

 CAUTION: The config CLI is for emergency use only. Use the config CLI if the management
 center is
unreachable, and use it only under exceptional circumstances, such as loss of connectivity
 or
to restore manager access. Do not change management center's auto-generated
configurations.

 After your management center is reachable, manually make the same configuration changes
 in the
management center. The management center cannot implement them automatically. When you
 deploy
from the management center, out-of-band configuration changes will be overwritten. Also,
 node join
will be blocked till config CLI session is active, so make sure to exit from the config
```

```
 CLI after
changes are made.

Would you like to proceed ? [Y]es/[N]o: y
firepower(recovery-config)# no route outside 10.0.0.0 255.0.0.0 20.1.1.1
firepower(recovery-config)# route outside 10.0.0.0 255.0.0.0 30.1.1.1
firepower(recovery-config)# exit
Unsaved changes are not kept if you reboot.Save changes to memory ? [Y]es/[N]o: y
Cryptochecksum: 81bcc51d 43771bbd 15b6dde6 afeb3442

3945 bytes copied in 0.70 secs
firepower# show running-config route
route outside 10.0.0.0 255.0.0.0 30.1.1.1 1
firepower#
```

- If you have auto rollback enabled (see Edit Deployment Settings, on page 76), and you lose management connectivity because of a deployment, you should not start an out-of-band configuration. Instead, either wait 20 minutes for auto rollback to the previous deployment to occur or manually roll back at the CLI using the **configure policy rollback** command (see Manually Roll Back the Configuration if the Firewall Management Center Loses Connectivity, on page 64). Auto rollback will overwrite out-of-band configuration changes if the management connection is still down.
- For prefilter rules, we don't recommend adding completely new rules (the **access-control advanced** command); integration of prefilter rules with the intrusion policy and logging requires the Firewall Management Center, which generates the rule ID and integrates it with other policies.
- All recovery-config-mode sessions will be logged in syslog with the username “enable_15”.

Access Recovery-Config Mode in the Diagnostic CLI

You can use the diagnostic CLI recovery-config mode to make out-of-band configuration changes when the management connection is down. Be sure to make the same changes in the Firewall Management Center; local changes will always be overwritten by the Firewall Management Center deployment.

For high availability and clustering, make your changes on the active/control node. This mode is not supported in multi-instance mode.

Procedure

Step 1 Connect to the device CLI using either the console port or SSH.

See Log Into the Command-Line Interface on the Device.

Step 2 Access the diagnostic CLI.

system support diagnostic-cli

enable (Press enter without entering a password when prompted.)

Example:

```
> system support diagnostic-cli
firepower> enable
Password:
```

Step 3 Show the current running configuration for reference.

show running-config

Note
You cannot enter **show** commands in recovery-config mode.

Step 4 Enter recovery-config mode.

configure recovery-config

Example:

```
firepower# configure recovery-config

 CAUTION: The config CLI is for emergency use only. Use the config CLI if the management
center is
unreachable, and use it only under exceptional circumstances, such as loss of connectivity
 or
to restore manager access. Do not change management center's auto-generated configurations.


 After your management center is reachable, manually make the same configuration changes
in the
management center. The management center cannot implement them automatically. When you
deploy
from the management center, out-of-band configuration changes will be overwritten. Also,
node join
will be blocked till config CLI session is active, so make sure to exit from the config CLI
 after
changes are made.

Would you like to proceed ? [Y]es/[N]o: y
firepower(recovery-config)#
```

Step 5 You can now enter select configuration commands.

Enter **?** to view available commands.

See Guidelines for Out-of-Band Configuration, on page 18 for supported feature areas.

See the ASA configuration guides or command reference for details about the commands.

Tip
Keep track of all of the commands you changed. Although the Firewall Management Center will show you the differential later, it's good practice to keep a record of your command changes in case you need to make iterative changes to restore the management connection.

Example:

```
firepower(recovery-config)# ?

  access-list           Configure an access control element
  as-path               BGP autonomous system path filter
  bfd                   BFD configuration commands
  bfd-template          BFD template configuration
  cluster               Cluster configuration
  community-list        Add a community list entry
  crypto                Configure IPSec, ISAKMP, Certification authority, key
  end                   Exit from configure mode
  exit                  Exit from config mode
  extcommunity-list     Add a extended community list entry
```

```
  group-policy          Configure or remove a group policy
  interface             Select an interface to configure
  ip                    Configure IP address pools
  ipsec                 Configure transform-set, IPSec SA lifetime and PMTU
                        Aging reset timer
  ipv6                  Configure IPv6 address pools
  ipv6                  Global IPv6 configuration commands
  isakmp                Configure ISAKMP options
  jumbo-frame           Configure jumbo-frame support
  mac-address           MAC address options
  management-interface  Management interface
  mtu                   Specify MTU(Maximum Transmission Unit) for an interface
  nat                   Associate a network with a pool of global IP addresses
  no                    Negate a command or set its defaults
  object                Configure an object
  object-group          Create an object group for use in 'access-list', etc
  policy-list           Define IP Policy list
  prefix-list           Build a prefix list
  route                 Configure a static route for an interface
  route-map             Create route-map or enter route-map configuration mode
  router                Enable a routing process
  sla                   IP Service Level Agreement
  sysopt                Set system functional options
  time-range            Define time range entries
  tunnel-group          Create and manage the database of connection specific
                        records for IPSec connections
  vpdn                  Configure VPDN feature
  vrf                   Configure a VRF
  zone                  Create or show a Zone
firepower(recovery-config)#
```

Step 6 Exit recovery-config mode to be prompted to save your changes. Enter **exit** to exit each submode until you return to enable mode.

You can choose to save your changes to the startup configuration or keep changes only in the running configuration by not saving. Running configuration changes won't be retained after a reboot. If you make additional changes later and decide to save the configuration, all of your previous changes are also saved, since the entire running configuration is saved.

Deployment will be blocked while the recovery-config-mode session is open.

Example:

```
firepower(recovery-config)# interface Ethernet0/1
firepower(config-if)# ip address 10.0.0.2 255.0.0.0
firepower(config-if)# exit
firepower(recovery-config)# exit
Unsaved changes are not kept if you reboot. Save changes to memory ? [Y]es/[N]o: y

Cryptochecksum: 81a9073e f9535916 9c333d7e 9a3e5e76

3756 bytes copied in 0.70 secs
firepower#

Unsaved changes are not kept if you reboot. Save changes to memory ? [Y]es/[N]o:

Cryptochecksum: 81a9073e f9535916 9c333d7e 9a3e5e76

3756 bytes copied in 0.70 secs
firepower#
```

Step 7 Return to the Firewall Threat Defense CLI by typing Ctrl+a, then d, or you can enter **exit** to exit each mode.

Note
If you type Ctrl+a, then d to return to the Firewall Threat Defense CLI without first exiting recovery-config mode, the recovery-config-mode session will remain open, and deployment will be blocked.

Example:

```
firepower# exit

Logoff

User enable_1 logged in to firepower
Logins over the last 1 days: 4.  Last login: 20:42:51 UTC Dec 4 2024 from console
Failed logins since the last login: 0.
Type help or '?' for a list of available commands.
firepower> exit
Console connection detached.
>
```

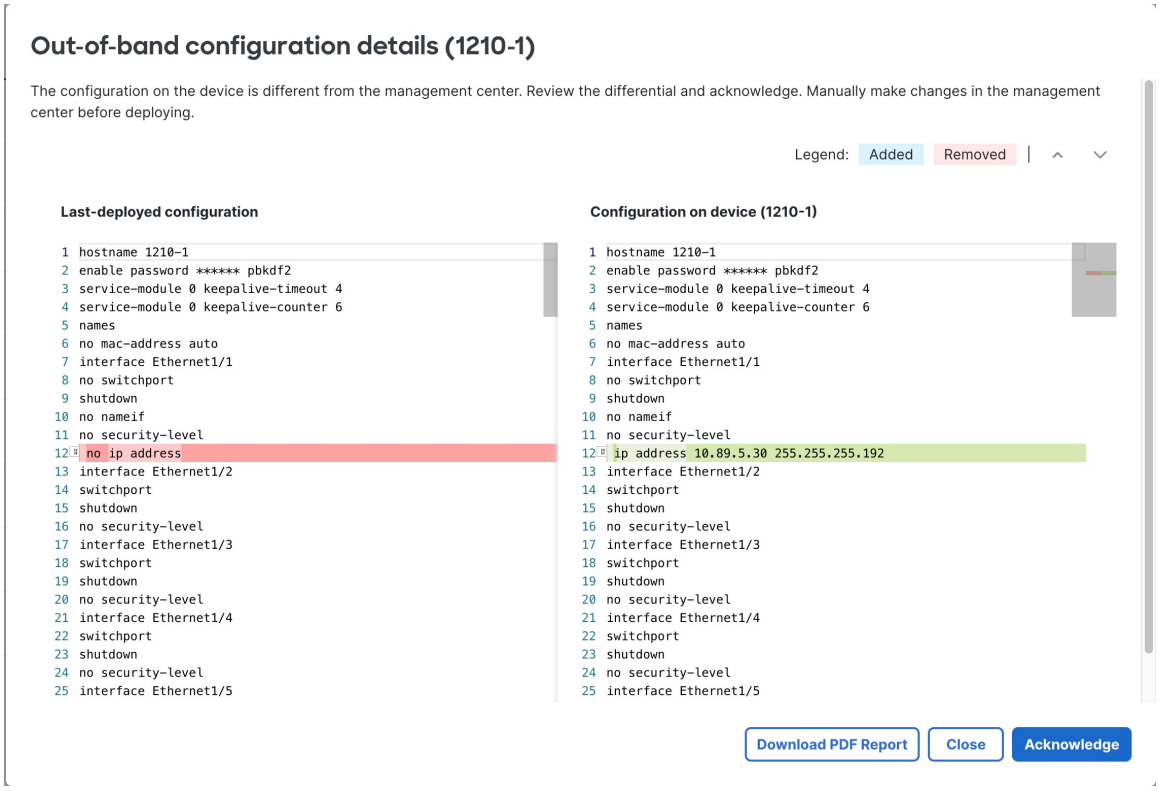
Acknowledge the Out-of-Band Configuration

When the Firewall Management Center detects an out-of-band configuration change on a device, you must acknowledge the changes and match the configuration within the Firewall Management Center that you want to keep. Until you acknowledge the changes, deployment will be blocked.

Procedure

Step 1 Open the **Out-of-Band configuration details** dialog box.

Figure 21: Out-of-Band Configuration Details

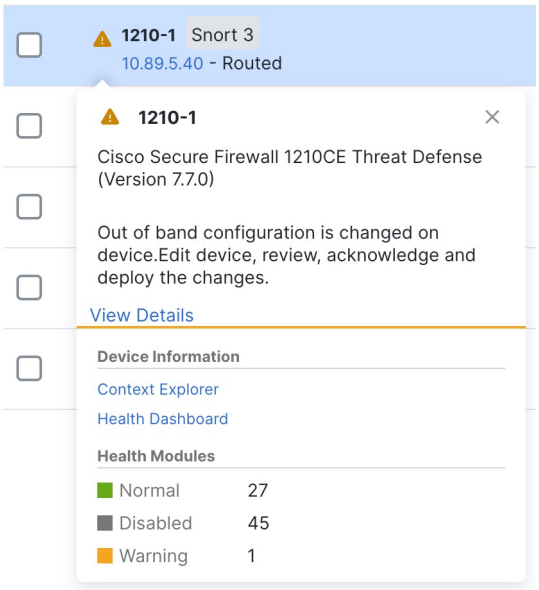


Note

Some commands, when set to a default setting, don't appear in the command output. However, the non-default command will show on either side as green (added) or red (removed). For example, if you add **no shutdown** to an interface in recovery-config mode, the **shutdown** command will show in red on the left **Last-deployed configuration** pane while **no shutdown** will *not* appear in the right **Configuration on device** pane. In this case, although the default setting for an interface is **shutdown**, the parser considers **no shutdown** to be the default and doesn't show it.

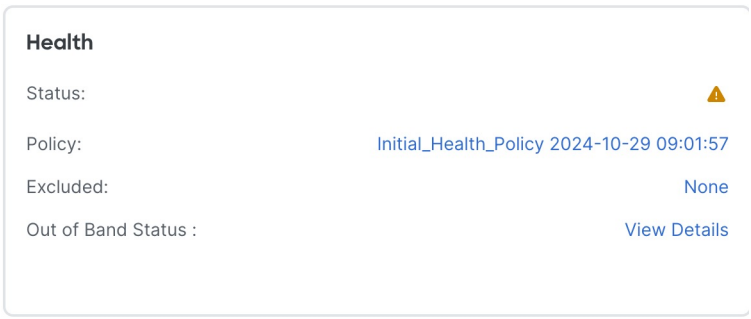
You can open the dialog box from multiple locations. For example, on the **Devices** > **Device Management** page, your device will have a warning. Click **View Details**.

Figure 22: Device Management Warning



Or, from the **Devices** > **Device Management**, and then navigate to **Health** tile under **Device** tab, you can click **View Details**.

Figure 23: Health Out-of-Band Status



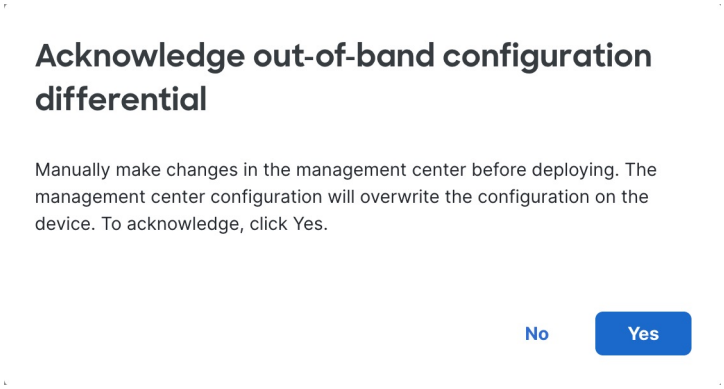
Note
If the out-of-band notification hasn't yet reached the Firewall Management Center, you can check for changes using the **Check Latest Status** link in the Health tile.

Step 2 Click **Download PDF Report** so you can refer to the configuration changes you need to make after you close the dialog box.

Or you can bring up the dialog box at any time to review the changes.

Step 3 Click **Acknowledge**, and then **Yes**.

Figure 24: Acknowledge

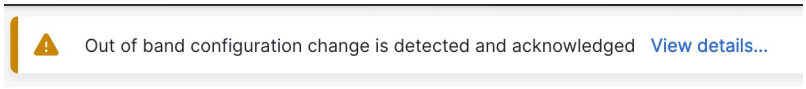


If you want to prevent an accidental deployment until after you've made your configuration changes, you can instead make the changes and then come back and click **Acknowledge**.

Step 4 Click **Close** on the **Out-of-Band configuration details** dialog box.

You can still revisit the dialog box to review the changes you need to make until you deploy. The status on the Device page changes to show you have acknowledged the out-of-band configuration:

Figure 25: Acknowledgement Status

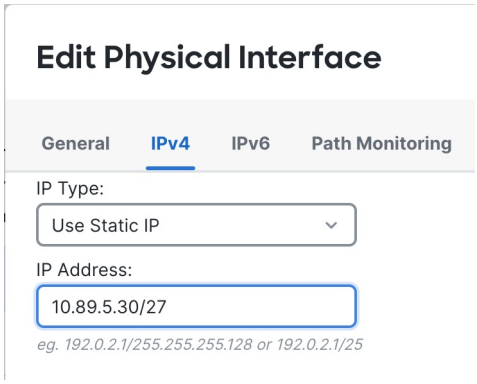


Step 5 Make the configuration changes that you made at the CLI.

You'll need to match the configuration CLI to Firewall Management Center screens; there aren't links from the CLI changes directly to screens.

If you don't want to keep your changes, you can simply deploy and overwrite the device configuration. You should make all necessary changes to maintain the management connection as well as any other changes you want to keep. For example, if you changed the IP address at the CLI, you need to go to the **Interfaces** page, edit the interface, and set that IP address to match:

Figure 26: Match the IP Address Change



There is no checking mechanism that you made the same change; you could set the IP address differently if you want.

Step 6 Deploy configuration changes; see Deploy Configuration Changes.

After you deploy, you can view the configuration differential—whether you made the changes or not—on the **Events & Logs** > **Analysis** > **Audit Logs** page. Check for the subsystem called *Device* > *Device Management* > *Out of band changes*.

Edit Management Settings

These settings control how the Firewall Management Center establishes the management connection with the device.

Configure a Redundant Manager Access Data Interface

When you use a data interface for manager access, you can configure a secondary data interface to take over management functions if the primary interface goes down. You can configure only one secondary interface. The device uses SLA monitoring to track the viability of the static routes and an ECMP zone that contains both interfaces so management traffic can use both interfaces.

Before you begin

- The secondary interface needs to be in a separate security zone from the primary interface.
- All of the same requirements apply to the secondary interface as apply to the primary interface. See Using the Firewall Threat Defense Data Interface for Management.

Procedure

Step 1 On the **Devices** > **Device Management** page, click **Edit** (✎) for the device.

Step 2 Enable manager access for the secondary interface.

This setting is in addition to standard interface settings such as enabling the interface, setting the name, setting the security zone, and setting a static IPv4 address.

a) Choose **Interfaces** > **Edit Physical Interface** > **Manager Access**.
b) Check **Enable management on this interface for the Manager**.
c) Click **OK**.

Both interfaces show **(Manager Access)** in the interface listing.

Figure 27: Interface Listing

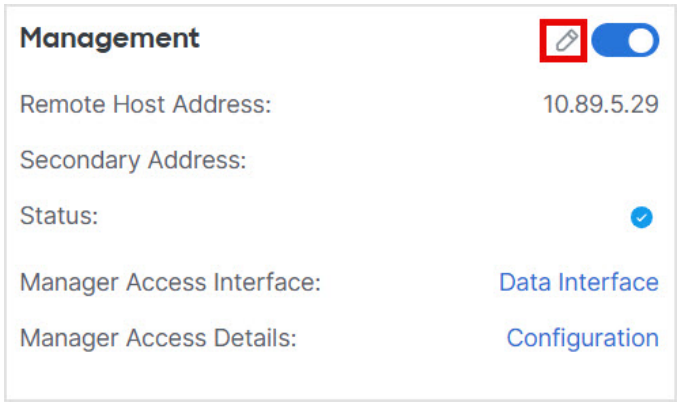
Interface	Logical Name	Type	Security Zones
Diagnostic1/1	diagnostic	Physical	
Ethernet1/1 (Manager Access)	outside	Physical	outside
Ethernet1/2		Physical	
Ethernet1/3		Physical	
Ethernet1/4		Physical	
Ethernet1/5		Physical	
Ethernet1/6		Physical	
Ethernet1/7		Physical	
Ethernet1/8 (Manager Access)	redundant	Physical	mgmt

Step 3 Add the secondary address to the **Management** settings.

a) Click **Device**, and view the **Management** area.

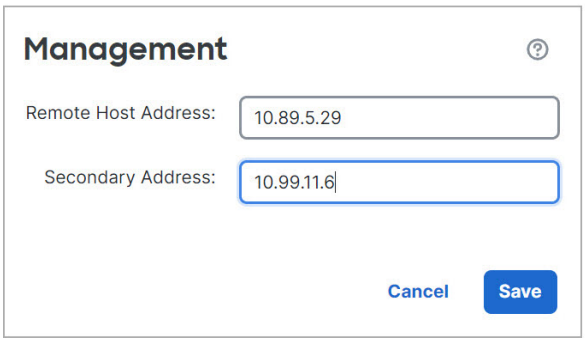
b) Click **Edit** (✎).

Figure 28: Edit Management Address



c) In the **Management** dialog box, modify the name or IP address in the **Secondary Address** field

Figure 29: Management IP Address

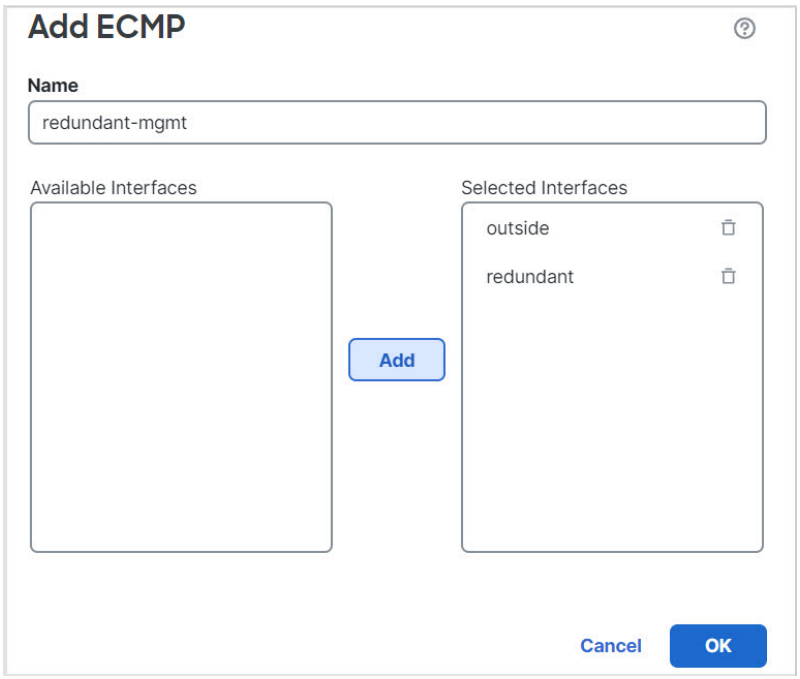


d) Click **Save**.

Step 4 Create an ECMP zone with both interfaces.

a) Click **Routing**.
b) From the virtual router drop-down, choose the virtual router in which the primary and secondary interfaces reside.
c) Click **ECMP**, and then click **Add**.
d) Enter a **Name** for the ECMP zone.
e) Select the primary and secondary interfaces under the **Available Interfaces** box, and then click **Add**.

Figure 30: Add an ECMP Zone

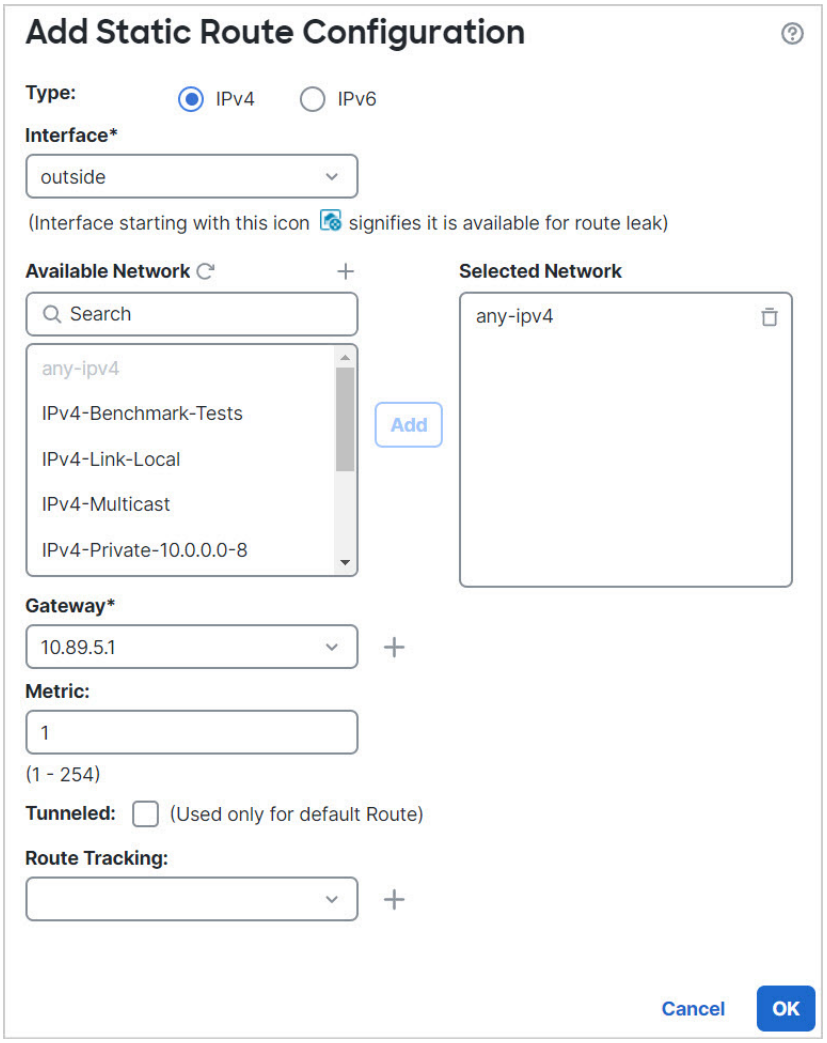


f) Click **OK**, and then **Save**.

Step 5 Add equal-cost default static routes for both interfaces and enable SLA tracking on both.

The routes should be identical except for the gateway and should both have metric 1. The primary interface should already have a default route that you can edit.

Figure 31: Add/Edit Static Route



a) Click **Static Route**.
b) Either click **Add Route** to add a new route, or click **Edit** (✎) for an existing route.
c) From the **Interface** drop-down, choose the interface.
d) For the destination network, select **any-ipv4** from the **Available Networks** box and click **Add**.
e) Enter the default **Gateway**.
f) For **Route Tracking**, click **Add** (+) to add a new SLA monitor object.
g) Enter the required parameters including the following:

- The **Monitor Address** as the Firewall Management Center IP address.
- The zone for the primary or secondary management interface in **Available Zones**; for example, choose the outside zone for the primary interface object, and the mgmt zone for the secondary interface object.

See SLA Monitor for more information.

Figure 32: Add SLA Monitor

h) Click **Save**, then choose the SLA object you just created in the **Route Tracking** drop-down list.
i) Click **OK**, and then **Save**.
j) Repeat for the default route for the other management interface.

Step 6 Deploy configuration changes; see Deploy Configuration Changes.

As part of the deployment for this feature, the Firewall Management Center enables the secondary interface for management traffic, including auto-generated policy-based routing configuration for management traffic to get to the right data interface. The Firewall Management Center also deploys a second instance of the **configure network management-data-interface** command. Note that if you edit the secondary interface at the CLI, you cannot configure the gateway or otherwise alter the default route, because the static route for this interface can only be edited in the Firewall Management Center.

Change Manager Access Interface Settings

Changing any manager interface settings on the device or on the Firewall Management Center can disrupt the management connection. See the following scenarios to change interface settings and reestablish the management connection.

Change the Device IP Address

Change the device IP address, and then update the address in the Firewall Management Center.

Set the Device IP Address

Use one of the following methods to set the manager access interface IP address.

Modify Firewall Threat Defense Management Interfaces at the CLI

Modify the management interface settings on the managed device using the CLI. Many of these settings are ones that you set when you performed the initial setup; this procedure lets you change those settings, and set additional settings such as enabling an event interface if your model supports it, or adding static routes.

Note This topic applies to the dedicated Management interface. You can alternatively configure a data interface for management. If you want to change network settings for that interface, you should do so within Firewall Management Center and not at the CLI. If you need to troubleshoot a disrupted management connection, and need to make changes directly on the Firewall Threat Defense, see Modify the Firewall Threat Defense Data Interface Used for Management at the CLI, on page 39.

For information about the Firewall Threat Defense CLI, see the *Cisco Secure Firewall Threat Defense Command Reference*.

Note When using SSH, be careful when making changes to the management interface; if you cannot re-connect because of a configuration error, you will need to access the device console port.

Note If you change the device management IP address, then see the following tasks for Firewall Management Center connectivity depending on how you identified the Firewall Management Center during initial device setup using the **configure manager add** command (see Register With a New Management Center):

- **IP address—No action.** If you identified the Firewall Management Center using a reachable IP address, then the management connection will be reestablished automatically after several minutes. We recommend that you also change the device IP address shown in Firewall Management Center to keep the information in sync; see Update the Hostname or IP Address in the Firewall Management Center, on page 45. This action can help the connection reestablish faster. **Note**: If you specified an unreachable Firewall Management Center IP address, then see the procedure for NAT ID below.
- **NAT ID only—Manually reestablish the connection.** If you identified the Firewall Management Center using only the NAT ID, then the connection cannot be automatically reestablished. In this case, change the device management IP address in Firewall Management Center according to Update the Hostname or IP Address in the Firewall Management Center, on page 45.

Note In a high-availability configuration, when you modify the management IP address of a registered device from the device CLI or from the Firewall Management Center, the standby Firewall Management Center does not reflect the changes even after a high-availability synchronization. To ensure that the standby Firewall Management Center is also updated, modify the management IP address of the registered device on the **Device Management** page of the standby Firewall Management Center.

Before you begin

- You can create user accounts that can log into the CLI using the **configure user add** command; see Add an Internal User at the CLI. You can also configure AAA users according to External Authentication.

Procedure

Step 1 Connect to the device CLI, either from the console port or using SSH.

See Log Into the Command-Line Interface on the Device.

Step 2 Log in with the Admin username and password.

Step 3 (Firepower 4100/9300/Secure Firewall 4200/6100 only) Enable the second management interface as an event-only interface.

configure network management-interface enable management1

configure network management-interface disable-management-channel management1

You always need a management interface for management traffic. If your device has a second management interface, you can enable it for event-only traffic.

You can optionally disable events for the main management interface using the **configure network management-interface disable-events-channel** command. In either case, the device will try to send events

on the event-only interface, and if that interface is down, it will send events on the management interface even if you disable the event channel.

You cannot disable both event and management channels on an interface.

To use a separate event interface, you also need to enable an event interface on the Firewall Management Center. See the *Cisco Secure Firewall Management Center Administration Guide*.

Example:

```
> configure network management-interface enable management1
Configuration updated successfully

> configure network management-interface disable-management-channel management1
Configuration updated successfully

>
```

Step 4 Configure the IP address of the management interface and/or event interface:

If you do not specify the *management_interface* argument, then you change the network settings for the default management interface. When configuring an event interface, be sure to specify the *management_interface* argument. The event interface can be on a separate network from the management interface, or on the same network. If you are connected to the interface you are configuring, you will be disconnected. You can re-connect to the new IP address.

a) Configure the IPv4 address:

- Manual configuration:

  configure network ipv4 manual *ip_address netmask gateway_ip* [*management_interface*]

  Note that the *gateway_ip* in this command is used to create the default route for the device. If you configure an event-only interface, then you must enter the *gateway_ip* as part of the command; however, this entry just configures the default route to the value you specify and does not create a separate static route for the eventing interface. If you are using an event-only interface on a different network from the management interface, we recommend that you set the *gateway_ip* for use with the management interface, and then create a static route separately for the event-only interface using the **configure network static-routes** command.

  Example:

  ```
  > configure network ipv4 manual 10.10.10.45 255.255.255.0 10.10.10.1 management1
  Setting IPv4 network configuration.
  Network settings changed.

  >
  ```

- DHCP (supported on the default management interface only):

  configure network ipv4 dhcp

b) Configure the IPv6 address:

- Stateless autoconfiguration:

  configure network ipv6 router [*management_interface*]

  Example:

```
> configure network ipv6 router management0
Setting IPv6 network configuration.
Network settings changed.

>
```

- Manual configuration:

  configure network ipv6 manual *ip6_address ip6_prefix_length* [*ip6_gateway_ip*] [*management_interface*]

  Note that the *ipv6_gateway_ip* in this command is used to create the default route for the device. If you configure an event-only interface, then you must enter the *ipv6_gateway_ip* as part of the command; however, this entry just configures the default route to the value you specify and does not create a separate static route for the eventing interface. If you are using an event-only interface on a different network from the management interface, we recommend that you set the *ipv6_gateway_ip* for use with the management interface, and then create a static route separately for the event-only interface using the **configure network static-routes** command.

  Example:

```
> configure network ipv6 manual 2001:0DB8:BA98::3210 64 management1
Setting IPv6 network configuration.
Network settings changed.

>
```

- DHCPv6 (supported on the default management interface only):

  configure network ipv6 dhcp

Step 5 For IPv6, enable or disable ICMPv6 Echo Replies and Destination Unreachable messages. These messages are enabled by default.

configure network ipv6 destination-unreachable {**enable** | **disable**}

configure network ipv6 echo-reply {**enable** | **disable**}

You might want to disable these packets to guard against potential denial of service attacks. Disabling Echo Reply packets means you cannot use IPv6 ping to the device management interfaces for testing purposes.

Example:

```
> configure network ipv6 destination-unreachable disable
> configure network ipv6 echo-reply disable
```

Step 6 Enable a DHCP server on the default management interface to provide IP addresses to connected hosts:

configure network ipv4 dhcp-server-enable *start_ip_address end_ip_address*

Example:

```
> configure network ipv4 dhcp-server-enable 10.10.10.200 10.10.10.254
DHCP Server Enabled
```

```
>
```

You can only configure a DHCP server when you set the management interface IP address manually. This command is not supported on the Firewall Management Center Virtual. To display the status of the DHCP server, enter **show network-dhcp-server**:

```
> show network-dhcp-server
DHCP Server Enabled
10.10.10.200-10.10.10.254
```

Step 7 Add a static route for the event-only interface if the Firewall Management Center is on a remote network; otherwise, all traffic will match the default route through the management interface.

configure network static-routes {**ipv4** | **ipv6**} **add** *management_interface destination_ip netmask_or_prefix gateway_ip*

For the *default* route, do not use this command; you can only change the default route gateway IP address when you use the **configure network ipv4** or **ipv6** commands (see Step 4, on page 35).

Example:

```
> configure network static-routes ipv4 add management1 192.168.6.0 255.255.255.0 10.10.10.1
Configuration updated successfully

> configure network static-routes ipv6 add management1 2001:0DB8:AA89::5110 64
2001:0DB8:BA98::3211
Configuration updated successfully

>
```

To display static routes, enter **show network-static-routes** (the default route is not shown):

```
> show network-static-routes
---------------[ IPv4 Static Routes ]---------------
Interface                : management1
Destination              : 192.168.6.0
Gateway                  : 10.10.10.1
Netmask                  : 255.255.255.0
[…]
```

Step 8 Set the hostname:

configure network hostname *name*

Example:

```
> configure network hostname farscape1.cisco.com
```

Syslog messages do not reflect a new hostname until after a reboot.

Step 9 Set the search domains:

configure network dns searchdomains *domain_list*

Example:

```
> configure network dns searchdomains example.com,cisco.com
```

Set the search domain(s) for the device, separated by commas. These domains are added to hostnames when you do not specify a fully-qualified domain name in a command, for example, **ping system**. The domains are used only on the management interface, or for commands that go through the management interface.

Step 10 Set up to 3 DNS servers, separated by commas:

configure network dns servers *dns_ip_list*

Example:

```
> configure network dns servers 10.10.6.5,10.20.89.2,10.80.54.3
```

Step 11 Set the remote management port for communication with the Firewall Management Center:

configure network management-interface tcpport *number*

Example:

```
> configure network management-interface tcpport 8555
```

The Firewall Management Center and managed devices communicate using a two-way, TLS-1.3-encrypted communication channel, which by default is on port 8305. Do not change the management port when using multi-instance mode; only port 8305 is supported.

Note
Cisco **strongly** recommends that you keep the default settings for the remote management port, but if the management port conflicts with other communications on your network, you can choose a different port. If you change the management port, you must change it for **all** devices in your deployment that need to communicate with each other.

Step 12 (Firewall Threat Defense only) Set the management or eventing interface MTU. The MTU is 1500 bytes by default.

configure network mtu [*bytes*] [*interface_id*]

- *bytes*—Sets the MTU in bytes. For the management interface, the value can be between 64 and 1500 if you enable IPv4, and 1280 to 1500 if you enable IPv6. For the eventing interface, the value can be between 64 and 9000 if you enable IPv4, and 1280 to 9000 if you enable IPv6. If you enable both IPv4 and IPv6, then the minimum is 1280. If you do not enter the *bytes*, you are prompted for a value.
- *interface_id*—Specifies the interface ID on which to set the MTU. Use the **show network** command to see available interface IDs, for example management0, management1, br1, and eth0, depending on the platform. If you do not specify an interface, then the management interface is used.

Example:

```
> configure network mtu 8192 management1
MTU set successfully to 1500 from 8192 for management1
Refreshing Network Config...
NetworkSettings::refreshNetworkConfig MTU value at start 8192

Interface management1 speed is set to '10000baseT/Full'
NetworkSettings::refreshNetworkConfig MTU value at end 8192
```

>

Step 13 Configure an HTTP proxy. The device is configured to directly-connect to the internet on ports TCP/443 (HTTPS) and TCP/80 (HTTP). You can use a proxy server, to which you can authenticate via HTTP Digest. After issuing the command, you are prompted for the HTTP proxy address and port, whether proxy authentication is required, and if it is required, the proxy username, proxy password, and confirmation of the proxy password.

Note
For proxy password on Firewall Threat Defense, you can use A-Z, a-z, and 0-9 characters only.

configure network http-proxy

Example:

```
> configure network http-proxy
Manual proxy configuration
Enter HTTP Proxy address: 10.100.10.10
Enter HTTP Proxy Port: 80
Use Proxy Authentication? (y/n) [n]: Y
Enter Proxy Username: proxyuser
Enter Proxy Password: proxypassword
Confirm Proxy Password: proxypassword
```

Step 14 If you change the device management IP address, then see the following tasks for Firewall Management Center connectivity depending on how you identified the Firewall Management Center during initial device setup using the **configure manager add** command (see Register With a New Management Center):

- **IP address—No action.** If you identified the Firewall Management Center using a reachable IP address, then the management connection will be reestablished automatically after several minutes. We recommend that you also change the device IP address shown in Firewall Management Center to keep the information in sync; see Update the Hostname or IP Address in the Firewall Management Center, on page 45. This action can help the connection reestablish faster. **Note**: If you specified an unreachable Firewall Management Center IP address, then you must manually reestablish the connection using Update the Hostname or IP Address in the Firewall Management Center, on page 45.
- **NAT ID only—Manually reestablish the connection.** If you identified the Firewall Management Center using only the NAT ID, then the connection cannot be automatically reestablished. In this case, change the device management IP address in Firewall Management Center according to Update the Hostname or IP Address in the Firewall Management Center, on page 45.

Modify the Firewall Threat Defense Data Interface Used for Management at the CLI

If the management connection between the Firewall Threat Defense and the Firewall Management Center was disrupted, and you want to specify a new data interface to replace the old interface, use the Firewall Threat Defense CLI to configure the new interface.

If the management connection is active, then you should make any changes to an existing data interface using the Firewall Management Center (see Modify the Firewall Threat Defense Data Interface Used for Management in the GUI, on page 42). For initial setup of the data management interface, see the **configure network management-data-interface** command in Complete the Firewall Threat Defense Initial Configuration Using the CLI.

For high-availability pairs, perform all CLI steps on both units. Within the Firewall Management Center, perform steps only on the active unit. Once the configuration changes are deployed, the standby unit synchronizes configuration and other state information from the active unit.

Note This topic applies to the data interface that you configured for Management, not the dedicated Management interface. If you want to change network settings for the Management interface, see Modify Firewall Threat Defense Management Interfaces at the CLI, on page 33.

For information about the Firewall Threat Defense CLI, see the *Cisco Secure Firewall Threat Defense Command Reference*.

Procedure

Step 1 If you are changing the data management interface to a new interface, move the current interface cable to the new interface.

Step 2 Connect to the device CLI.

You should use the console port when using these commands. If you are performing initial setup, then you may be disconnected from the Management interface. If you are editing the configuration due to a disrupted management connection, and you have SSH access to the dedicated Management interface, then you can use that SSH connection.

See Log Into the Command-Line Interface on the Device.

Step 3 Log in with the **admin** username and password.

Step 4 Disable the interface so you can reconfigure its settings.

configure network management-data-interface disable

Note
If you only want to set a new IPv4 address on the same interface and not make any other changes, you can skip this step. Other changes require you to disable the interface first.

Example:

```
> configure network management-data-interface disable

 Configuration updated successfully..!!


Configuration disable was successful, please update the default route to point to a gateway
 on management interface using the command 'configure network'
```

Step 5 Configure the new data interface for manager access.

configure network management-data-interface

You are then prompted to configure basic network settings for the data interface.

If you change the data management interface to a new interface on the same network, use the same settings as for the previous interface except the interface ID. In addition, for the **Do you wish to clear all the device configuration before applying ? (y/n) [n]:** option, choose **y**. This choice will clear the old data management

interface configuration, so that you can successfully reuse the IP address and interface name on the new interface.

```
> configure network management-data-interface
Data interface to use for management: ethernet1/4
Specify a name for the interface [outside]: internet
IP address (manual / dhcp) [dhcp]: manual
IPv4/IPv6 address: 10.10.6.7
Netmask/IPv6 Prefix: 255.255.255.0
Default Gateway: 10.10.6.1
Comma-separated list of DNS servers [none]: 208.67.222.222,208.67.220.220
DDNS server update URL [none]:
Do you wish to clear all the device configuration before applying ? (y/n) [n]: y

Configuration done with option to allow manager access from any network, if you wish to
change the manager access network
use the 'client' option in the command 'configure network management-data-interface'.

Setting IPv4 network configuration.
Network settings changed.

>
```

Step 6 (Optional) Limit data interface access to the Firewall Management Center on a specific network.

configure network management-data-interface client *ip_address netmask*

By default, all networks are allowed.

Step 7 Update the Hostname or IP Address in the Firewall Management Center, on page 45.

The connection may be reestablished automatically, but disabling and reenabling the connection in the Firewall Management Center will help the connection reestablish faster. Or you may need to update the device IP address in the Firewall Management Center according to the linked procedure.

Step 8 Check that the management connection was reestablished.

sftunnel-status-brief

See the following sample output for a connection that is up, with peer channel and heartbeat information shown:

```
> sftunnel-status-brief
PEER:10.10.17.202
Peer channel Channel-A is valid type (CONTROL), using 'eth0', connected to '10.10.17.202'
via '10.10.17.222'
Peer channel Channel-B is valid type (EVENT), using 'eth0', connected to '10.10.17.202' via
 '10.10.17.222'
Registration: Completed.
IPv4 Connection to peer '10.10.17.202' Start Time: Wed Jun 10 14:27:12 2020 UTC
Heartbeat Send Time: Mon Jun 15 09:02:08 2020 UTC
Heartbeat Received Time: Mon Jun 15 09:02:16 2020 UTC
```

Step 9 In the Firewall Management Center, choose **Devices** > **Device Management**, and click **Edit** (). In the **Device** area, against the **Management** field, click **Refresh** next to **Manager Access - Configuration Details**.

The Firewall Management Center detects the interface and default route configuration changes and blocks deployment to the device. When you change the data interface settings locally on the device, you must reconcile

those changes in the Firewall Management Center manually. You can view the discrepancies between the Firewall Management Center and the device on the **Configuration** tab.

Step 10 Choose **Interfaces**, and make the following changes.

a) Remove the IP address and name from the old data management interface and disable manager access for this interface.

b) Configure the new data management interface with the new settings (the ones you used at the CLI) and enable manager access for it.

Step 11 Click the **Routing** tab, click **Static Route**, and then change the default route from the old data management interface to the new one.

Step 12 Return to the **Manager Access - Configuration Details** dialog box, and click **Acknowledge** to remove the deployment block.

The next time you deploy, the Firewall Management Center configuration will overwrite any remaining conflicting settings on the Firewall Threat Defense. It is your responsibility to manually fix the configuration in the Firewall Management Center before you re-deploy.

You will see expected messages of "Config was cleared" and "Manager access changed and acknowledged."

Modify the Firewall Threat Defense Data Interface Used for Management in the GUI

If the management connection is up, but you want to change the IP address of the data interface used for manager access, follow these steps. For example, if you register a device using zero-touch provisioning, then you need to change the IP address to a static address before you can enable high availability.

You can alternatively change interface settings at the CLI, but we recommend only using that method if the management connection is down. Any changes you make at the CLI will have to be replicated in the GUI anyway.

Procedure

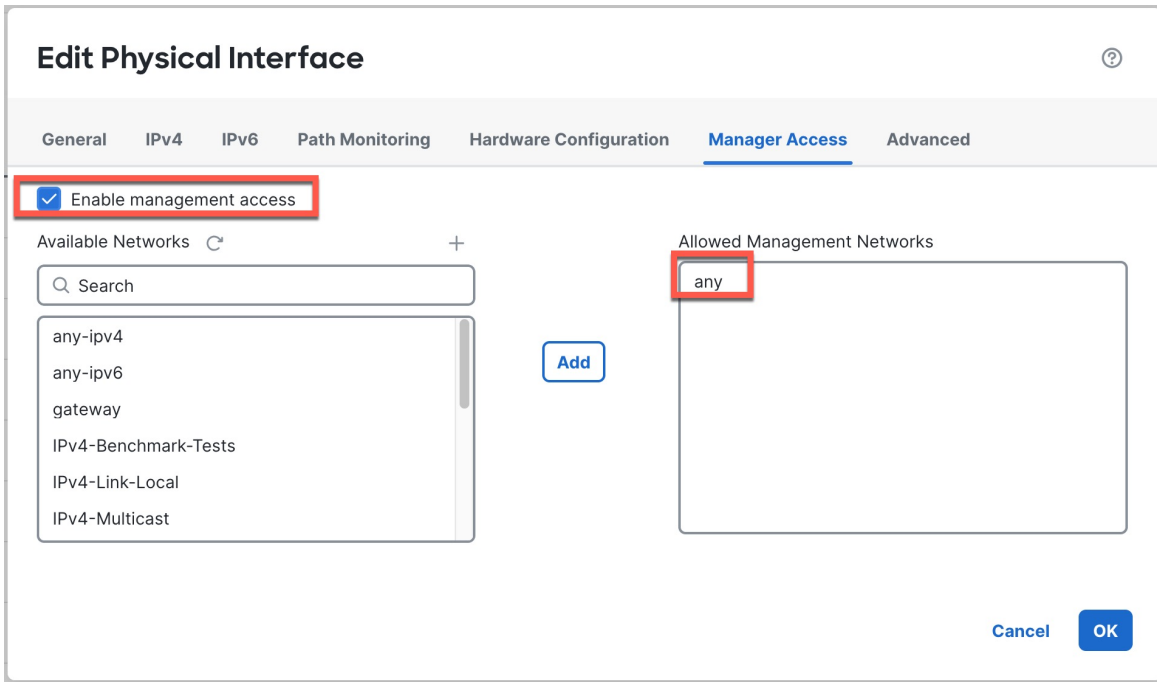
Step 1 Choose **Devices** > **Device Management**, and click **Edit** (✎) next to the device.

Step 2 Choose **Interfaces**.

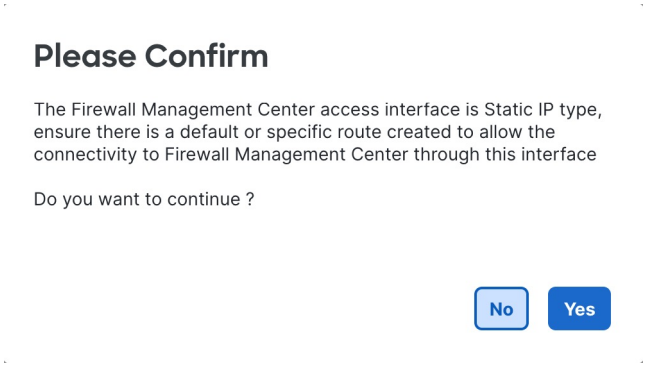
Step 3 If you want to change the interface used for manager access:

a) Remove the IP address and name from the old data management interface and disable manager access for this interface.

b) Configure the new data management interface with the new settings and enable manager access for it.



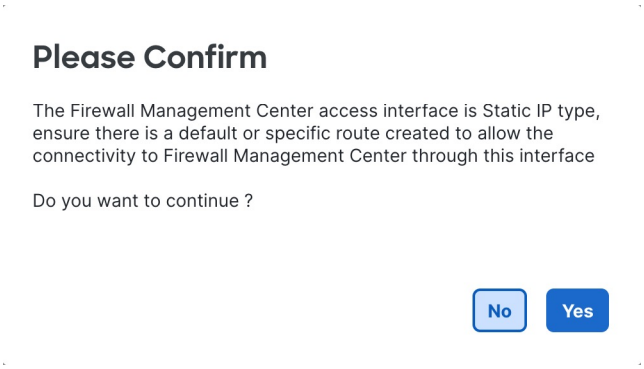
c) If you use a static IP address, you are reminded to make sure you have a default route. Click **Yes**.



d) Click **OK** to exit the interface.
e) Click **Save** on the **Interfaces** page.

Step 4 If you only want to change the IP address:

a) Change the IP address.
b) For a static IP address, you are reminded to make sure you have a default route. Click **Yes**.



c) Click **OK** to exit the interface.
d) Click **Save** on the **Interfaces** page.

Step 5 Click the **Routing** tab, click **Static Route**, and then add or change the default or static route for the manager access interface.

Step 6 Deploy configuration changes; see Deploy Configuration Changes.

The Firewall Management Center will deploy the configuration changes over the current connection. After the deployment, the data interface will have a new IP address, so the management connection will need to be reestablished.

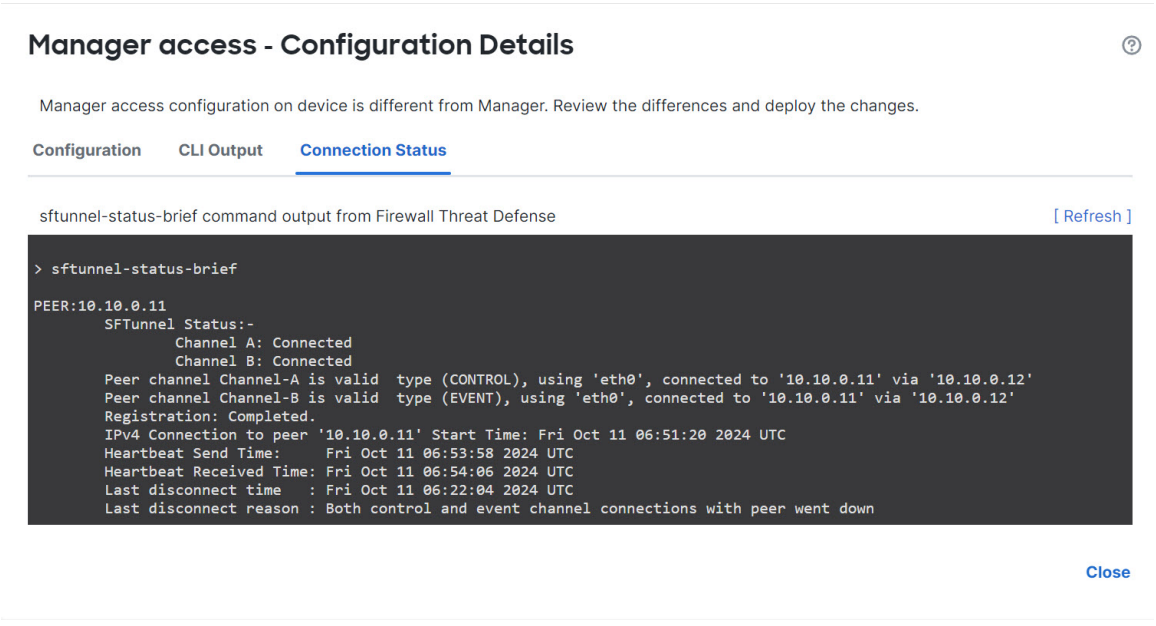
Step 7 Update the Hostname or IP Address in the Firewall Management Center, on page 45.

Step 8 Ensure the management connection is reestablished.

In the **Device** area, against the **Management** field, click **Manager Access Details: Configuration** and then click **Connection Status**.

The following status shows a successful connection for a data interface, showing the internal "tap_nlp" interface.

Figure 33: Connection Status



If it takes more than 10 minutes to reestablish the connection, you should troubleshoot the connection. See Troubleshoot Management Connectivity on a Data Interface, on page 65.

Update the Hostname or IP Address in the Firewall Management Center

If you edit the hostname or IP address of a device after you added it to the Firewall Management Center (using the device's CLI, for example), you need to use the procedure below to manually update the hostname or IP address on the managing Firewall Management Center.

To change the device management IP address on the device, see Modify Firewall Threat Defense Management Interfaces at the CLI, on page 33.

If you used only the NAT ID when registering the device, then the IP shows as **NO-IP** on this page, and you do not need to update the IP address/hostname.

If you used zero-touch provisioning to register the device on the outside interface, the hostname is automatically generated along with a matching DDNS configuration; you cannot edit the hostname in this case.

Procedure

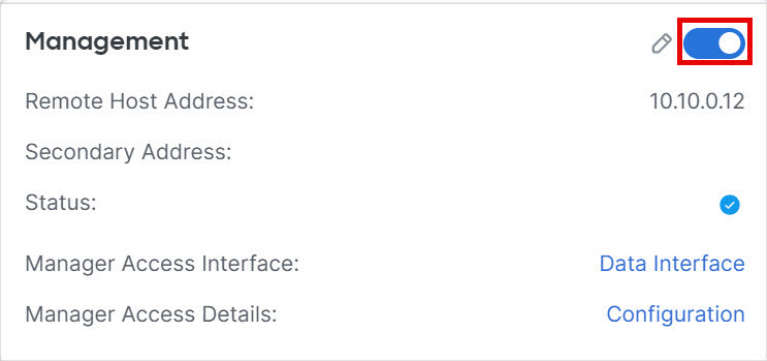
Step 1 Choose **Devices** > **Device Management**.

Step 2 Next to the device where you want to modify management options, click **Edit** ( ).

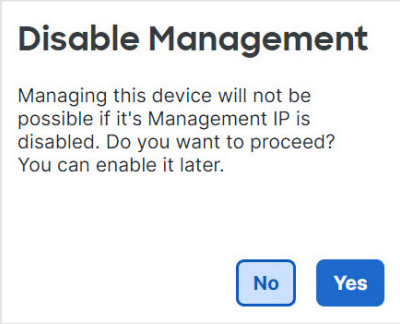
Step 3 Click **Device**, and view the **Management** area.

Step 4 Disable management temporarily by clicking the slider so it is disabled **Slider disabled** ( ).

Figure 34: Disable Management



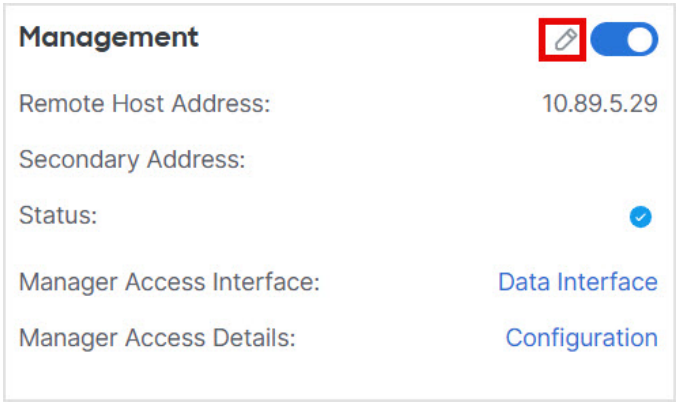
You are prompted to proceed with disabling management; click **Yes**.



Disabling management blocks the connection between the Firewall Management Center and the device, but does **not** unregister the device from the Firewall Management Center.

Step 5 Edit the **Remote Host Address** IP address and optional **Secondary Address** (when using a redundant data interface) or hostname by clicking **Edit** ( ).

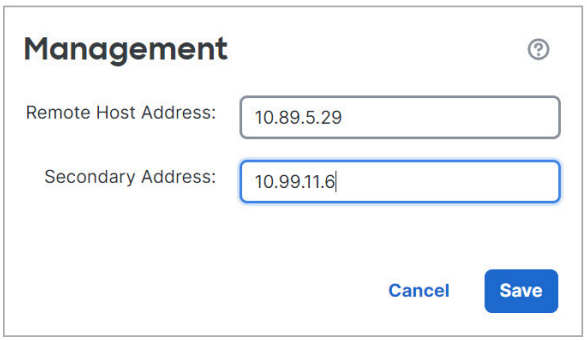
Figure 35: Edit Management Address



Step 6 In the **Management** dialog box, modify the name or IP address in the **Remote Host Address** field and the optional **Secondary Address** field, and click **Save**.

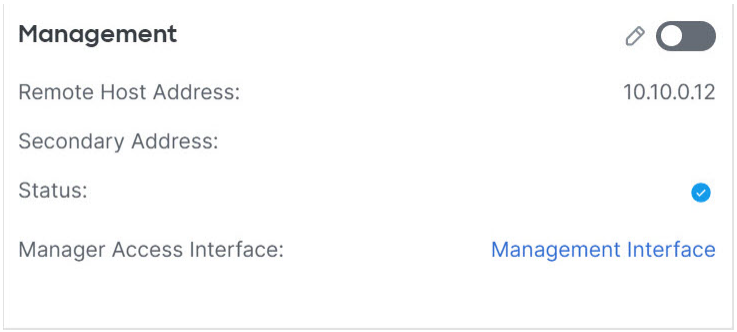
For information about using a secondary manager access data interface, see Configure a Redundant Manager Access Data Interface, on page 28.

Figure 36: Management IP Address



Step 7 Reenable management by clicking the slider so it is enabled **Slider enabled** ( ).

Figure 37: Enable Management Connection



Change the Firewall Management Center IP Address

If you change the Firewall Management Center IP address or hostname, you should also change the value at the device CLI so the configurations match. Although in most cases, the management connection will be reestablished without changing the Firewall Management Center IP address or hostname on the device, in at least one case, you must perform this task for the connection to be reestablished: when you added the device to the Firewall Management Center and you specified the NAT ID only. Even in other cases, we recommend keeping the Firewall Management Center IP address or hostname up to date for extra network resiliency.

Procedure

Step 1 Change the Firewall Management Center IP address.

Caution
Be careful when making changes to the Firewall Management Center interface to which you are connected; if you cannot re-connect because of a configuration error, you need to access the Firewall Management Center console port to re-configure the network settings in the Linux shell. You must contact Cisco TAC to guide you in this operation.

a) Choose **Administration** > **Configuration** > **Management Interfaces**.
b) In the **Interfaces** area, click **Edit** next to the interface that you want to configure.
c) Change the IP address, and click **Save**.

Step 2 At the Firewall Threat Defense CLI, view the Firewall Management Center identifier.

show managers

Example:

```
> show managers
Type                    : Manager
Host                    : 10.10.1.4
Display name            : 10.10.1.4
Identifier              : f7ffad78-bf16-11ec-a737-baa2f76ef602
Registration            : Completed
Management type         : Configuration
```

Step 3 At the Firewall Threat Defense CLI, edit the Firewall Management Center IP address or hostname.

configure manager edit *identifier* {**hostname** {*ip_address* | *hostname*} | **displayname** *display_name*}

If the Firewall Management Center was originally identified by **DONTRESOLVE** and a NAT ID, you can change the value to a hostname or IP address using this command. You cannot change an IP address or hostname to **DONTRESOLVE**.

The management connection will go down, and then reestablish. You can monitor the state of the connection using the **sftunnel-status** command.

Example:

```
> configure manager edit f7ffad78-bf16-11ec-a737-baa2f76ef602 hostname 10.10.5.1
```

Change Both Firewall Management Center and Threat Defense IP Addresses

You might want to change both Firewall Management Center and Firewall Threat Defense IP addresses if you need to move them to a new network.

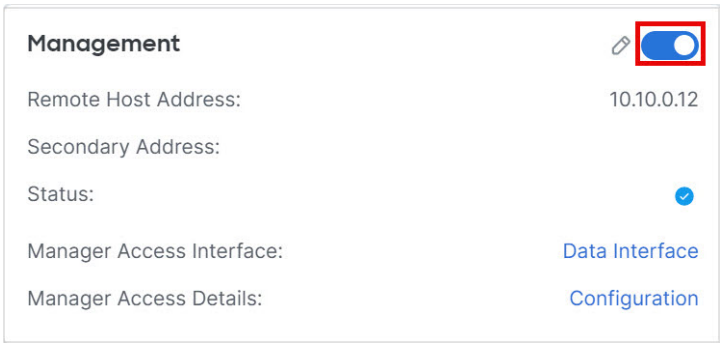
Procedure

Step 1 Disable the management connection.

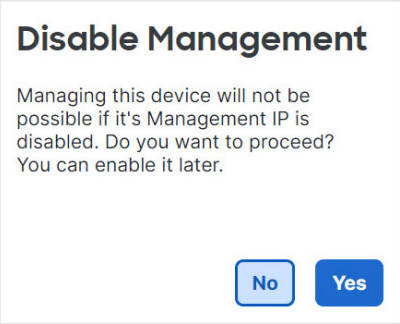
For a high-availability pair or cluster, perform these steps on all units.

a) Choose **Devices** > **Device Management**.
b) Next to the device, click **Edit** (✎).
c) Click **Device**, and view the **Management** area.
d) Disable management temporarily by clicking the slider so it is disabled (⬭).

Figure 38: Disable Management



You are prompted to proceed with disabling management; click **Yes**.



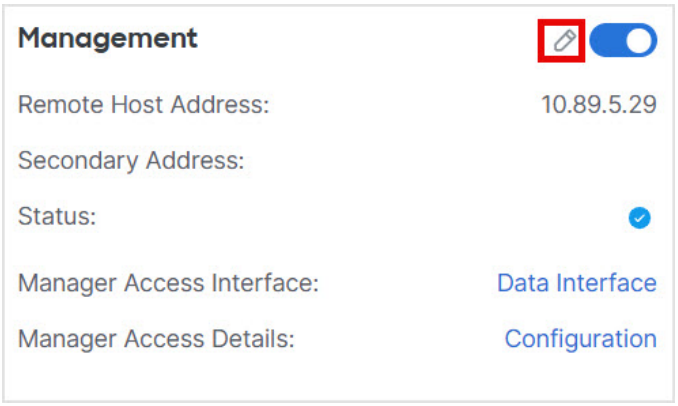
Step 2 Change the device IP address in the Firewall Management Center to the new device IP address.

You will change the IP address on the device later.

For a high-availability pair or cluster, perform these steps on all units.

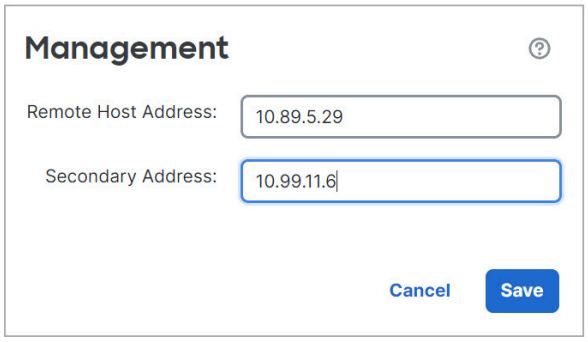
a) Edit the **Remote Host Address** IP address and optional **Secondary Address** (when using a redundant data interface) or hostname by clicking **Edit** (✎).

Figure 39: Edit Management Address



b) In the **Management** dialog box, modify the name or IP address in the **Remote Host Address** field and the optional **Secondary Address** field, and click **Save**.

Figure 40: Management IP Address



Step 3 Change the Firewall Management Center IP address.

Caution
Be careful when making changes to the Firewall Management Center interface to which you are connected; if you cannot re-connect because of a configuration error, you need to access the Firewall Management Center console port to re-configure the network settings in the Linux shell. You must contact Cisco TAC to guide you in this operation.

a) Choose **Administration** > **Configuration** > **Management Interfaces**.
b) In the **Interfaces** area, click **Edit** next to the interface that you want to configure.
c) Change the IP address, and click **Save**.

Step 4 Change the manager IP address on the device.

For a high-availability pair or cluster, perform these steps on all units.

a) At the Firewall Threat Defense CLI, view the Firewall Management Center identifier.

show managers

Example:

```
> show managers
Type                      : Manager
Host                      : 10.10.1.4
Display name              : 10.10.1.4
Identifier                : f7ffad78-bf16-11ec-a737-baa2f76ef602
Registration              : Completed
Management type           : Configuration
```

b) Edit the Firewall Management Center IP address or hostname.

configure manager edit *identifier* {**hostname** {*ip_address* | *hostname*} | **displayname** *display_name*}

If the Firewall Management Center was originally identified by **DONTRESOLVE** and a NAT ID, you can change the value to a hostname or IP address using this command. You cannot change an IP address or hostname to **DONTRESOLVE**.

Example:

```
> configure manager edit f7ffad78-bf16-11ec-a737-baa2f76ef602 hostname 10.10.5.1
```

Step 5 Change the IP address of the manager access interface at the console port.

For a high-availability pair or cluster, perform these steps on all units.

If you use the dedicated Management interface:

configure network ipv4

configure network ipv6

If you use the dedicated Management interface:

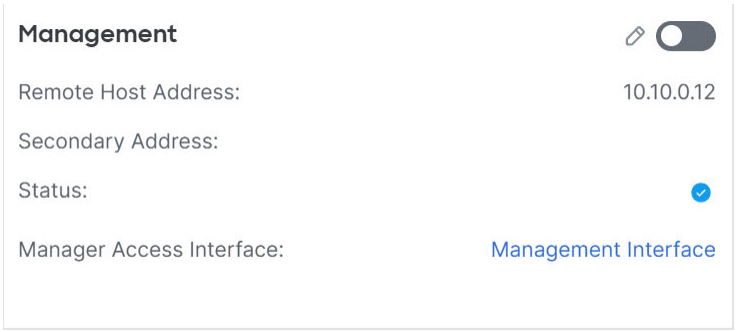
configure network management-data-interface disable

configure network management-data-interface

Step 6 Reenable management by clicking the slider so it is enabled ().

For a high-availability pair or cluster, perform these steps on all units.

Figure 41: Enable Management Connection



Step 7 (If using a data interface for manager access) Refresh the data interface settings in the Firewall Management Center.

For a high-availability pair, perform this step on both units.

a) Choose **Devices** > **Device Management**, and click **Manager Access - Configuration Details**, and then click **Refresh**.
b) Choose **Devices** > **Device Management**, and click the **Interfaces** tab and set the IP address to match the new address.
c) Return to the **Manager Access - Configuration Details** dialog box, and click **Acknowledge** to remove the deployment block.

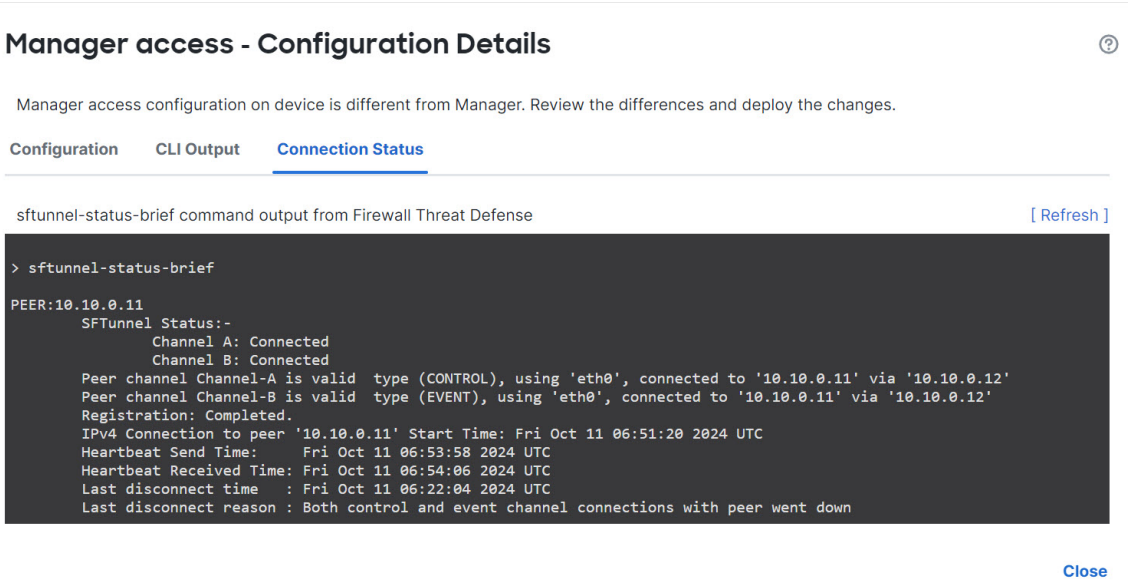
Step 8 Ensure the management connection is reestablished.

In the Firewall Management Center, check the management connection status. Navigate to the **Devices** > **Device Management**, and click **Management** section under the **Device** tab. Then, click **Manager Access - Configuration Details** to view the **Connection Status** page.

At the Firewall Threat Defense CLI, enter the **sftunnel-status-brief** command to view the management connection status.

The following status shows a successful connection for a data interface, showing the internal "tap_nlp" interface.

Figure 42: Connection Status



Step 9 (For a high-availability Firewall Management Center pair) Repeat configuration changes on the secondary Firewall Management Center.

a) Change the secondary Firewall Management Center IP address.
b) Specify the new peer addresses on both units.
c) Make the secondary unit the active unit.
d) Disable the device management connection.
e) Change the device IP address in the Firewall Management Center.
f) Reenable the management connection.

Change the Manager Access Interface

After you register the device, you can change the manager access interface, between the Management interface a data interface.

Change the Manager Access Interface from Management to Data

You can manage the Firewall Threat Defense from either the dedicated Management interface or from a data interface. If you want to change the manager access interface after you added the device to the Firewall Management Center, follow these steps to migrate from the Management interface to a data interface. To migrate the other direction, see Change the Manager Access Interface from Data to Management, on page 57.

Initiating the manager access migration from Management to data causes the Firewall Management Center to apply a block on deployment to the Firewall Threat Defense. To remove the block, enable manager access on the data interface.

See the following steps to enable manager access on a data interface and also configure other required settings.

Before you begin

For high-availability pairs, unless stated otherwise, perform all steps only on the active unit. Once the configuration changes are deployed, the standby unit synchronizes configuration and other state information from the active unit.

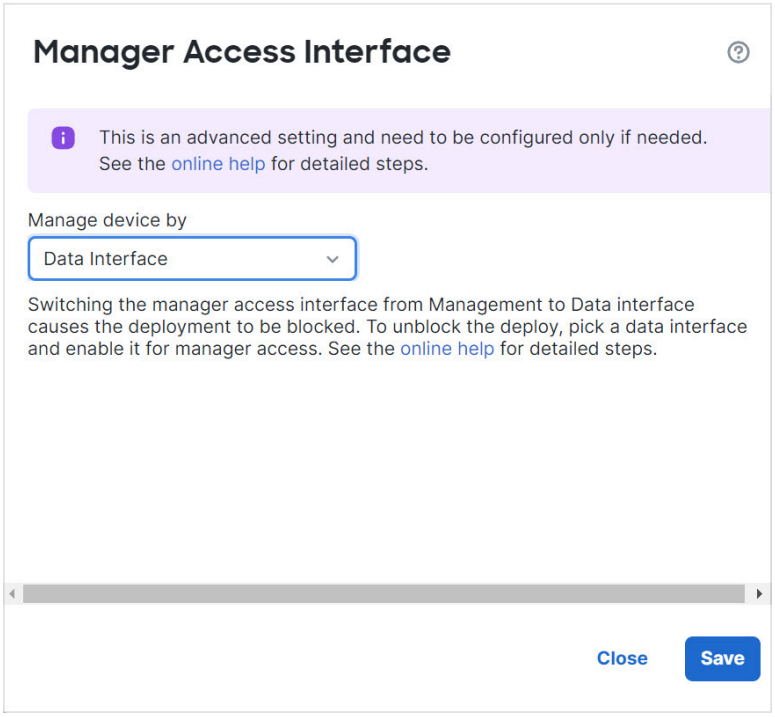
Procedure

Step 1 Initiate the interface migration.

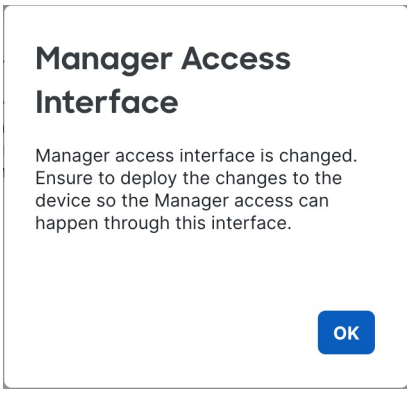
a) On the **Devices** > **Device Management** page, click **Edit** (✎) for the device. Click **Device**, and in the **Management** area, click the **Manager Access Interface** link.

The **Manager Access Interface** field shows the current Management interface. When you click the link, choose the new interface type, **Data Interface**, in the **Manage device by** drop-down list.

Figure 43: Manager Access Interface

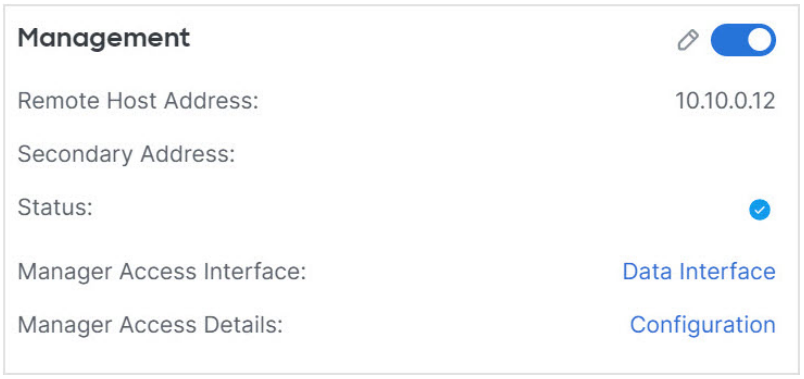


b) Click **OK** and then **Close**.



You must now complete the remaining steps in this procedure to enable manager access on the data interface. The **Management** area now shows **Manager Access Interface: Data Interface**, and **Manager Access Details: Configuration**.

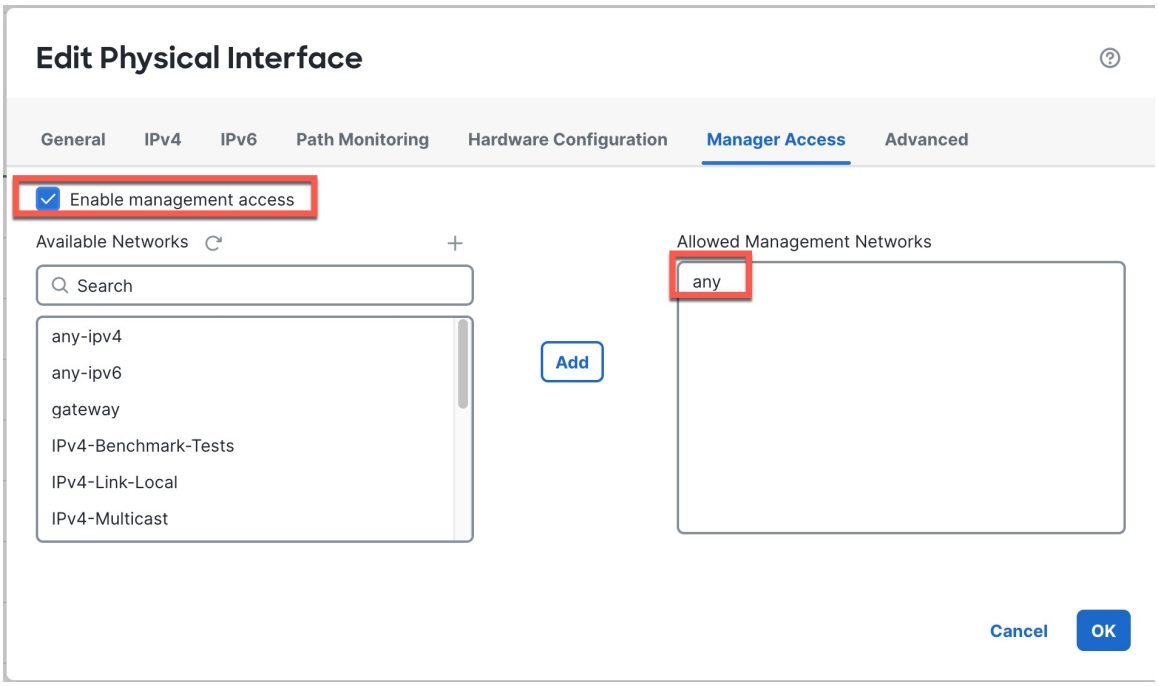
Figure 44: Manager Access



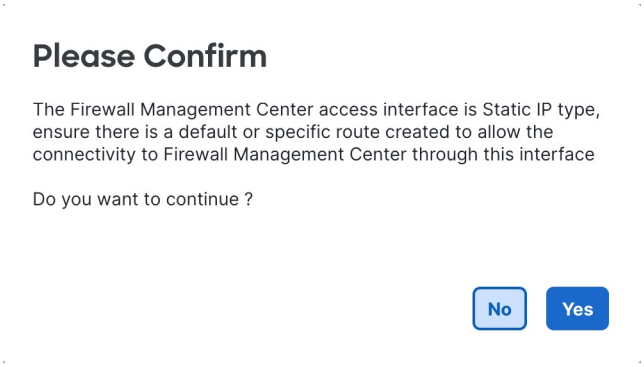
If you click **Configuration**, the **Manager Access - Configuration Details** dialog box opens. The **Manager Access Mode** shows a Deploy pending state.

Step 2 Enable manager access on the data interface(s). Click **Interfaces**, click **Edit** (✎) for the interface, and then click **Manager Access**.

Check **Enable management access** and click **OK**. By default, all networks are allowed, but you can limit access as long as the Firewall Management Center address is allowed.



If the manager access interface uses a static IP address, you are reminded to configure routing for it.



Click **Save** on the **Interfaces** page. See Configure Routed Mode Interfaces for more information about interface settings. You can enable manager access on one routed data interface, plus an optional secondary interface. Make sure these interfaces are fully configured with a name and IP address and that they are enabled.

If you use a secondary interface for redundancy, see Configure a Redundant Manager Access Data Interface, on page 28 for additional required configuration.

Step 3 (Optional) If you use DHCP for the interface, enable the web type DDNS method on the **DDNS** page. Navigate to **Devices** > **Device Management**, and then click **DDNS** under the **DHCP** tab.

See Configure Dynamic DNS. DDNS ensures the Firewall Management Center can reach the Firewall Threat Defense at its Fully-Qualified Domain Name (FQDN) if the FTD's IP address changes.

Step 4 Make sure the Firewall Threat Defense can route to the Firewall Management Center through the data interface; add a static route if necessary on the Static Route page. Navigate to **Devices** > **Device Management** and then click **Static Route** under the **Routing** tab.

See Add a Static Route.

Step 5 (Optional) Configure DNS in a Platform Settings policy: choose **Devices** > **Platform Settings**, and click **DNS**. Apply the policy to this device.

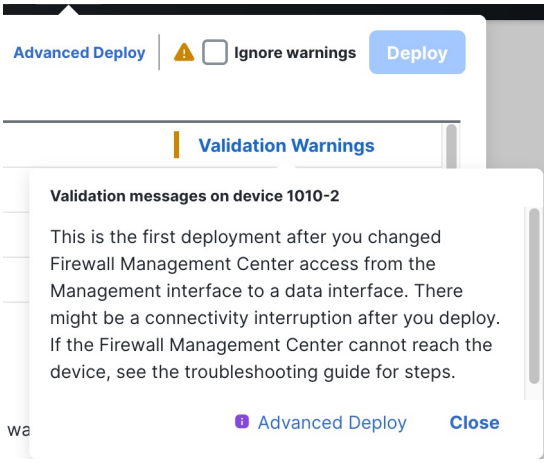
See DNS. DNS is required if you use DDNS. You may also use DNS for FQDNs in your security policies.

Step 6 (Optional) Enable SSH for the data interface in a Platform Settings policy, and apply it to this device at **Devices** > **Device Management** page. Click **Edit** (✎) for the device and then click **SSH Access**.

See SSH Access. SSH is not enabled by default on the data interfaces, so if you want to manage the Firewall Threat Defense using SSH, you need to explicitly allow it.

Step 7 Deploy configuration changes; see Deploy Configuration Changes.

You will see a validation error to confirm that you are changing the manager access interface. Check **Ignore warnings** and deploy again.



The Firewall Management Center will deploy the configuration changes over the current Management interface. After the deployment, the data interface is now ready for use, but the original management connection to Management is still active.

Step 8 At the Firewall Threat Defense CLI (preferably from the console port), set the Management interface to use a static IP address and set the gateway to use the data interfaces. For high availability, perform this step on both units.

configure network {**ipv4** | **ipv6**} **manual** *ip_address netmask* **data-interfaces**

- *ip_address netmask*—Although you do not plan to use the Management interface, you must set a static IP address, for example, a private address so that you can set the gateway to **data-interfaces** (see the next bullet). You cannot use DHCP because the default route, which must be **data-interfaces**, might be overwritten with one received from the DHCP server.
- **data-interfaces**—This setting forwards management traffic over the backplane so it can be routed through the manager access data interface.

We recommend that you use the console port instead of an SSH connection because when you change the Management interface network settings, your SSH session will be disconnected.

Step 9 If necessary, re-cable the Firewall Threat Defense so it can reach the Firewall Management Center on the data interface. For high availability, perform this step on both units.

Step 10 In the Firewall Management Center, disable the management connection, update the **Remote Host Address** IP address and optional **Secondary Address** for the Firewall Threat Defense in the **Devices** > **Device Management** page in the **Management** area under the **Device** tab, and reenable the connection.

See Update the Hostname or IP Address in the Firewall Management Center, on page 45. If you used the Firewall Threat Defense hostname or just the NAT ID when you added the Firewall Threat Defense to the Firewall Management Center, you do not need to update the value; however, you need to disable and reenable the management connection to restart the connection.

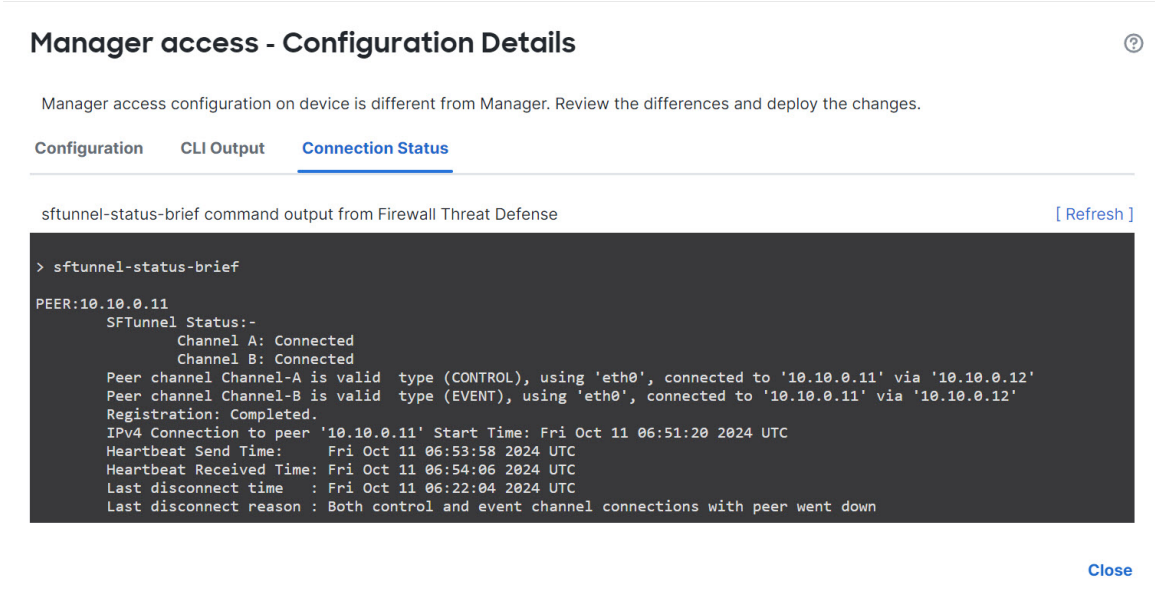
Step 11 Ensure the management connection is reestablished.

In the **Devices** > **Device Management** page, click **Manager Access Details: Configuration** and then click **Connection Status**.

Alternatively, you can check at the Firewall Threat Defense CLI. Enter the **sftunnel-status-brief** command to view the management connection status.

The following status shows a successful connection for a data interface, showing the internal "tap_nlp" interface.

Figure 45: Connection Status



If it takes more than 10 minutes to reestablish the connection, you should troubleshoot the connection. See Troubleshoot Management Connectivity on a Data Interface, on page 65.

Change the Manager Access Interface from Data to Management

You can manage the Firewall Threat Defense from either the dedicated Management interface or from a data interface. If you want to change the manager access interface after you added the device to the Firewall Management Center, follow these steps to migrate from a data interface to the Management interface. To migrate the other direction, see Change the Manager Access Interface from Management to Data, on page 52.

Initiating the manager access migration from data to Management causes the Firewall Management Center to apply a block on deployment to the Firewall Threat Defense. You must disable manager access on the data interface to remove the block.

See the following steps to disable manager access on a data interface, and also configure other required settings.

Before you begin

For high-availability pairs, unless stated otherwise, perform all steps only on the active unit. Once the configuration changes are deployed, the standby unit synchronizes configuration and other state information from the active unit.

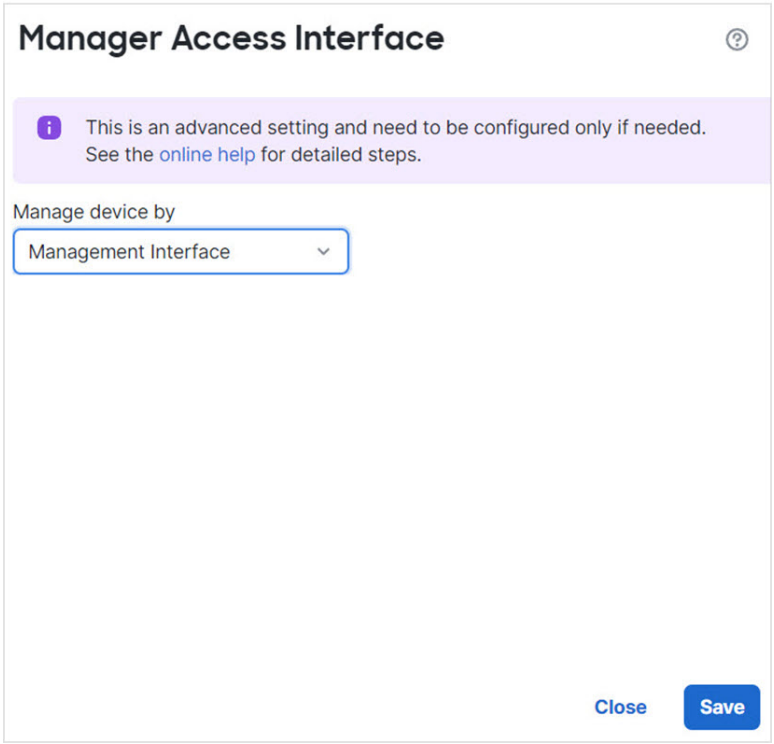
Procedure

Step 1 Initiate the interface migration.

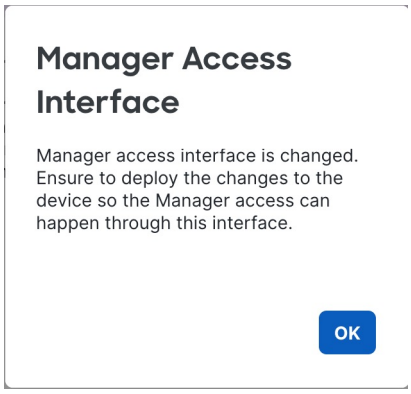
a) On the **Devices** > **Device Management** page, click **Edit** (✎) for the device. Click **Device**, and in the **Management** area, click the link for **Manager Access Interface**.

The **Manager Access Interface** field shows the current management interface as data. When you click the link, choose the new interface type, **Management Interface**, in the **Manage device by** drop-down list.

Figure 46: Manager Access Interface



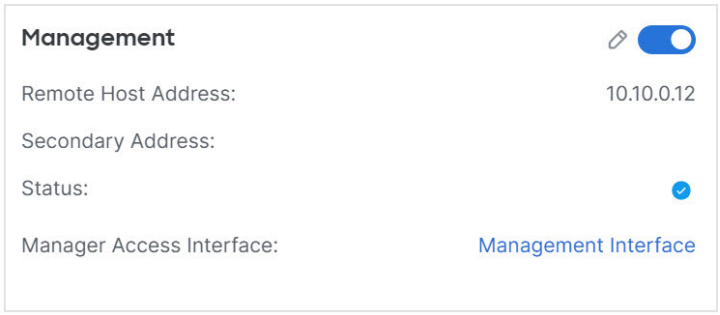
b) Click **Save**.



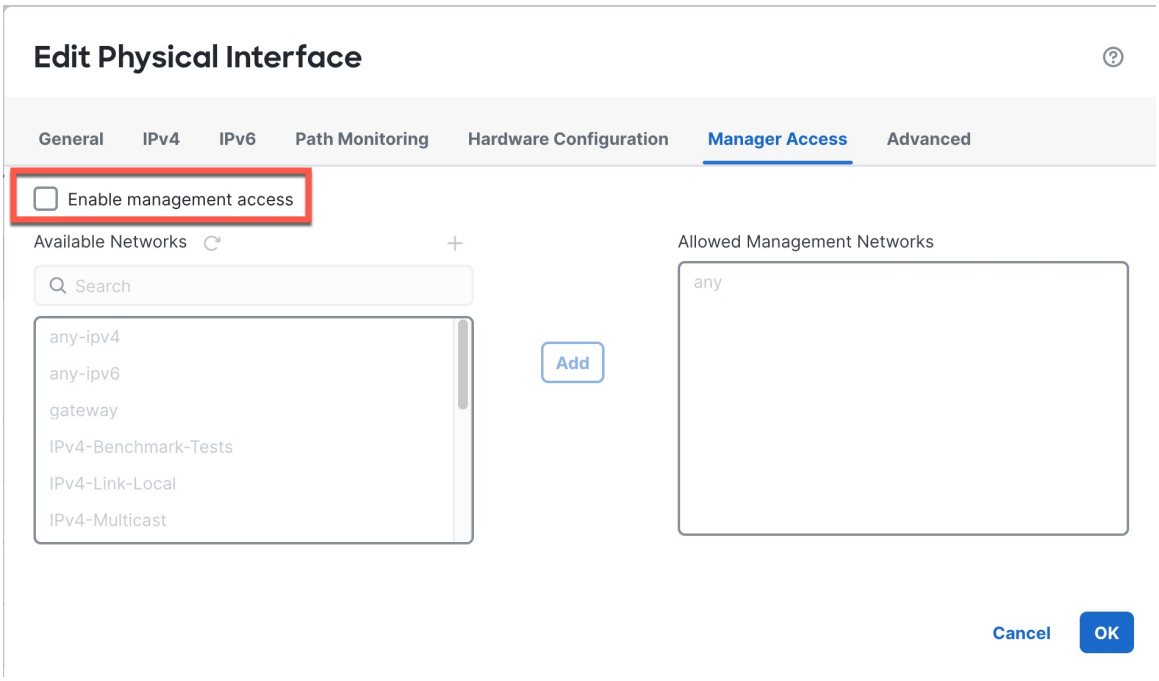
Click **OK** and then **Close**.

You must now complete the remaining steps in this procedure to enable manager access on the Management interface. The **Management** area now shows the **Manager Access Interface: Management Interface**.

Figure 47: Manager Access



Step 2 Disable manager access on the data interface(s). Click **Interfaces**, click **Edit** (✎) for the interface, and then click **Manager Access**.



Uncheck **Enable management access** and click **OK**. Click **Save** on the **Interfaces** page. This step removes the block on deployment.

Step 3 If you have not already done so, configure DNS settings for the data interface in a Platform Setting policy, and apply it to this device at **Devices** > **Device Management** page. Click **Edit** (✎) for the device and then click **DNS**.

See DNS. The Firewall Management Center deployment that disables manager access on the data interface will remove any local DNS configuration. If that DNS server is used in any security policy, such as an FQDN in an Access Rule, then you must re-apply the DNS configuration using the Firewall Management Center.

Step 4 Deploy configuration changes; see Deploy Configuration Changes.

The Firewall Management Center will deploy the configuration changes over the current data interface.

Step 5 If necessary, re-cable the Firewall Threat Defense so it can reach the Firewall Management Center on the Management interface. For High Availability, perform this step on both units.

Step 6 At the Firewall Threat Defense CLI, configure the Management interface IP address and gateway using a static IP address or DHCP. For high availability, perform this step on both units.

When you originally configured the data interface for manager access, the Management gateway was set to data-interfaces, which forwarded management traffic over the backplane so it could be routed through the manager access data interface. You now need to set an IP address for the gateway on the management network.

Static IP address:

configure network {**ipv4** | **ipv6**} **manual** *ip_address netmask gateway_ip*

DHCP:

configure network {**ipv4** | **ipv6**} **dhcp**

Step 7 In the Firewall Management Center, disable the management connection, update the **Remote Host Address** IP address and optional **Secondary Address** for the Firewall Threat Defense in the **Devices** > **Device Management**, **Management** section under **Device** tab, and reenable the connection.

See Update the Hostname or IP Address in the Firewall Management Center, on page 45. If you used the Firewall Threat Defense hostname or just the NAT ID when you added the Firewall Threat Defense to the Firewall Management Center, you do not need to update the value; however, you need to disable and reenable the management connection to restart the connection.

Step 8 Ensure the management connection is reestablished.

In the Firewall Management Center, check the management connection status on the **Devices** > **Device Management**, **Management** section under **Device** tab, **Status** field or view notifications in the Firewall Management Center.

At the Firewall Threat Defense CLI, enter the **sftunnel-status-brief** command to view the management connection status.

If it takes more than 10 minutes to reestablish the connection, you should troubleshoot the connection. See Troubleshoot Management Connectivity on a Data Interface, on page 65.

View Manager Access Details for Data Interface Management

When you use a data interface for Firewall Management Center management instead of using the dedicated Management interface, you must be careful about changing the interface and network settings for the device in the Firewall Management Center so you do not disrupt the connection. You can also change the data interface settings locally on the device, which requires you to reconcile those changes in the Firewall Management Center manually. The **Devices** > **Device Management** > **Device** > **Management** > **Manager Access - Configuration Details** dialog box helps you resolve any discrepancies between the Firewall Management Center and the Firewall Threat Defense local configuration.

Normally, you configure the manager access data interface as part of initial Firewall Threat Defense setup before you add the Firewall Threat Defense to the Firewall Management Center. When you add the Firewall Threat Defense to the Firewall Management Center, the Firewall Management Center discovers and maintains the interface configuration, including the following settings: interface name and IP address, static route to the gateway, DNS servers, and DDNS server. For the DNS server, the configuration is maintained locally if it is discovered during registration, but it is not added to the Platform Settings policy in Firewall Management Center.

After you add the Firewall Threat Defense to the Firewall Management Center, if you change the data interface settings on the Firewall Threat Defense locally using the **configure network management-data-interface** command, then the Firewall Management Center detects the configuration changes, and blocks deployment to the Firewall Threat Defense. The Firewall Management Center detects the configuration changes using one of the following methods:

- Deploy to the Firewall Threat Defense. Before the Firewall Management Center deploys, it will detect the configuration differences and stop the deployment.
- The **Refresh** button on the **Manager Access - Configuration Details** dialog box.

To remove the block, you must go to the **Manager Access - Configuration Details** dialog box and click **Acknowledge**. The next time you deploy, the Firewall Management Center configuration will overwrite any remaining conflicting settings on the Firewall Threat Defense. It is your responsibility to manually fix the configuration in the Firewall Management Center before you re-deploy.

See the following pages on this dialog box.

Configuration

View the configuration comparison of the manager access data interface on the Firewall Management Center and the Firewall Threat Defense.

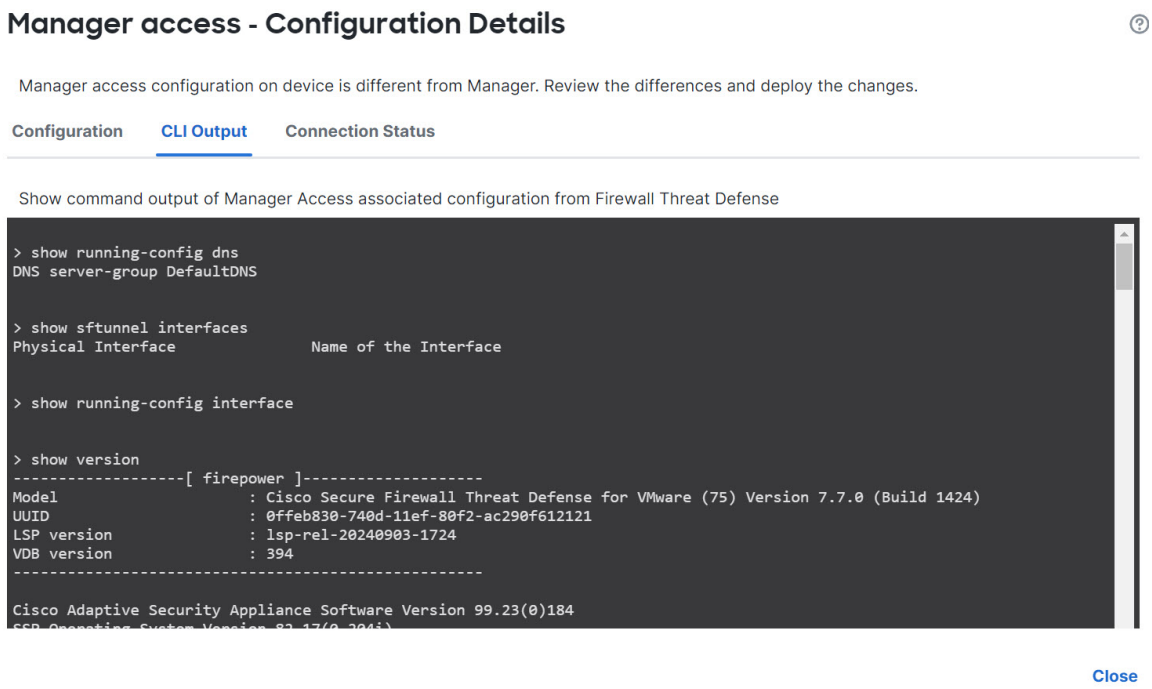
The following example shows the configuration details of the Firewall Threat Defense where the **configure network management-data-interface** command was entered on the Firewall Threat Defense. The pink highlights show that if you **Acknowledge** the differences but do not match the configuration in the Firewall Management Center, then the Firewall Threat Defense configuration will be removed. The blue highlights show configurations that will be modified on the Firewall Threat Defense. The green highlights show configurations that will be added to the Firewall Threat Defense.

The following example shows this page after configuring the interface in the Firewall Management Center; the interface settings match, and the pink highlight was removed.

CLI Output

View the CLI configuration of the manager access data interface, which is useful if you are familiar with the underlying CLI.

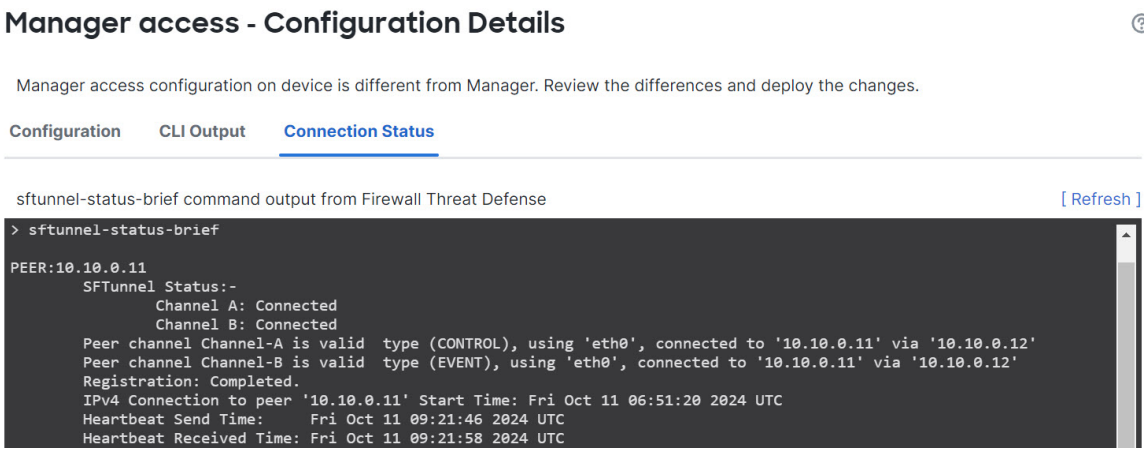
Figure 48: CLI Output



Connection Status

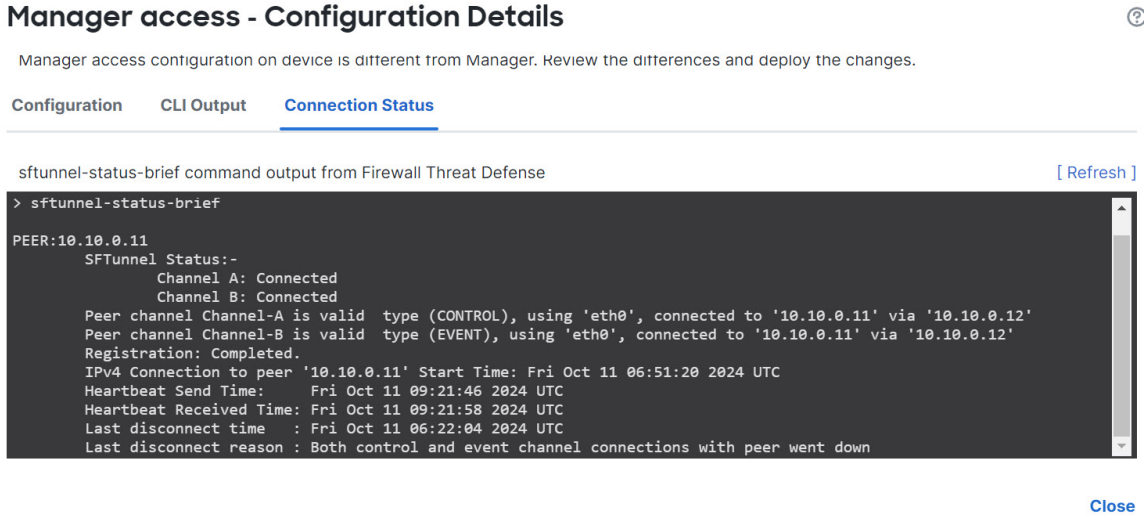
View management connection status. The following example shows that the management connection is still using the Management "management0" interface.

Figure 49: Connection Status



The following status shows a successful connection for a data interface, showing the internal "tap_nlp" interface.

Figure 50: Connection Status



See the following sample output for a connection that is down; there is no peer channel "connected to" information, nor heartbeat information shown:

```
> sftunnel-status-brief
PEER:10.10.17.202
Registration: Completed.
Connection to peer '10.10.17.202' Attempted at Mon Jun 15 09:21:57 2020 UTC
Last disconnect time : Mon Jun 15 09:19:09 2020 UTC
Last disconnect reason : Both control and event channel connections with peer went down
```

See the following sample output for a connection that is up, with peer channel and heartbeat information shown:

```
> sftunnel-status-brief
PEER:10.10.17.202
Peer channel Channel-A is valid type (CONTROL), using 'eth0', connected to '10.10.17.202'
via '10.10.17.222'
Peer channel Channel-B is valid type (EVENT), using 'eth0', connected to '10.10.17.202' via
 '10.10.17.222'
Registration: Completed.
IPv4 Connection to peer '10.10.17.202' Start Time: Wed Jun 10 14:27:12 2020 UTC
Heartbeat Send Time: Mon Jun 15 09:02:08 2020 UTC
Heartbeat Received Time: Mon Jun 15 09:02:16 2020 UTC
```

Troubleshooting the Management Connection

Manually Roll Back the Configuration if the Firewall Management Center Loses Connectivity

If you use a data interface on the Firewall Threat Defense for manager access, and you deploy a configuration change from the Firewall Management Center that affects the network connectivity, you can roll back the configuration on the Firewall Threat Defense to the last-deployed configuration so you can restore management connectivity. You can then adjust the configuration settings in Firewall Management Center so that the network connectivity is maintained, and re-deploy. You can use the rollback feature even if you do not lose connectivity; it is not limited to this troubleshooting situation.

Alternatively, you can enable auto rollback of the configuration if you lose connectivity after a deployment; see Edit Deployment Settings, on page 76.

See the following guidelines:

- Only the previous deployment is available locally on the Firewall Threat Defense; you cannot roll back to any earlier deployments.
- Rollback is supported for high availability but not supported for clustering deployments.
- The rollback only affects configurations that you can set in the Firewall Management Center. For example, the rollback does not affect any local configuration related to the dedicated Management interface, which you can only configure at the Firewall Threat Defense CLI. Note that if you changed data interface settings after the last Firewall Management Center deployment using the **configure network management-data-interface** command, and then you use the rollback command, those settings will not be preserved; they will roll back to the last-deployed Firewall Management Center settings.
- UCAPL/CC mode cannot be rolled back.
- Out-of-band SCEP certificate data that was updated during the previous deployment cannot be rolled back.
- During the rollback, connections will drop because the current configuration will be cleared.

Procedure

Step 1 At the Firewall Threat Defense CLI, roll back to the previous configuration.

configure policy rollback

After the rollback, the Firewall Threat Defense notifies the Firewall Management Center that the rollback was completed successfully. In the Firewall Management Center, the deployment screen will show a banner stating that the configuration was rolled back.

Note
If the rollback failed and the Firewall Management Center management is restored, refer to https://www.cisco.com/c/en/us/support/docs/security/firepower-ngfw-virtual/215258-troubleshooting-firepower-threat-defense.html for common deployment problems. In some cases, the rollback can fail after the Firewall Management Center management access is restored; in this case, you can resolve the Firewall Management Center configuration issues, and redeploy from the Firewall Management Center.

Example:

For the Firewall Threat Defense that uses a data interface for manager access:

```
> configure policy rollback

The last deployment to this FTD was on June 1, 2020 and its status was Successful.
Do you want to continue [Y/N]?

Y

Rolling back complete configuration on the FTD. This will take time.
.....................
Policy rollback was successful on the FTD.
Configuration has been reverted back to transaction id:
Following is the rollback summary:
...................
.....................
>
```

Step 2 Check that the management connection was reestablished.

In Firewall Management Center, check the management connection status on the Connection Status page. Navigate to **Devices** > **Device Management** and then navigate to **Management** area under the **Devices** tab. Then in the **Manager Access - Configuration Details** screen, click **Connection Status**.

At the Firewall Threat Defense CLI, enter the **sftunnel-status-brief** command to view the management connection status.

If it takes more than 10 minutes to reestablish the connection, you should troubleshoot the connection. See Troubleshoot Management Connectivity on a Data Interface, on page 65.

Troubleshoot Management Connectivity on a Data Interface

When you use a data interface for manager access instead of using the dedicated Management interface, you must be careful about changing the interface and network settings for the Firewall Threat Defense in the Firewall Management Center so you do not disrupt the connection. If you change the management interface type after you add the Firewall Threat Defense to the Firewall Management Center (from data to Management, or from Management to data), if the interfaces and network settings are not configured correctly, you can lose management connectivity.

This topic helps you troubleshoot the loss of management connectivity.

View management connection status

In the Firewall Management Center, check the management connection status on the **Devices** > **Device Management** page.

At the Firewall Threat Defense CLI, enter the **sftunnel-status-brief** command to view the management connection status. You can also use **sftunnel-status** to view more complete information.

See the following sample output for a connection that is down; there is no peer channel "connected to" information, nor heartbeat information shown:

```
> sftunnel-status-brief
PEER:10.10.17.202
Registration: Completed.
Connection to peer '10.10.17.202' Attempted at Mon Jun 15 09:21:57 2020 UTC
Last disconnect time : Mon Jun 15 09:19:09 2020 UTC
Last disconnect reason : Both control and event channel connections with peer went down
```

See the following sample output for a connection that is up, with peer channel and heartbeat information shown:

```
> sftunnel-status-brief
PEER:10.10.17.202
Peer channel Channel-A is valid type (CONTROL), using 'eth0', connected to '10.10.17.202'
 via '10.10.17.222'
Peer channel Channel-B is valid type (EVENT), using 'eth0', connected to '10.10.17.202'
 via '10.10.17.222'
Registration: Completed.
IPv4 Connection to peer '10.10.17.202' Start Time: Wed Jun 10 14:27:12 2020 UTC
Heartbeat Send Time: Mon Jun 15 09:02:08 2020 UTC
Heartbeat Received Time: Mon Jun 15 09:02:16 2020 UTC
```

View the Firewall Threat Defense network information

At the Firewall Threat Defense CLI, view the Management and manager access data interface network settings:

show network

```
> show network
===============[ System Information ]===============
Hostname                  : FTD-4
Domains                   : cisco.com
DNS Servers               : 72.163.47.11
DNS from router           : enabled
Management port           : 8305
IPv4 Default route
  Gateway                 : data-interfaces

==================[ management0 ]===================
Admin State               : enabled
Admin Speed               : 1gbps
Operation Speed           : 1gbps
Link                      : up
Channels                  : Management & Events
Mode                      : Non-Autonegotiation
MDI/MDIX                  : Auto/MDIX
MTU                       : 1500
MAC Address               : 68:87:C6:A6:54:80
```

```
----------------------[ IPv4 ]----------------------
Configuration             : Manual
Address                   : 10.89.5.4
Netmask                   : 255.255.255.192
Gateway                   : 169.254.1.1
----------------------[ IPv6 ]----------------------
Configuration             : Disabled

===============[ Proxy Information ]================
State                     : Disabled
Authentication            : Disabled

======[ System Information - Data Interfaces ]======
DNS Servers               : 72.163.47.11
Interfaces                : Ethernet1/1

==================[ Ethernet1/1 ]===================
State                     : Enabled
Link                      : Up
Name                      : outside
MTU                       : 1500
MAC Address               : 68:87:C6:A6:54:A4
----------------------[ IPv4 ]----------------------
Configuration             : Manual
Address                   : 10.89.5.6
Netmask                   : 255.255.255.192
Gateway                   : 10.89.5.1
----------------------[ IPv6 ]----------------------
Configuration             : Disabled
```

Check that the Firewall Threat Defense registered with the Firewall Management Center

At the Firewall Threat Defense CLI, check that the Firewall Management Center registration was completed. Note that this command will not show the *current* status of the management connection.

show managers

```
> show managers
Type                      : Manager
Host                      : 16a3893c-caa7-11ee-8436-0925c06e7608DONTRESOLVE
Display name              : manager-1707852946.80444
Version                   : 7.6.0 (Build 1385)
Identifier                : a904b8b2-ca9a-11ee-a583-5e804c16b2fd
Registration              : Completed
Management type           : Configuration and analytics
```

Ping the Firewall Management Center

At the Firewall Threat Defense CLI, use the following command to ping the Firewall Management Center from the data interfaces:

ping *fmc_ip*

At the Firewall Threat Defense CLI, use the following command to ping the Firewall Management Center from the Management interface, which should route over the backplane to the data interfaces:

ping system *fmc_ip*

Capture packets on the Firewall Threat Defense internal interface

At the Firewall Threat Defense CLI, capture packets on the internal backplane interface (nlp_int_tap) to see if management packets are being sent:

capture *name* **interface nlp_int_tap trace detail match ip any any**

show capture*name* **trace detail**

Check the internal interface status, statistics, and packet count

At the Firewall Threat Defense CLI, see information about the internal backplane interface, nlp_int_tap:

show interface detail

```
> show interface detail
[...]
Interface Internal-Data0/1 "nlp_int_tap", is up, line protocol is up
  Hardware is en_vtun rev00, BW Unknown Speed-Capability, DLY 1000 usec
 (Full-duplex), (1000 Mbps)
 Input flow control is unsupported, output flow control is unsupported
 MAC address 0000.0100.0001, MTU 1500
 IP address 169.254.1.1, subnet mask 255.255.255.248
 37 packets input, 2822 bytes, 0 no buffer
 Received 0 broadcasts, 0 runts, 0 giants
 0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
 0 pause input, 0 resume input
 0 L2 decode drops
 5 packets output, 370 bytes, 0 underruns
 0 pause output, 0 resume output
 0 output errors, 0 collisions, 0 interface resets
 0 late collisions, 0 deferred
 0 input reset drops, 0 output reset drops
 input queue (blocks free curr/low): hardware (0/0)
 output queue (blocks free curr/low): hardware (0/0)
  Traffic Statistics for "nlp_int_tap":
 37 packets input, 2304 bytes
 5 packets output, 300 bytes
 37 packets dropped
      1 minute input rate 0 pkts/sec,  0 bytes/sec
      1 minute output rate 0 pkts/sec,  0 bytes/sec
      1 minute drop rate, 0 pkts/sec
      5 minute input rate 0 pkts/sec,  0 bytes/sec
      5 minute output rate 0 pkts/sec,  0 bytes/sec
      5 minute drop rate, 0 pkts/sec
  Control Point Interface States:
 Interface number is 14
 Interface config status is active
 Interface state is active
```

Check routing and NAT

At the Firewall Threat Defense CLI, check that the default route (S*) was added and that internal NAT rules exist for the Management interface (nlp_int_tap).

show route

```
> show route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, V - VPN
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, + - replicated route
       SI - Static InterVRF
```

```
Gateway of last resort is 10.89.5.1 to network 0.0.0.0

S*       0.0.0.0 0.0.0.0 [1/0] via 10.89.5.1, outside
C        10.89.5.0 255.255.255.192 is directly connected, outside
L        10.89.5.29 255.255.255.255 is directly connected, outside

>
```

show nat

```
> show nat

Auto NAT Policies (Section 2)
1 (nlp_int_tap) to (outside) source static nlp_server_0_sftunnel_intf3 interface  service
 tcp 8305 8305
    translate_hits = 0, untranslate_hits = 6
2 (nlp_int_tap) to (outside) source static nlp_server_0_ssh_intf3 interface  service
tcp ssh ssh
    translate_hits = 0, untranslate_hits = 73
3 (nlp_int_tap) to (outside) source static nlp_server_0_sftunnel_ipv6_intf3 interface
ipv6  service tcp 8305 8305
    translate_hits = 0, untranslate_hits = 0
4 (nlp_int_tap) to (outside) source dynamic nlp_client_0_intf3 interface
    translate_hits = 174, untranslate_hits = 0
5 (nlp_int_tap) to (outside) source dynamic nlp_client_0_ipv6_intf3 interface ipv6
    translate_hits = 0, untranslate_hits = 0
>
```

Check other settings

See the following commands to check that all other settings are present. You can also see many of these commands on the Firewall Management Center's **Devices** > **Device Management** page.

show running-config sftunnel

```
> show running-config sftunnel
sftunnel interface outside
sftunnel port 8305
```

show running-config ip-client

```
> show running-config ip-client
ip-client outside
```

show conn address *fmc_ip*

```
> show conn address 10.89.5.35
5 in use, 16 most used
Inspect Snort:
        preserve-connection: 0 enabled, 0 in effect, 0 most enabled, 0 most in effect

TCP nlp_int_tap  10.89.5.29(169.254.1.2):51231 outside  10.89.5.35:8305, idle 0:00:04,
 bytes 86684, flags UxIO
TCP nlp_int_tap  10.89.5.29(169.254.1.2):8305 outside  10.89.5.35:52019, idle 0:00:02,
 bytes 1630834, flags UIO
>
```

Check for a successful DDNS update

At the Firewall Threat Defense CLI, check for a successful DDNS update:

debug ddns

```
> debug ddns
DDNS update request = /v3/update?hostname=domain.example.org&myip=209.165.200.225
Successfully updated the DDNS sever with current IP addresses
DDNS: Another update completed, outstanding = 0
DDNS: IDB SB total = 0
```

If the update failed, use the **debug http** and **debug ssl** commands. For certificate validation failures, check that the root certificates are installed on the device:

show crypto ca certificates *trustpoint_name*

To check the DDNS operation:

show ddns update interface *fmc_access_ifc_name*

```
> show ddns update interface outside

Dynamic DNS Update on outside:
    Update Method Name Update Destination
    RBD_DDNS not available

Last Update attempted on 04:11:58.083 UTC Thu Jun 11 2020
Status : Success
FQDN : domain.example.org
IP addresses : 209.165.200.225
```

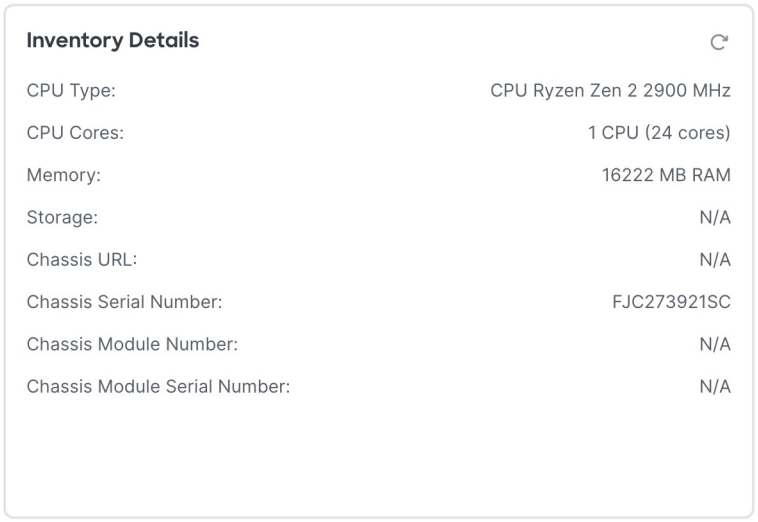
Check Firewall Management Center log files

See https://cisco.com/go/fmc-reg-error.

View Inventory Details

The **Inventory Details** section of the **Device** page shows chassis details such as the CPU and memory.

Figure 51: Inventory Details



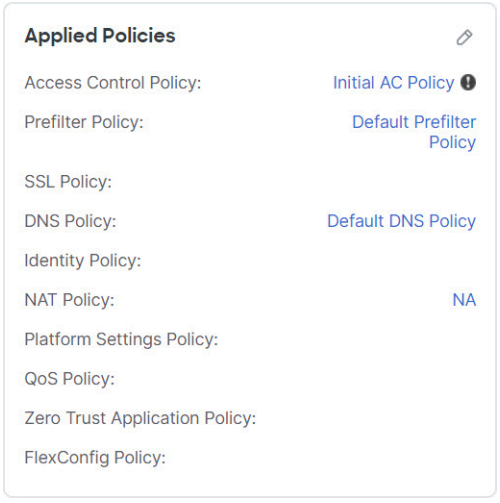
This section shows the chassis serial number. The firewall includes two serial numbers: the chassis serial number and the PCB (circuit board) serial number. The PCB serial number is shown in the System section. The Firewall Threat Defense Virtual does not have a chassis serial number.

To update information, click **Refresh** ( ).

Edit Applied Policies

The **Applied Policies** section of the **Device** page displays the following policies applied to your firewall:

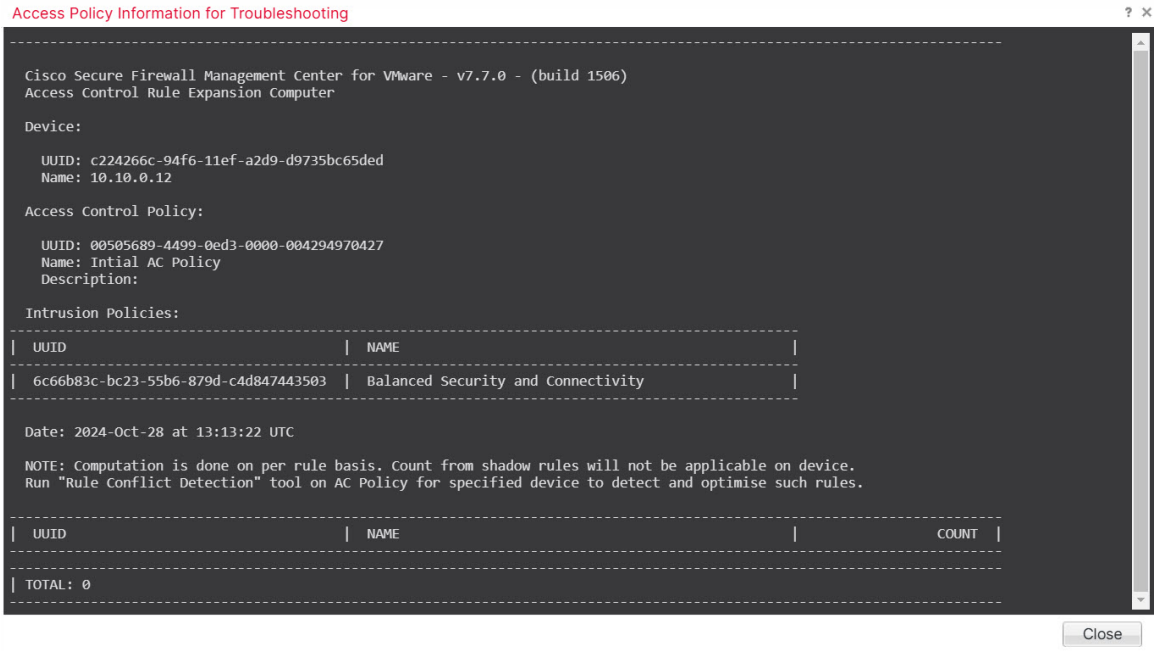
Figure 52: Applied Policies



For policies with links, you can click the link to view the policy.

For the Access Control Policy, view the **Access Policy Information for Troubleshooting** dialog box by clicking the **Exclamation** ( ) icon. This dialog box shows how access rules are expanded into access control entries (ACEs).

Figure 53: Access Policy Information for Troubleshooting



You can assign policies to an individual device from the **Device Management** page.

Procedure

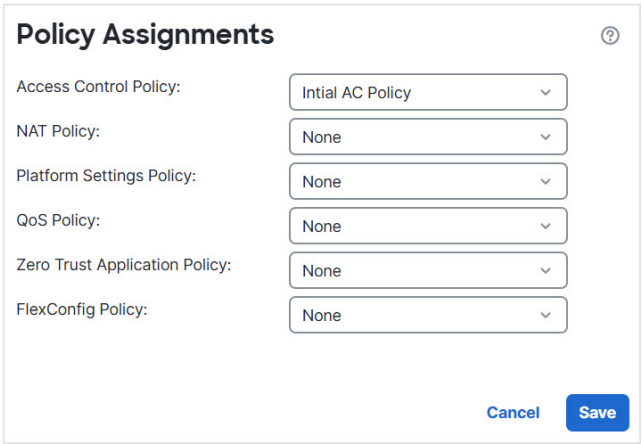
Step 1 Choose **Devices** > **Device Management**.

Step 2 Next to the device where you want to assign policies, click **Edit** ( ).

Step 3 Click **Device**.

Step 4 In the **Applied Policies** section, click **Edit** ( ).

Figure 54: Policy Assignments



Step 5 For each policy type, choose a policy from the drop-down menu. Only existing policies are listed.

Step 6 Click **Save**.

What to do next

- Deploy configuration changes; see Deploy Configuration Changes.

Edit Advanced Settings

The **Advanced Settings** section of the **Device** page displays a table of advanced configuration settings, as described below. You can edit any of these settings.

Table 5: Advanced Section Table Fields

Field	Description
Application Bypass	The state of Automatic Application Bypass on the device.
Bypass Threshold	The Automatic Application Bypass threshold, in milliseconds.
Object Group Search	The state of object group search on the device. While operating, the FTD device expands access control rules into multiple access control list entries based on the contents of any network or interface objects used in the access rule. You can reduce the memory required to search access control rules by enabling object group search. With object group search enabled, the system does not expand network or interface objects, but instead searches access rules for matches based on those group definitions. Object group search does not impact how your access rules are defined or how they appear in Firepower Management Center. It impacts only how the device interprets and processes them while matching connections to access control rules. **Note** By default, the **Object Group Search** is enabled when you add threat defense for the first time in the management center.
Interface Object Optimization	The state of interface object optimization on the device. During deployment, interface groups and security zones used in the access control and prefilter policies generate separate rules for each source/destination interface pair. If you enable interface object optimization, the system will instead deploy a single rule per access control/prefilter rule, which can simplify the device configuration and improve deployment performance. If you select this option, also select the **Object Group Search** option to reduce memory usage on the device.

The following topics explain how to edit the advanced device settings.

Note For information about the Transfer Packets setting, see Edit General Settings, on page 1.

Configure Automatic Application Bypass

Automatic Application Bypass (AAB) allows packets to bypass detection if Snort is down or, for a Classic device, if a packet takes too long to process. AAB causes Snort to restart within ten minutes of the failure, and generates troubleshooting data that can be analyzed to investigate the cause of the Snort failure.

Caution AAB activation partially restarts the Snort process, which temporarily interrupts the inspection of a few packets. Whether traffic drops during this interruption or passes without further inspection depends on how the assigned device handles traffic. See Snort Restart Traffic Behavior for more information.

See the following behavior:

Firewall Threat Defense Behavior: If Snort is down, then AAB is triggered after the specified timer duration. If Snort is up, then AAB is never triggered, even if packet processing exceeds the configured timer.

Classic Device Behavior: AAB limits the time allowed to process packets through an interface. You balance packet processing delays with your network's tolerance for packet latency.

The feature functions with any deployment; however, it is most valuable in inline deployments.

Typically, you use Rule Latency Thresholding in the intrusion policy to fast-path packets after the latency threshold value is exceeded. Rule Latency Thresholding does not shut down the engine or generate troubleshooting data.

If detection is bypassed, the device generates a health monitoring alert.

By default the AAB is disabled; to enable AAB follow the steps described.

Procedure

Step 1 Choose **Devices** > **Device Management**.

Step 2 Next to the device where you want to edit advanced device settings, click **Edit** ( ).

Step 3 Click **Device**, then click **Edit** ( ) in the **Advanced Settings** section.

Step 4 Check **Automatic Application Bypass**.

Step 5 Enter a **Bypass Threshold** from 250 ms to 60,000 ms. The default setting is 3000 milliseconds (ms).

Step 6 Click **Save**.

What to do next

- Deploy configuration changes; see Deploy Configuration Changes.

Configure Object Group Search

While operating, the Firewall Threat Defense device expands access control rules into multiple access control list entries based on the contents of any network or interface objects used in the access rule. You can reduce the memory required to search access control rules by enabling object group search. With object group search enabled, the system does not expand network or interface objects, but instead searches access rules for matches

based on those group definitions. Object group search does not impact how your access rules are defined or how they appear in Firewall Management Center. It impacts only how the device interprets and processes them while matching connections to access control rules.

Enabling object group search reduces memory requirements for access control policies that include network or interface objects. However, it is important to note that object group search might also decrease rule lookup performance and thus increase CPU utilization. You should balance the CPU impact against the reduced memory requirements for your specific access control policy. In most cases, enabling object group search provides a net operational improvement.

By default, the object group search is enabled for the threat defense devices that are added for the first time in the Firewall Management Center. In the case of upgraded devices, if the device is configured with disabled object group search, then you need to manually enable it. You can enable it on one device at a time; you cannot enable it globally. We recommend that you enable it on any device to which you deploy access rules that use network or interface objects.

Note If you enable object group search and then configure and operate the device for a while, be aware that subsequently disabling the feature might lead to undesirable results. When you disable object group search, your existing access control rules will be expanded in the device's running configuration. If the expansion requires more memory than is available on the device, your device can be left in an inconsistent state and you might see a performance impact. If your device is operating normally, you should not disable object group search once you have enabled it.

Before you begin

- Model support—Firewall Threat Defense
- We recommend that you also enable transactional commit on each device. From the device CLI, enter the **asp rule-engine transactional-commit access-group** command.
- Changing this setting can be disruptive to system operation while the device recompiles the ACLs. We recommend that you change this setting during a maintenance window.
- You can use FlexConfig to configure the **object-group-search threshold** command to enable a threshold to help prevent performance degradation. When operating with a threshold, for each connection, both the source and destination IP addresses are matched against network objects. If the number of objects matched by the source address times the number matched by the destination address exceeds 10,000, the connection is dropped. Configure your rules to prevent an excessive number of matches.

Procedure

Step 1 Choose **Devices** > **Device Management**.

Step 2 Next to the Firewall Threat Defense device where you want to configure the rule, click the **Edit** (✎).

Step 3 Click the **Device** tab, then click the **Edit** (✎) in the **Advanced Settings** section.

Step 4 Check **Object Group Search**.

Step 5 To have object group search work on interface objects in addition to network objects, check **Interface Object Optimization**.

If you do not select **Interface Object Optimization**, the system deploys separate rules for each source/interface pair, rather that use the security zones and interface groups used in the rules. This means the interface groups are not available for object group search processing.

Step 6 Click **Save**.

Configure Interface Object Optimization

During deployment, interface groups and security zones used in the access control and prefilter policies generate separate rules for each source/destination interface pair. If you enable interface object optimization, the system will instead deploy a single rule per access control/prefilter rule, which can simplify the device configuration and improve deployment performance. If you select this option, also select the **Object Group Search** option to reduce memory usage on the device.

Interface object optimization is disabled by default. You can enable it on one device at a time; you cannot enable it globally.

Note If you disable interface object optimization, your existing access control rules will be deployed without using interface objects, which might make deployment take longer. In addition, if object group search is enabled, its benefits will not apply to interface objects, and you might see expansion in the access control rules in the device's running configuration. If the expansion requires more memory than is available on the device, your device can be left in an inconsistent state and you might see a performance impact.

Before you begin

Model support—Firewall Threat Defense

Procedure

Step 1 Choose **Devices** > **Device Management**.

Step 2 Next to the Firewall Threat Defense device where you want to configure the rule, click the **Edit** (✎).

Step 3 Click the **Device** tab, then click **Edit** (✎) in the **Advanced Settings** section.

Step 4 Check **Interface Object Optimization**.

Step 5 Click **Save**.

Edit Deployment Settings

The **Deployment Settings** section of the **Device** page displays the information described in the table below.

Figure 55: Deployment Settings

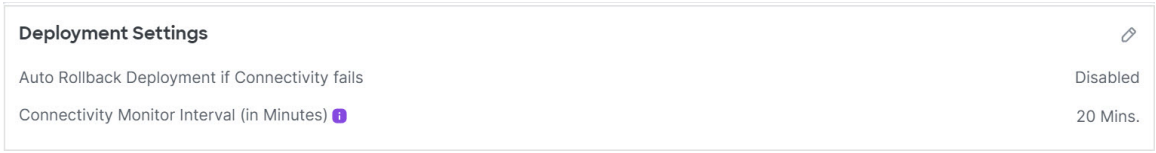


Table 6: Deployment Settings

Field	Description
Auto Rollback Deployment if Connectivity Fails	Enabled or Disabled. You can enable auto rollback if the management connection fails as a result of the deployment; specifically if you use data for management center access, and then you misconfigure the data interface.
Connectivity Monitor Interval (in Minutes)	Shows the amount of time to wait before rolling back the configuration.

You can set deployment settings from the **Device Management** page. Deployment settings include enabling auto rollback of the deployment if the management connection fails as a result of the deployment; specifically if you use data for management center access, and then you misconfigure the data interface. You can alternatively manually roll back the configuration using the **configure policy rollback** command (see Manually Roll Back the Configuration if the Firewall Management Center Loses Connectivity, on page 64).

See the following guidelines:

- Only the previous deployment is available locally on the Firewall Threat Defense; you cannot roll back to any earlier deployments.
- Rollback is supported for high availability but not supported for clustering deployments.
- The rollback only affects configurations that you can set in the Firewall Management Center. For example, the rollback does not affect any local configuration related to the dedicated Management interface, which you can only configure at the Firewall Threat Defense CLI. Note that if you changed data interface settings after the last Firewall Management Center deployment using the **configure network management-data-interface** command, and then you use the rollback command, those settings will not be preserved; they will roll back to the last-deployed Firewall Management Center settings.
- UCAPL/CC mode cannot be rolled back.
- Out-of-band SCEP certificate data that was updated during the previous deployment cannot be rolled back.
- During the rollback, connections will drop because the current configuration will be cleared.

Procedure

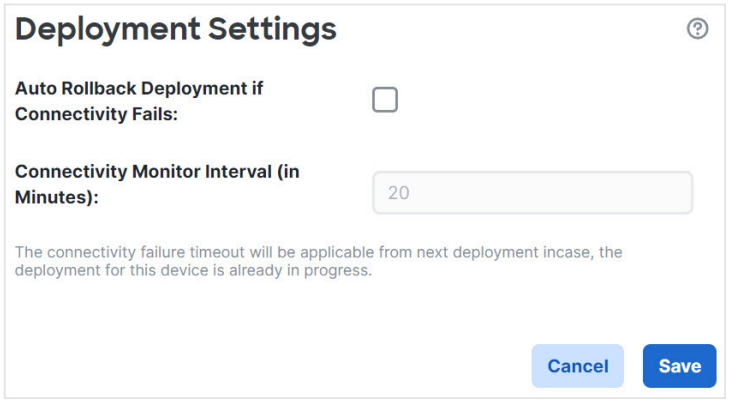
Step 1 Choose **Devices** > **Device Management**.

Step 2 Next to the device where you want to assign policies, click **Edit** ( ).

Step 3 Click **Device**.

Step 4 In the **Deployment Settings** section, click **Edit** ( ).

Figure 56: Deployment Settings



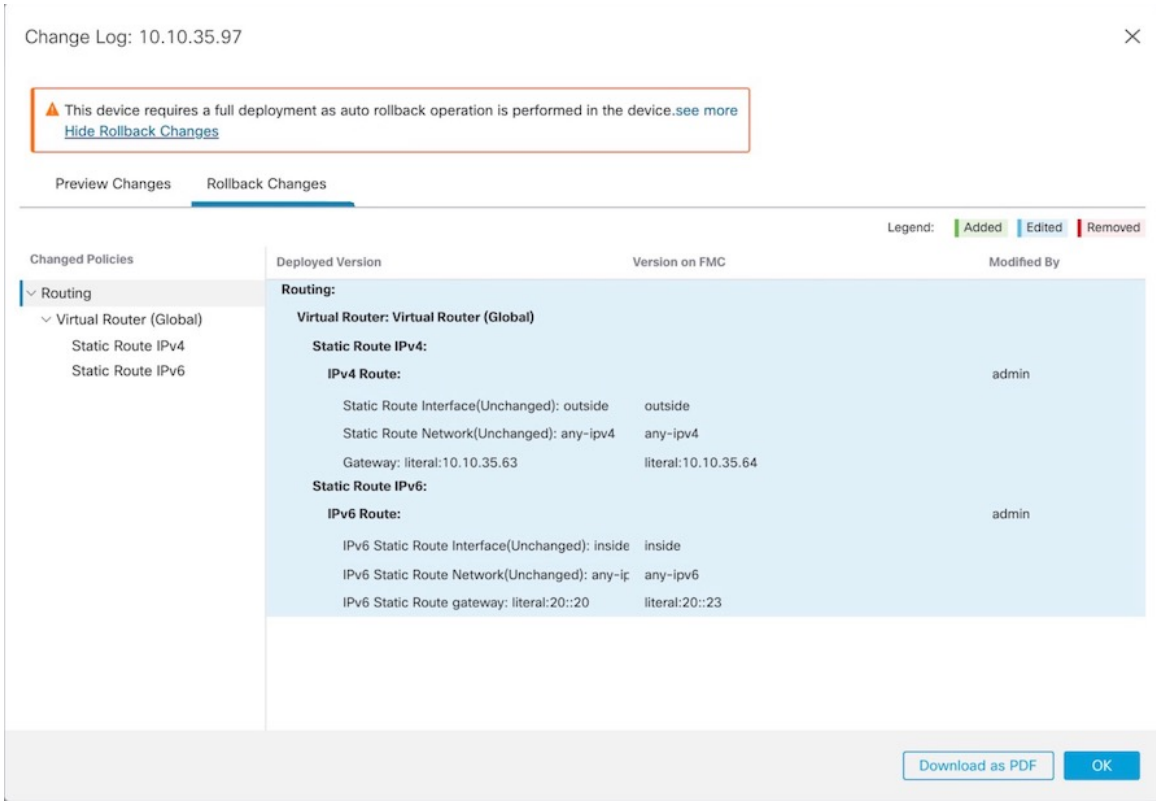
Step 5 Check **Auto Rollback Deployment if Connectivity Fails** to enable auto rollback.

Step 6 Set the **Connectivity Monitor Interval (in Minutes)** to set the amount of time to wait before rolling back the configuration. The default is 20 minutes.

Step 7 If a rollback occurs, see the following for next steps.

- If the auto rollback was successful, you see a success message instructing you to do a full deployment.
- You can also go to the **Deploy**and then **Advanced Deploy** screen and click the **Preview** ( ) icon to view the parts of the configuration that were rolled back (see Deploy Configuration Changes). Click **Show Rollback Changes** to view the changes, and **Hide Rollback Changes** to hide the changes.

Figure 57: Rollback Changes



- In the Deployment History Preview, you can view the rollback changes. See View Deployment History.

Step 8 Check that the management connection was reestablished.

In Firewall Management Center, check the management connection status on the connection status page. Navigate to **Devices** > **Device Management** and then in **Management** area under the **Devices** tab, click **Connection Status** to view the **Connection Status** page.

At the Firewall Threat Defense CLI, enter the **sftunnel-status-brief** command to view the management connection status.

If it takes more than 10 minutes to reestablish the connection, you should troubleshoot the connection. See Troubleshoot Management Connectivity on a Data Interface, on page 65.

Edit Cluster Health Monitor Settings

The **Cluster Health Monitor Settings** section of the **Cluster** page displays the settings described in the table below.

Figure 58: Cluster Health Monitor Settings

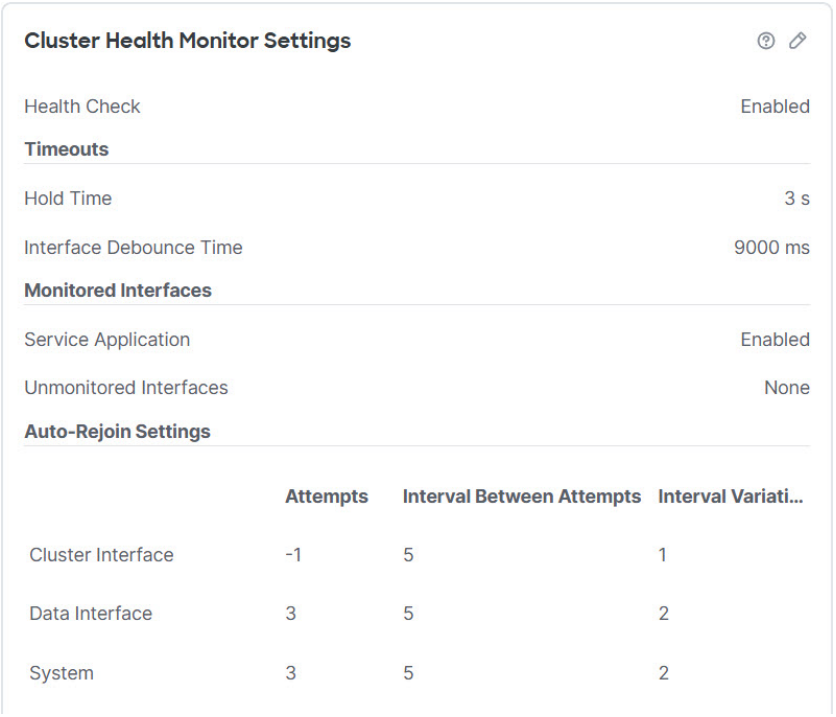


Table 7: Cluster Health Monitor Settings Section Table Fields

Field	Description
Timeouts	
Hold Time	Between .3 and 45 seconds; The default is 3 seconds. To determine node system health, the cluster nodes send heartbeat messages on the cluster control link to other nodes. If a node does not receive any heartbeat messages from a peer node within the hold time period, the peer node is considered unresponsive or dead.
Interface Debounce Time	Between 300 and 9000 ms. The default is 500 ms. The interface debounce time is the amount of time before the node considers an interface to be failed, and the node is removed from the cluster.
Monitored Interfaces	The interface health check monitors for link failures. If all physical ports for a given logical interface fail on a particular node, but there are active ports under the same logical interface on other nodes, then the node is removed from the cluster. The amount of time before the node removes a member from the cluster depends on the type of interface and whether the node is an established node or is joining the cluster.
Service Application	Shows whether the Snort and disk-full processes are monitored.
Unmonitored Interfaces	Shows unmonitored interfaces.
Auto-Rejoin Settings	

Field	Description
Cluster Interface	Shows the auto-rejoin settings after a cluster control link failure.
Attempts	Between -1 and 65535. The default is -1 (unlimited). Sets the number of rejoin attempts.
Interval Between Attempts	Between 2 and 60. The default is 5 minutes. Defines the interval duration in minutes between rejoin attempts.
Interval Variation	Between 1 and 3. The default is 1x the interval duration. Defines if the interval duration increases at each attempt.
Data Interfaces	Shows the auto-rejoin settings after a data interface failure.
Attempts	Between -1 and 65535. The default is 3. Sets the number of rejoin attempts.
Interval Between Attempts	Between 2 and 60. The default is 5 minutes. Defines the interval duration in minutes between rejoin attempts.
Interval Variation	Between 1 and 3. The default is 2x the interval duration. Defines if the interval duration increases at each attempt.
System	Shows the auto-rejoin settings after internal errors. Internal failures include: application sync timeout; inconsistent application statuses; and so on.
Attempts	Between -1 and 65535. The default is 3. Sets the number of rejoin attempts.
Interval Between Attempts	Between 2 and 60. The default is 5 minutes. Defines the interval duration in minutes between rejoin attempts.
Interval Variation	Between 1 and 3. The default is 2x the interval duration. Defines if the interval duration increases at each attempt.

Note If you disable the system health check, fields that do not apply when the system health check is disabled will not show.

You can change these settings from this section.

You can monitor any port-channel ID, single physical interface ID, as well as the Snort and disk-full processes. Health monitoring is not performed on VLAN subinterfaces or virtual interfaces such as VNIs or BVIs. You cannot configure monitoring for the cluster control link; it is always monitored.

Procedure

Step 1 Choose **Devices** > **Device Management**.

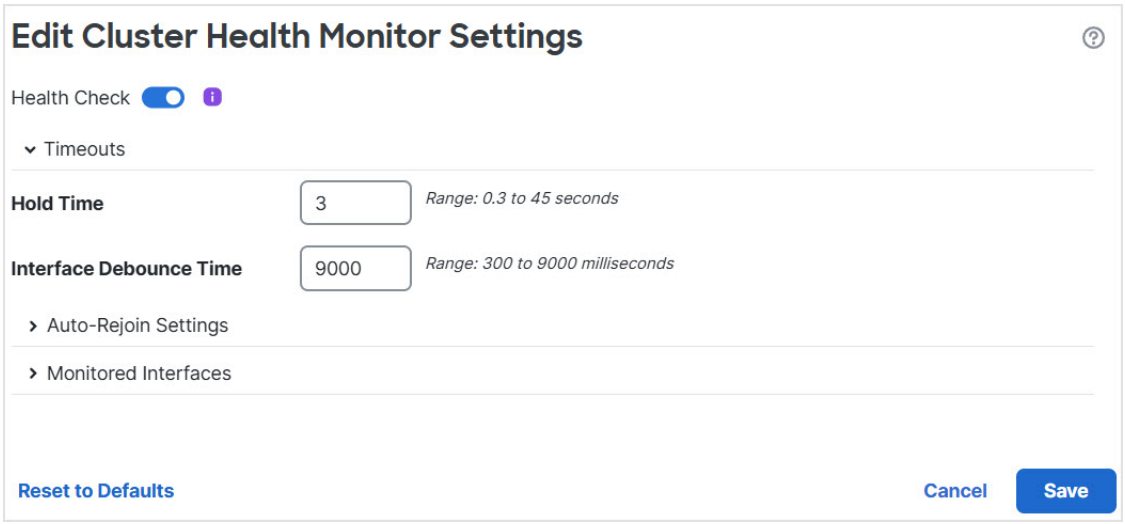
Step 2 Next to the cluster you want to modify, click **Edit** (✎).

Step 3 Click **Cluster**.

Step 4 In the **Cluster Health Monitor Settings** section, click **Edit** (✎).

Step 5 Disable the system health check by clicking the **Health Check** slider .

Figure 59: Disable the System Health Check



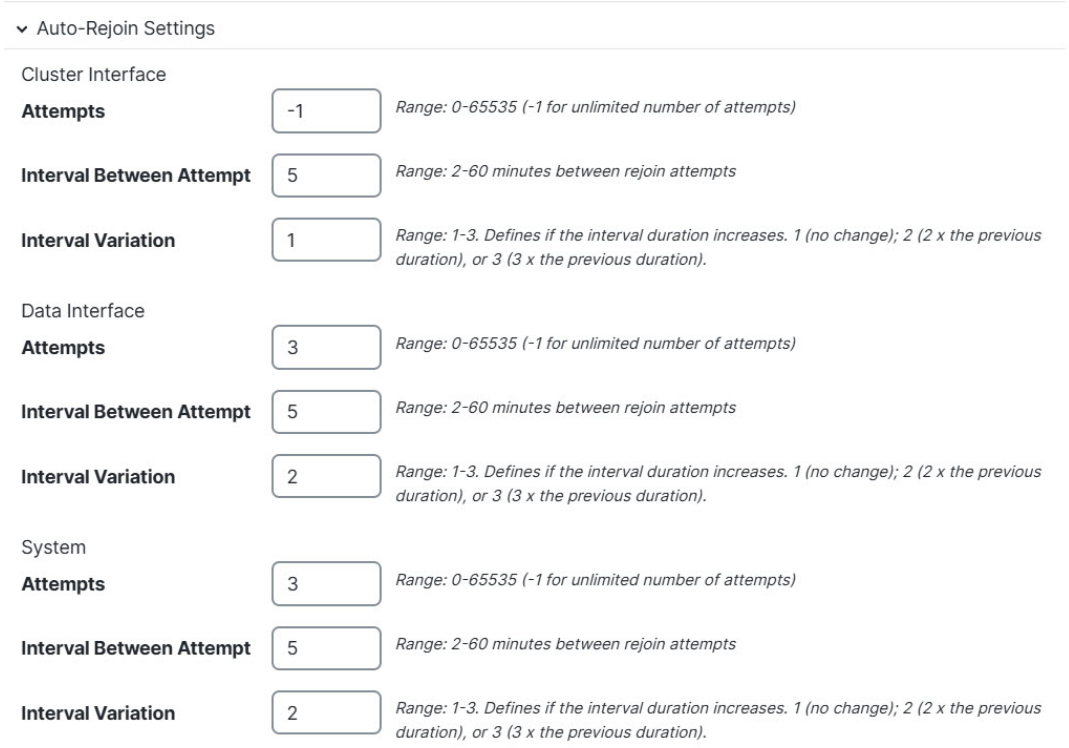
When any topology changes occur (such as adding or removing a data interface, enabling or disabling an interface on the node or the switch, or adding an additional switch to form a VSS or vPC or VNet) you should disable the system health check feature and also disable interface monitoring for the disabled interfaces. When the topology change is complete, and the configuration change is synced to all nodes, you can re-enable the system health check feature and monitored interfaces.

Step 6 Configure the hold time and interface debounce time.

- **Hold Time**—Set the hold time to determine the amount of time between node heartbeat status messages, between .3 and 45 seconds; The default is 3 seconds.
- **Interface Debounce Time**—Set the debounce time between 300 and 9000 ms. The default is 500 ms. Lower values allow for faster detection of interface failures. Note that configuring a lower debounce time increases the chances of false-positives. When an interface status update occurs, the node waits the number of milliseconds specified before marking the interface as failed, and the node is removed from the cluster. In the case of an EtherChannel that transitions from a down state to an up state (for example, the switch reloaded, or the switch enabled an EtherChannel), a longer debounce time can prevent the interface from appearing to be failed on a cluster node just because another cluster node was faster at bundling the ports.

Step 7 Customize the auto-rejoin cluster settings after a health check failure.

Figure 60: Configure Auto-Rejoin Settings

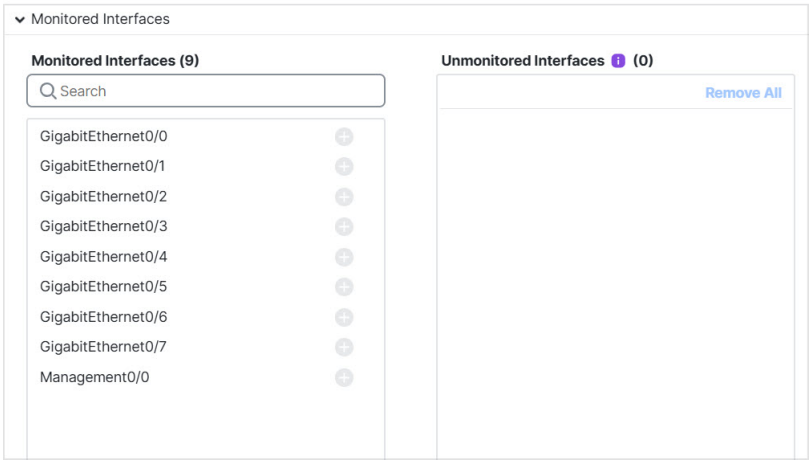


Set the following values for the **Cluster Interface**, **Data Interface**, and **System** (internal failures include: application sync timeout; inconsistent application statuses; and so on):

- **Attempts**—Sets the number of rejoin attempts, between -1 and 65535. **0** disables auto-rejoining. The default for the **Cluster Interface** is -1 (unlimited). The default for the **Data Interface** and **System** is 3.
- **Interval Between Attempts**—Defines the interval duration in minutes between rejoin attempts, between 2 and 60. The default value is 5 minutes. The maximum total time that the node attempts to rejoin the cluster is limited to 14400 minutes (10 days) from the time of last failure.
- **Interval Variation**—Defines if the interval duration increases. Set the value between 1 and 3: **1** (no change); **2** (2 x the previous duration), or **3** (3 x the previous duration). For example, if you set the interval duration to 5 minutes, and set the variation to 2, then the first attempt is after 5 minutes; the 2nd attempt is 10 minutes (2 x 5); the 3rd attempt 20 minutes (2 x 10), and so on. The default value is **1** for the **Cluster Interface** and **2** for the **Data Interface** and **System**.

Step 8 Configure monitored interfaces by moving interfaces in the **Monitored Interfaces** or **Unmonitored Interfaces** window. You can also check or uncheck **Enable Service Application Monitoring** to enable or disable monitoring of the Snort and disk-full processes.

Figure 61: Configure Monitored Interfaces



The interface health check monitors for link failures. If all physical ports for a given logical interface fail on a particular node, but there are active ports under the same logical interface on other nodes, then the node is removed from the cluster. The amount of time before the node removes a member from the cluster depends on the type of interface and whether the node is an established node or is joining the cluster. Health check is enabled by default for all interfaces and for the Snort and disk-full processes.

You might want to disable health monitoring of non-essential interfaces.

When any topology changes occur (such as adding or removing a data interface, enabling or disabling an interface on the node or the switch, or adding an additional switch to form a VSS or vPC or VNet) you should disable the system health check feature and also disable interface monitoring for the disabled interfaces. When the topology change is complete, and the configuration change is synced to all nodes, you can re-enable the system health check feature and monitored interfaces.

Step 9 Click **Save**.

Step 10 Deploy configuration changes; see Deploy Configuration Changes.

Hot swap an SSD

If you have two SSDs, they form a RAID when you boot up. You can perform the following tasks at the Firewall Threat Defense CLI while the firewall is powered up:

- Hot swap one of the SSDs—If an SSD is faulty, you can replace it. Note that if you only have one SSD, you cannot remove it while the firewall is powered on.
- Remove one of the SSDs—If you have two SSDs, you can remove one.
- Add a second SSD—If you have one SSD, you can add a second SSD and form a RAID.

  When you use only one SSD in Secure Firewall devices, the **Drive State** will show as **degraded**.

Caution Do not remove an SSD without first removing it from the RAID using this procedure. You can cause data loss.

Procedure

Step 1 Remove one of the SSDs.

a) Remove the SSD from the RAID.

configure raid remove-secure local-disk {**1** | **2**}

The **remove-secure** keyword removes the SSD from the RAID, disables the self-encrypting disk feature, and performs a secure erase of the SSD. If you only want to remove the SSD from the RAID and want to keep the data intact, you can use the **remove** keyword.

Example:

```
> configure raid remove-secure local-disk 2
```

b) Monitor the RAID status until the SSD no longer shows in the inventory.

show raid

After the SSD is removed from the RAID, the **Operability** and **Drive State** will show as **degraded**. The second drive will no longer be listed as a member disk.

Example:

```
> show raid
Virtual Drive
ID:                         1
Size (MB):                  858306
Operability:                operable
Presence:                   equipped
Lifecycle:                  available
Drive State:                optimal
Type:                       raid
Level:                      raid1
Max Disks:                  2
Meta Version:               1.0
Array State:                active
Sync Action:                idle
Sync Completed:             unknown
Degraded:                   0
Sync Speed:                 none

RAID member Disk:
Device Name:                nvme0n1
Disk State:                 in-sync
Disk Slot:                  1
Read Errors:                0
Recovery Start:             none
Bad Blocks:
Unacknowledged Bad Blocks:

Device Name:                nvme1n1
```

```
Disk State:                 in-sync
Disk Slot:                  2
Read Errors:                0
Recovery Start:             none
Bad Blocks:
Unacknowledged Bad Blocks:

> show raid
Virtual Drive
ID:                         1
Size (MB):                  858306
Operability:                degraded
Presence:                   equipped
Lifecycle:                  available
Drive State:                degraded
Type:                       raid
Level:                      raid1
Max Disks:                  2
Meta Version:               1.0
Array State:                active
Sync Action:                idle
Sync Completed:             unknown
Degraded:                   1
Sync Speed:                 none

RAID member Disk:
Device Name:                nvme0n1
Disk State:                 in-sync
Disk Slot:                  1
Read Errors:                0
Recovery Start:             none
Bad Blocks:
Unacknowledged Bad Blocks:
```

c) Physically remove the SSD from the chassis.

Step 2 Add an SSD.

a) Physically add the SSD to the empty slot.

b) Add the SSD to the RAID.

configure raid add local-disk {**1** | **2**}

It can take several hours to complete syncing the new SSD to the RAID, during which the firewall is completely operational. You can even reboot, and the sync will continue after it powers up. Use the **show raid** command to show the status.

If you install an SSD that was previously used on another system, and is still locked, enter the following command:

configure raid add local-disk {**1** | **2**} *psid*

The *psid* is printed on the label attached to the back of the SSD. Alternatively, you can reboot the system, and the SSD will be reformatted and added to the RAID.

Disable the USB port

By default, the type-A USB port is enabled. You might want to disable USB port access for security purposes. Disabling USB is supported on the following models:

- Firepower 1000 Series
- Secure Firewall 200 Series
- Secure Firewall 3100
- Secure Firewall 4200
- Secure Firewall 6100 Series

Guidelines

- Enabling or disabling the USB port requires a reboot.
- If the USB port is disabled and you downgrade to a version that does not support this feature, the port will remain disabled, and you cannot re-enable it without erasing the NVRAM (the FXOS local-mgmt **erase secure all** command).
- If you perform a ROMMON **factory-reset** or FXOS local-mgmt **erase secure**, the USB port will be re-enabled.
- For high availability or clustering, you must disable or re-enable the port individually on each unit.

Note This feature does not affect the USB console port, if present.

Disable the USB port on a device

To disable the USB port on a device, you can do so at the Firewall Threat Defense CLI.

Procedure

Step 1 Disable the USB port.

system support usb configure disable

reboot

To re-enable the USB port, enter **system support usb configure enable**.

Example:

```
>system support usb configure disable
USB Port Admin State set to 'disabled'.
Please reboot the system to apply any control state changes.

>reboot
```

```
This command will reboot the system. Continue?
Please enter 'YES' or 'NO': YES
```

Step 2 View the port status.

system support usb show

The Admin State shows the USB port configuration. The Oper State shows the current operation. For example, if you disable the USB port but do not reload, the Admin State will show disabled while the Oper State would will enabled.

Example:

```
>system support usb show
USB Port Info
---------------
Admin State: disabled
Oper State: disabled
```

Disable the USB port in multi-instance mode

To disable the USB port in multi-instance mode, you can do so at the FXOS CLI.

Procedure

Step 1 Disable the USB port and reboot for the change to take effect.

a) Disable the USB port.

scope fabric-interconnect

disable usb-port

commit buffer

b) Reboot the chassis.

connect local-mgmt

reboot

Example:

```
firepower-4245 /fabric-interconnect # disable usb-port
Note: USB enablement or disablement changes are effected only after FXOS reboot.
Confirm change? (yes/no) [yes]:
device /fabric-interconnect* # commit buffer
Note: USB enablement or disablement changes are effected only after FXOS reboot.
Confirm change? (yes/no) [yes]:yes
firepower-4245 /fabric-interconnect # connect local-mgmt
firepower-4245(local-mgmt)# reboot
Before rebooting, please take a configuration backup.
Do you still want to reboot? (yes/no):yes
Broadcast message from admin@firepower-4245 (Wed Feb 21 05:59:55 2024):
All shells being terminated due to system /sbin/reboot
```

Step 2 Enable the USB port and reboot for the change to take effect.

a) Enable the USB port.

scope fabric-interconnect

enable usb-port

commit buffer

b) Reboot the chassis.

connect local-mgmt

reboot

Example:

```
firepower-4245 /fabric-interconnect # enable usb-port
Note: USB enablement or disablement changes are effected only after FXOS reboot.
Confirm change? (yes/no) [yes]:
device /fabric-interconnect* # commit buffer
Note: USB enablement or disablement changes are effected only after FXOS reboot.
Confirm change? (yes/no) [yes]:yes
firepower-4245 /fabric-interconnect # connect local-mgmt
firepower-4245(local-mgmt)# reboot
Before rebooting, please take a configuration backup.
Do you still want to reboot? (yes/no):yes
Broadcast message from admin@firepower-4245 (Wed Feb 21 05:59:55 2024):
All shells being terminated due to system /sbin/reboot
```

Step 3 View the USB port status.

scope fabric-interconnect

show usb-port

The Admin State shows the USB port configuration. The Oper State shows the current operation. For example, if you disable the USB port but do not reload, the Admin State will show Disabled while the Oper State would will Enabled.

Example:

```
firepower-4245# scope fabric-interconnect
firepower-4245 /fabric-interconnect # show usb-port
Usb Port:
Equipment         Admin State Oper State
----------------- ----------- ----------
A                 Disabled    Disabled
```

Configure SNMP for FXOS

You can configure the Simple Network Management Protocol (SNMP) for the underlying FXOS operating system that controls low-level chassis functions. For SNMP for the Firewall Threat Defense, see SNMP.

SNMP is an application-layer protocol that provides a message format for communication between SNMP managers and agents. SNMP provides a standardized framework and a common language used for the monitoring and management of devices in a network.

The SNMP framework consists of three parts:

- An SNMP manager—The system used to control and monitor the activities of network devices using SNMP.
- An SNMP agent—The software component within the chassis that maintains the data for the chassis and reports the data, as needed, to the SNMP manager. The chassis includes the agent and a collection of MIBs. To enable the SNMP agent and create the relationship between the manager and agent, enable and configure SNMP in the Firewall Management Center.
- A managed information base (MIB)—The collection of managed objects on the SNMP agent.

The chassis supports SNMPv1, SNMPv2c and SNMPv3. Both SNMPv1 and SNMPv2c use a community-based form of security; SNMPv3 uses username and password for security.

Enable SNMP for FXOS

Enable SNMP and configure settings.

Procedure

Step 1 Choose **Devices** > **Device Management**.

Step 2 Click **SNMP**.

Step 3 Complete the following fields:

Name	Description
Admin State check box	Whether SNMP is enabled or disabled. Enable this service only if your system includes integration with an SNMP server.
Port field	The port on which the Firepower chassis communicates with the SNMP host. You cannot change the default port.

Name	Description
Community field	The default SNMPv1 or v2 community name or SNMP v3 username and password that the Firepower chassis includes on any trap messages it sends to the SNMP host. Enter a valid community string for SNMPv1 and SNMPv2: • Alphanumeric string between 1 and 32 characters and special characters ! (exclamation), - (hyphen), ~ (tilde), && (double ampersand), [ ] (square brackets), ^ (carat), ' (single quote), " (double quotes), and < > (angle brackets). • Do not use @ (at sign), \ (backslash), ? (question mark) or an empty space. • The string can also be in ASCII characters ranging 0x21 to 0x7E inclusive, excluding HTML interjection vectors, namely single quote ('), double quotes ("), and angle brackets (< >). Enter a valid username and password for SNMPv3: • Username can be alphanumeric string and can include @ (at sign), \ (backslash), . (period), _ (underscore), and - (hyphen). • The password restrictions are same as the community string restrictions. Note that if the **Community** field is already set, the text to the right of the empty field reads **Set: Yes**. If the **Community** field is not yet populated with a value, the text to the right of the empty field reads **Set: No**.
System Admin Name field	The contact person responsible for the SNMP implementation. Enter a string of up to 255 characters, such as an email address or a name and telephone number.
Location field	The location of the host on which the SNMP agent (server) runs. Enter an alphanumeric string up to 510 characters.

Step 4 Click **Save**.

What to do next

Create SNMP traps and users.

Create an SNMP Trap for FXOS

Create traps for SNMP.

Procedure

Step 1 Choose **Devices** > **Device Management**.

Step 2 Click **SNMP**.

Step 3 In the **SNMP Traps Configuration** area, click **Add**.

Step 4 In the **SNMP Trap Configuration** dialog box, complete the following fields:

Name	Description
Host Name field	The hostname or IP address of the SNMP host to which the Firepower chassis should send the trap.
Community field	The SNMP v1 or v2 community name or the SNMP v3 username the Firepower chassis includes when it sends the trap to the SNMP host. This must be the same as the community or username that is configured for the SNMP service. Enter an alphanumeric string between 1 and 32 characters. Do not use @ (at sign), \ (backslash), " (double quote), ? (question mark) or an empty space.
Port field	The port on which the Firepower chassis communicates with the SNMP host for the trap. Enter an integer between 1 and 65535.
Version field	The SNMP version and model used for the trap. This can be one of the following: • **V1** • **V2** • **V3**
Type field	If you select **V2** or **V3** for the version, the type of trap to send. This can be one of the following: • **Traps** • **Informs**
Privilege field	If you select **V3** for the version, the privilege associated with the trap. This can be one of the following: • **Auth**—Authentication but no encryption • **Noauth**—No authentication or encryption • **Priv**—Authentication and encryption

Step 5 Click **OK** to close the **SNMP Trap Configuration** dialog box.

Step 6 Click **Save**.

Create an SNMP user for FXOS

Create SNMP users.

Procedure

Step 1 Choose **Devices** > **Device Management**.

Step 2 Click **SNMP**.

Step 3 In the **SNMP Users Configuration** area, click **Add**.

Step 4 In the **SNMP User Configuration** dialog box, complete the following fields:

Name	Description
Username field	The username assigned to the SNMP user. Enter up to 32 letters or numbers. The name must begin with a letter and you can also specify _ (underscore), . (period), @ (at sign), and - (hyphen).
Auth Algorithm Type field	The authorization type: **SHA**.
Use AES-128 checkbox	If checked, this user uses AES-128 encryption. **Note** SNMPv3 does not support DES. If you leave the AES-128 box unchecked, no privacy encryption will be done and any configured privacy password will have no effect.
Authentication Password field	The password for the user.
Confirm field	The password again for confirmation purposes.
Encryption Password field	The privacy password for the user.
Confirm field	The privacy password again for confirmation purposes.

Step 5 Click **OK** to close the **SNMP User Configuration** dialog box.

Step 6 Click **Save**.

Configure alarms for the ISA 3000

You can configure the alarm system on a Cisco ISA 3000 device to alert you when undesirable conditions occur.

About alarms

You can configure the ISA 3000 to issue alarms for a variety of conditions. If any conditions do not match the configured settings, the system triggers an alarm, which is reported by way of LEDs, syslog messages, SNMP traps, and through external devices connected to the alarm output interface. By default, triggered alarms issue syslog messages only.

You can configure the alarm system to monitor the following:

- Power supply.
- Primary and secondary temperature sensors.
- Alarm input interfaces.

The ISA 3000 has internal sensors plus two alarm input interfaces and one alarm output interface. You can connect external sensors, such as door sensors, to the alarm inputs. You can connect external alarm devices, such as buzzers or lights, to the alarm output interface.

The alarm output interface is a relay mechanism. Depending on the alarm conditions, the relay is either energized or de-energized. When it is energized, any device connected to the interface is activated. A de-energized relay results in the inactive state of any connected devices. The relay remains in an energized state as long as alarms are triggered.

For information about connecting external sensors and the alarm relay, see Cisco ISA 3000 Industrial Security Appliance Hardware Installation Guide.

Alarm input interfaces

You can connect the alarm input interfaces (or contacts) to external sensors, such as one that detects if a door is open.

Each alarm input interface has a corresponding LED. These LEDs convey the alarm status of each alarm input. You can configure the trigger and severity for each alarm input. In addition to the LED, you can configure the contact to trigger the output relay (to activate an external alarm), to send syslog messages, and to send SNMP traps.

The following table explains the statuses of the LEDs in response to alarm conditions for the alarm inputs. It also explains the behavior for the output relay, syslog messages, and SNMP traps, if you enable these responses to the alarm input.

Alarm Status	LED	Output Relay	Syslog	SNMP Trap
Alarm not configured	Off	—	—	—
No alarms triggered	Solid green	—	—	—
Alarm activated	Minor alarm—solid red Major alarm—flashing red	Relay energized	Syslog generated	SNMP trap sent
Alarm end	Solid green	Relay de-energized	Syslog generated	—

Alarm output interface

You can connect an external alarm, such as a buzzer or light, to the alarm output interface.

The alarm output interface functions as a relay and also has a corresponding LED, which conveys the alarm status of an external sensor connected to the input interface, and internal sensors such as the dual power supply and temperature sensors. You configure which alarms should activate the output relay, if any.

The following table explains the statuses of the LEDs and output relay in response to alarm conditions. It also explains the behavior for syslog messages, and SNMP traps, if you enable these responses to the alarm.

Alarm Status	LED	Output Relay	Syslog	SNMP Trap
Alarm not configured	Off	—	—	—
No alarms triggered	Solid green	—	—	—
Alarm activated	Solid red	Relay energized	Syslog generated	SNMP trap sent
Alarm end	Solid green	Relay de-energized	Syslog generated	—

Syslog alarms

By default, the system sends syslog messages when any alarm is triggered. You can disable syslog messaging if you do not want the messages.

For syslog alarms to work, you must also enable diagnostic logging. Choose **Devices** > **Platform Settings**, add or edit a Threat Defense platform settings policy that is assigned to the device, and configure destinations and settings on the **Syslog** page. For example, you can configure a syslog server, console logging, or internal buffer logging.

Without enabling a destination for diagnostic logging, the alarm system has nowhere to send syslog messages.

SNMP Alarms

You can optionally configure the alarms to send SNMP traps to your SNMP server. For SNMP trap alarms to work, you must also configure SNMP settings.

Choose **Devices** > **Platform Settings**, add or edit a Threat Defense platform settings policy that is assigned to the device, and enable SNMP and configure settings on the **SNMP** page.

Defaults for alarms

The following table specifies the defaults for alarm input interfaces (contacts), redundant power supply, and temperature.

	Alarm	Trigger	Severity	SNMP Trap	Output Relay	Syslog Message
Alarm Contact 1	Enabled	Closed State	Minor	Disabled	Disabled	Enabled
Alarm Contact 2	Enabled	Closed State	Minor	Disabled	Disabled	Enabled

	Alarm	Trigger	Severity	SNMP Trap	Output Relay	Syslog Message
Redundant Power Supply (when enabled)	Enabled	—	—	Disabled	Disabled	Enabled
Temperature	Enabled for the primary temperature alarm (default values of 92°C and -40°C for the high and low thresholds respectively) Disabled for the secondary alarm.	—	—	Enabled for primary temperature alarm	Enabled for primary temperature alarm	Enabled for primary temperature alarm

Prerequisites for alarms

Model support

Firewall Threat Defense on the ISA 3000.

Configure alarms for the ISA 3000

You use FlexConfig to configure alarms for the ISA 3000. The following topics explain how to configure the different types of alarms.

Configure alarm input contacts

If you connect the alarm input contacts (interfaces) to external sensors, you can configure the contacts to issue alarms based on the input from the sensor. In fact, the contacts are enabled by default to send syslog messages if the contact is closed, that is, if the electrical current stops flowing through the contact. You need to configure the contact only if the defaults do not meet your requirements.

The alarm contacts are numbered 1 and 2, so you need to understand how you have wired the physical pins to configure the correct settings. You configure the contacts separately.

Procedure

Step 1 Create the FlexConfig object to configure the alarm input contacts.

a) Choose **Objects** > **FlexConfig** > **FlexConfig Object**.

b) Click **Add FlexConfig Object**, configure the following properties, and click **Save**.

- **Name**—The object name. For example, Configure_Alarm_Contacts.

- **Deployment**—Select **Everytime**. You want this configuration to be sent in every deployment to ensure it remains configured.
- **Type**—Keep the default, **Append**. The commands are sent to the device after the commands for directly-supported features.
- **Object body**—In the object body, type the commands needed to configure the alarm contacts. The following steps explain the commands.

c) Configure a description for the alarm contact.

alarm contact {**1** | **2**} **description** *string*

For example, to set the description of contact 1 to "Door Open," enter the following:

```
alarm contact 1 description Door Open
```

d) Configure the severity for the alarm contact.

alarm contact {**1** | **2** | **any**} **severity** {**major** | **minor** | **none**}

Instead of configuring one contact, you can specify **any** to change the severity for all contacts. The severity controls the behavior of the LED associated with the contact.

- **major**—The LED blinks red.
- **minor**—The LED is solid red. This is the default.
- **none**—The LED is off.

For example, to set the severity of contact 1 to Major, enter the following:

```
alarm contact 1 severity major
```

e) Configure the trigger for the alarm contact.

alarm contact {**1** | **2** | **any**} **trigger** {**open** | **closed**}

Instead of configuring one contact, you can specify **any** to change the trigger for all contacts. The trigger determines the electrical condition that signals an alert.

- **open**—The normal condition for the contact is closed, that is, the electrical current is running through the contact. An alert is triggered if the contact becomes open, that is, the electrical current stops flowing.
- **closed**—The normal condition for the contact is open, that is, the electrical current does not run through the contact. An alert is triggered if the contact becomes closed, that is, the electrical current starts running through the contact. This is the default.

For example, you connect a door sensor to alarm input contact 1, and its normal state has no electrical current flowing through the alarm contact (it is open). If the door is opened, the contact is closed and electrical current flows through the alarm contact. You would set the alarm trigger to closed so that the alarm goes off when the electrical current starts flowing.

```
alarm contact 1 trigger closed
```

f) Configure the actions to take when the alarm contact is triggered.

alarm facility input-alarm {**1** | **2**} {**relay** | **syslog** | **notifies**}

You can configure more than one action. For example, you can configure the device to activate the external alarm, send syslog messages, and also send SNMP traps.

- **relay**—Energize the alarm output relay, which activates the external alarm that you attached to it, such as a buzzer or a flashing light. The output LED also goes red.
- **syslog**—Send a syslog message. This option is enabled by default.
- **notifies**—Send an SNMP trap.

For example, to enable all actions for the alarm input contact 1, enter the following:

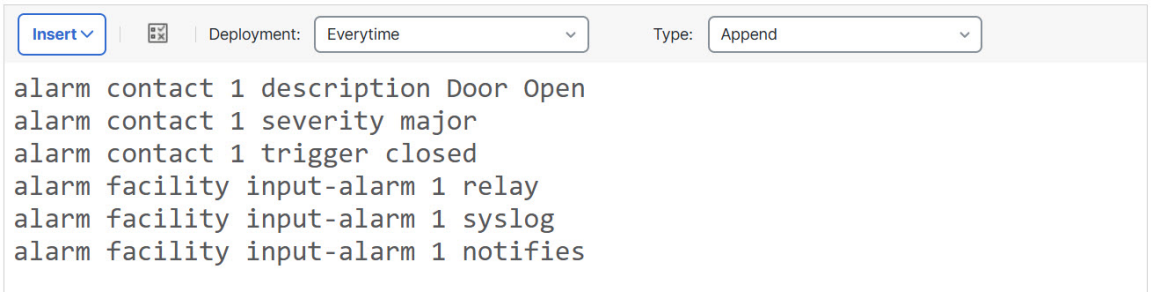
```
alarm facility input-alarm 1 relay
alarm facility input-alarm 1 syslog
alarm facility input-alarm 1 notifies
```

g) Verify that the object body contains the commands you want.

For example, if your template includes all of the command examples shown in this procedure, the object body would have the following commands:

```
alarm contact 1 description Door Open
alarm contact 1 severity major
alarm contact 1 trigger closed
alarm facility input-alarm 1 relay
alarm facility input-alarm 1 syslog
alarm facility input-alarm 1 notifies
```

The object body should look similar to the following:



h) Click **Save**.

Step 2 Create the FlexConfig policy and assign it to the devices.

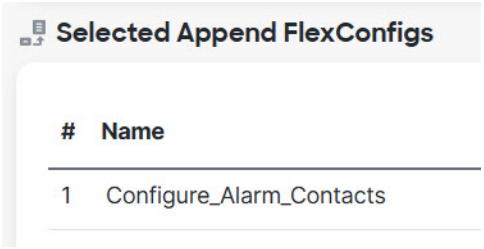
a) Choose **Devices** > **+ Show more** > **FlexConfig**.

b) Either click **New Policy**, or if an existing FlexConfig policy should be assigned to (or is already assigned to) the target devices, simply edit that policy.

When creating a new policy, assign the target devices to the policy in the dialog box where you name the policy.

c) Select the alarm contact FlexConfig object in the **User Defined** folder in the table of contents and click > to add it to the policy.

The object should be added to the **Selected Appended FlexConfigs** list.



d) Click **Save**.
e) If you have not yet assigned all the targeted devices to the policy, click the **Policy Assignments** link below Save and make the assignments now.
f) Click **Preview Config**, and in the Preview dialog box, select one of the assigned devices.

The system generates a preview of the configuration CLI that will be sent to the device. Verify that the commands generated from the FlexConfig object look correct. These will be shown at the end of the preview. Note that you will also see commands generated from other changes you have made to managed features. For the alarm contact commands, you should see something similar to the following:

```
###Flex-config Appended CLI ###
alarm contact 1 description Door Open
alarm contact 1 severity major
alarm contact 1 trigger closed
alarm facility input-alarm 1 relay
alarm facility input-alarm 1 syslog
alarm facility input-alarm 1 notifies
```

Step 3 Deploy your changes.

Because you assigned a FlexConfig policy to the devices, you will always get a deployment warning, which is meant to caution you about the use of FlexConfig. Click **Proceed** to continue with the deployment.

After the deployment completes, you can check the deployment history and view the transcript for the deployment. This is especially valuable if the deployment fails. See Verify the Deployed Configuration.

Configure power supply alarms

The ISA 3000 has two power supplies. By default, the system operates in single-power mode. However, you can configure the system to operate in dual mode, where the second power supply automatically provides power if the primary power supply fails. When you enable dual-mode, the power supply alarm is automatically enabled to send syslog alerts, but you can disable the alert altogether, or also enable SNMP traps or the alarm hardware relay.

The following procedure explains how to enable dual mode, and how to configure the power supply alarms.

Procedure

Step 1 Create the FlexConfig object to configure the power supply alarm.

a) Choose **Objects** > **FlexConfig** > **FlexConfig Object**.
b) Click **Add FlexConfig Object**, configure the following properties, and click **Save**.

- **Name**—The object name. For example, Power_Supply_Alarms.
- **Deployment**—Select **Everytime**. You want this configuration to be sent in every deployment to ensure it remains configured.
- **Type**—Keep the default, **Append**. The commands are sent to the device after the commands for directly-supported features.
- **Object body**—In the object body, type the commands needed to configure the power supply alarms. The following steps explain the commands.

c) Enable dual power supply mode.

power-supply dual

For example:

```
power-supply dual
```

d) Configure the actions to take when the power supply alarm is triggered.

alarm facility power-supply rps {**relay** | **syslog** | **notifies** | **disable**}

You can configure more than one action. For example, you can configure the device to activate the external alarm, send syslog messages, and also send SNMP traps.

- **relay**—Energize the alarm output relay, which activates the external alarm that you attached to it, such as a buzzer or a flashing light. The output LED also goes red.
- **syslog**—Send a syslog message. This option is enabled by default.
- **notifies**—Send an SNMP trap.
- **disable**—Disable the power supply alarm. Any other actions configured for the power supply alarm are inoperable.

For example, to enable all actions for the power supply alarm, enter the following:

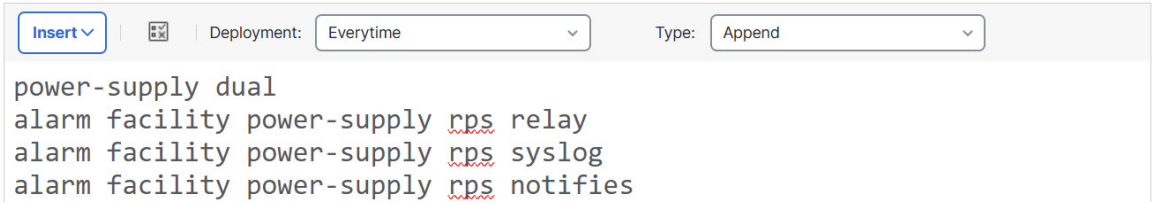
```
alarm facility power-supply rps relay
alarm facility power-supply rps syslog
alarm facility power-supply rps notifies
```

e) Verify that the object body contains the commands you want.

For example, if your template includes all of the command examples shown in this procedure, the object body would have the following commands:

```
power-supply dual
alarm facility power-supply rps relay
alarm facility power-supply rps syslog
alarm facility power-supply rps notifies
```

The object body should look similar to the following:



f) Click **Save**.

Step 2 Create the FlexConfig policy and assign it to the devices.

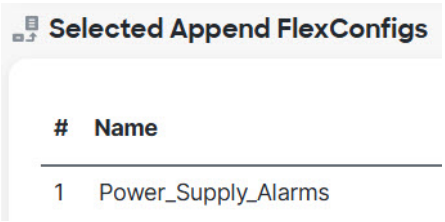
a) Choose **Devices** > **+ Show more** > **FlexConfig**.

b) Either click **New Policy**, or if an existing FlexConfig policy should be assigned to (or is already assigned to) the target devices, simply edit that policy.

When creating a new policy, assign the target devices to the policy in the dialog box where you name the policy.

c) Select the power supply alarm FlexConfig object in the **User Defined** folder in the table of contents and click > to add it to the policy.

The object should be added to the **Selected Appended FlexConfigs** list.



d) Click **Save**.

e) If you have not yet assigned all the targeted devices to the policy, click the **Policy Assignments** link below Save and make the assignments now.

f) Click **Preview Config**, and in the Preview dialog box, select one of the assigned devices.

The system generates a preview of the configuration CLI that will be sent to the device. Verify that the commands generated from the FlexConfig object look correct. These will be shown at the end of the preview. Note that you will also see commands generated from other changes you have made to managed features. For the power supply alarm commands, you should see something similar to the following:

```
###Flex-config Appended CLI ###
power-supply dual
alarm facility power-supply rps relay
alarm facility power-supply rps syslog
alarm facility power-supply rps notifies
```

Step 3 Deploy your changes.

Because you assigned a FlexConfig policy to the devices, you will always get a deployment warning, which is meant to caution you about the use of FlexConfig. Click **Proceed** to continue with the deployment.

After the deployment completes, you can check the deployment history and view the transcript for the deployment. This is especially valuable if the deployment fails. See Verify the Deployed Configuration.

Configure temperature alarms

You can configure alarms based on the temperature of the CPU card in the device.

You can set a primary and secondary temperature range. If the temperature drops below the low threshold, or exceeds the high threshold, the alarm is triggered.

The primary temperature alarm is enabled by default for all alarm actions: output relay, syslog, and SNMP. The default settings for the primary temperature range is -40°C to 92°C.

The secondary temperature alarm is disabled by default. You can set the secondary temperature within the range -35°C to 85°C.

Because the secondary temperature range is more restrictive than the primary range, if you set either the secondary low or high temperature, that setting disables the corresponding primary setting, even if you configure non-default values for the primary setting. You cannot enable two separate high and two separate low temperature alarms.

Thus, in practice, you should configure the primary only, or the secondary only, setting for high and low.

Procedure

Step 1 Create the FlexConfig object to configure the temperature alarms.

a) Choose **Objects** > **FlexConfig** > **FlexConfig Object**.

b) Click **Add FlexConfig Object**, configure the following properties, and click **Save**.

- **Name**—The object name. For example, Configure_Temperature_Alarms.
- **Deployment**—Select **Everytime**. You want this configuration to be sent in every deployment to ensure it remains configured.
- **Type**—Keep the default, **Append**. The commands are sent to the device after the commands for directly-supported features.
- **Object body**—In the object body, type the commands needed to configure the temperature alarms. The following steps explain the commands.

c) Configure the acceptable temperature range.

alarm facility temperature {**primary** | **secondary**} {**low** | **high**} *temperature*

The temperature is in Celsius. The allowed range for the primary alarm is -40 to 92, which is also the default range. The allowed range for the secondary alarm is -35 to 85. The low value must be lower than the high value.

For example, to set a more restrictive temperature range of -20 to 80, which falls within the allowed range for the secondary alarm, configure the secondary alarm as follows:

```
alarm facility temperature secondary low -20
alarm facility temperature secondary high 80
```

d) Configure the actions to take when the temperature alarm is triggered.

alarm facility temperature {**primary** | **secondary**} {**relay** | **syslog** | **notifies**}

You can configure more than one action. For example, you can configure the device to activate the external alarm, send syslog messages, and also send SNMP traps.

- **relay**—Energize the alarm output relay, which activates the external alarm that you attached to it, such as a buzzer or a flashing light. The output LED also goes red.
- **syslog**—Send a syslog message.
- **notifies**—Send an SNMP trap.

For example, to enable all actions for the secondary temperature alarm, enter the following:

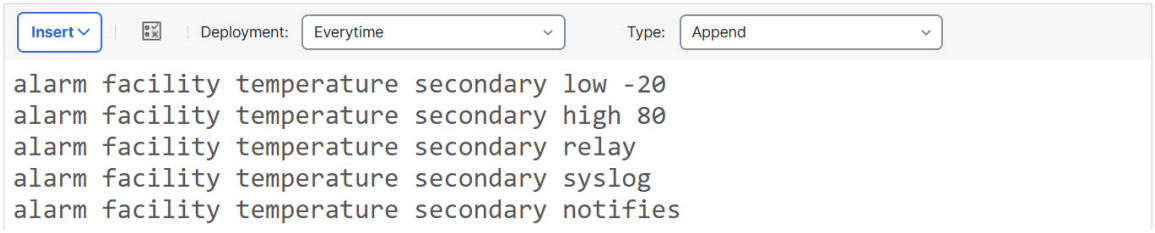
```
alarm facility temperature secondary relay
alarm facility temperature secondary syslog
alarm facility temperature secondary notifies
```

e) Verify that the object body contains the commands you want.

For example, if your template includes all of the command examples shown in this procedure, the object body would have the following commands:

```
alarm facility temperature secondary low -20
alarm facility temperature secondary high 80
alarm facility temperature secondary relay
alarm facility temperature secondary syslog
alarm facility temperature secondary notifies
```

The object body should look similar to the following:



f) Click **Save**.

Step 2 Create the FlexConfig policy and assign it to the devices.

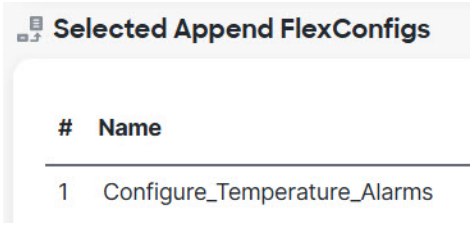
a) Choose **Devices** > **+ Show more** > **FlexConfig**.

b) Either click **New Policy**, or if an existing FlexConfig policy should be assigned to (or is already assigned to) the target devices, simply edit that policy.

When creating a new policy, assign the target devices to the policy in the dialog box where you name the policy.

c) Select the temperature alarms FlexConfig object in the **User Defined** folder in the table of contents and click > to add it to the policy.

The object should be added to the **Selected Appended FlexConfigs** list.



d) Click **Save**.
e) If you have not yet assigned all the targeted devices to the policy, click the **Policy Assignments** link below Save and make the assignments now.
f) Click **Preview Config**, and in the Preview dialog box, select one of the assigned devices.

The system generates a preview of the configuration CLI that will be sent to the device. Verify that the commands generated from the FlexConfig object look correct. These will be shown at the end of the preview. Note that you will also see commands generated from other changes you have made to managed features. For the temperature alarms commands, you should see something similar to the following:

```
###Flex-config Appended CLI ###
alarm facility temperature secondary low -20
alarm facility temperature secondary high 80
alarm facility temperature secondary relay
alarm facility temperature secondary syslog
alarm facility temperature secondary notifies
```

Step 3 Deploy your changes.

Because you assigned a FlexConfig policy to the devices, you will always get a deployment warning, which is meant to caution you about the use of FlexConfig. Click **Proceed** to continue with the deployment.

After the deployment completes, you can check the deployment history and view the transcript for the deployment. This is especially valuable if the deployment fails. See Verify the Deployed Configuration.

Turn off the external alarm

If you are using an external alarm that is attached to the alarm output, and the alarm is triggered, you can turn off the external alarm from the device CLI using the **clear facility-alarm output** command. This command de-energizes the output pin and also turns off the output LED.

Monitoring alarms

The following topics explain how to monitor and manage alarms.

Monitoring alarm status

You can use the following commands in the CLI to monitor alarms.

- **show alarm settings**

  Shows the current configuration for each possible alarm.

- **show environment alarm-contact**

Shows information about the physical status of the input alarm contacts.

- **show facility-alarm relay**

  Shows information about the alarms that have triggered the output relay.

- **show facility-alarm status** [**info** | **major** | **minor**]

  Shows information on all alarms that have been triggered. You can limit the view by filtering on **major** or **minor** status. The **info** keyword provides the same output as using no keyword.

Monitoring syslog messages for alarms

Depending on the type of alarms you configure, you might see the following syslog messages.

Dual Power Supply Alarms

- %FTD-1-735005: Power Supply Unit Redundancy OK
- %FTD-1-735006: Power Supply Unit Redundancy Lost

Temperature Alarms

In these alarms, *Celsius* is replaced by the temperature detected on the device, in Celsius.

- %FTD-6-806001: Primary alarm CPU temperature is High *Celsius*
- %FTD-6-806002: Primary alarm for CPU high temperature is cleared
- %FTD-6-806003: Primary alarm CPU temperature is Low *Celsius*
- %FTD-6-806004: Primary alarm for CPU Low temperature is cleared
- %FTD-6-806005: Secondary alarm CPU temperature is High *Celsius*
- %FTD-6-806006: Secondary alarm for CPU high temperature is cleared
- %FTD-6-806007: Secondary alarm CPU temperature is Low *Celsius*
- %FTD-6-806008: Secondary alarm for CPU Low temperature is cleared

Alarm Input Contact Alarms

In these alarms, *description* is the description for the contact that you configured.

- %FTD-6-806009: Alarm asserted for ALARM_IN_1 *alarm_1_description*
- %FTD-6-806010: Alarm cleared for ALARM_IN_1 *alarm_1_description*
- %FTD-6-806011: Alarm asserted for ALARM_IN_2 *alarm_2_description*
- %FTD-6-806012: Alarm cleared for ALARM_IN_2 *alarm_2_description*

History for Device Settings

Feature	Minimum Firewall Management Center	Minimum Firewall Threat Defense	Details

Recovery-config mode now supports NAT commands as well as additional interface commands	10.0.0	10.0.0	Recovery-config mode now supports:
			• **nat** and related **object** and **object-group** commands.
			• The following **interface** commands:
			  • **duplex**
			  • **fec**
			  • **negotiate-auto**
			  • **speed**
			These **interface** commands, in addtion to **shutdown**, are not supported in recovery-config mode on the cluster control link or failover link.
			New/modified diagnostic CLI (**system support diagnostic-cli**) command: **configure recovery-config**

View inventory details of field-replaceable memory module	10.0.0	10.0.0	This release introduces field-replaceable memory module inventory visibility for supported devices. You can now view field-replaceable memory module details within the **System** section of the Devices Management interface. The inventory details include operational status for improved field serviceability of the memory module. New/modified command: **show inventory** New/modified screens: **Devices** > **Device Management**, click **Edit** (✎), then **DeviceSystem**

Feature	Minimum Firewall Management Center	Minimum Firewall Threat Defense	Details
Recovery-config mode for emergency on-device configuration and out-of-band configuration detection on the Firewall Management Center	7.7.0	7.7.0	If you lose the management connection to your device, you can make select configuration changes directly at the device CLI to: • Restore the management connection if you are using a data interface for manager access • Make select policy changes that can't wait until the connection is restored After the management connection is restored, the Firewall Management Center will detect the configuration changes on the device. It does not automatically update the device configuration in the Firewall Management Center; you must view the configuration differences, acknowledge that the device configuration is different, and then manually make the same changes in the Firewall Management Center before you deploy. New/modified diagnostic CLI (**system support diagnostic-cli**) command: **configure recovery-config** New/modified screens: **Devices** > **Device Management**, click **Edit** (✎), then **Device** > **Health** > **Out of Band Status**
High availability is supported with redundant manager access data interfaces	7.7.0	7.7.0	You can now use redundant manager access data interfaces with high availability.
View CLI output for a device or device cluster.	7.4.1	Any	You can view a set of pre-defined CLI outputs that can help you troubleshoot the device or cluster. You can also enter any **show** command and see the output. New/modified screens: **Devices** > **Device Management** > **Cluster** > **General**
Troubleshooting file generation and download available from Device and Cluster pages.	7.4.1	7.4.1	You can generate and download troubleshooting files for each device on the Device page and also for all cluster nodes on the Cluster page. For a cluster, you can download all files as a single compressed file. You can also include cluster logs for the cluster for cluster nodes. You can alternatively trigger file generation from the **Devices** > **Device Management** > **More** > **Troubleshoot Files** menu. New/modified screens: • **Devices** > **Device Management** > **Device** > **General** • **Devices** > **Device Management** > **Cluster** > **General**

Feature	Minimum Firewall Management Center	Minimum Firewall Threat Defense	Details
Cluster health monitor settings.	7.3.0	Any	You can now edit cluster health monitor settings. New/modified screens: **Devices** > **Device Management** > **Cluster** > **Cluster Health Monitor Settings** **Note** If you previously configured these settings using FlexConfig, be sure to remove the FlexConfig configuration before you deploy. Otherwise the FlexConfig configuration will overwrite the management center configuration.
Redundant manager access data interface.	7.3.0	7.3.0	When you use a data interface for manager access, you can configure a secondary data interface to take over management functions if the primary interface goes down. The device uses SLA monitoring to track the viability of the static routes and an ECMP zone that contains both interfaces so management traffic can use both interfaces. New/modified screens: • **Devices** > **Device Management** > **Device** > **Management** • **Devices** > **Device Management** > **Device** > **Interfaces** > **Manager Access**
Policy rollback support for high availability devices.	7.2.0	7.2.0	The **configure policy rollback** command is supported for high availability devices.
Auto rollback of a deployment that causes a loss of management connectivity.	7.2.0	7.2.0	You can now enable auto rollback of the configuration if a deployment causes the management connection between the management center and the threat defense to go down. Previously, you could only manually rollback a configuration using the **configure policy rollback** command. New/modified screens: • **Devices** > **Device Management** > **Device** > **Deployment Settings** • **Deploy** > **Advanced Deploy** > **Preview** • **Deploy** > **Deployment History** > **Preview**
Object group search is enabled by default for access control rules.	7.2.0	7.2.0	The **Object Group Search** setting is enabled by default for managed devices starting with Version 7.2.0. This option is in the **Advanced Settings** section when editing device settings on the Device Management page.

Feature	Minimum Firewall Management Center	Minimum Firewall Threat Defense	Details
Import and export device configurations.	7.1.0	7.1.0	You can export the device-specific configuration, and you can then import the saved configuration for the same device in the following use cases: • Moving the device to a different FMC. • Restore an old configuration. • Reregistering a device. New/modified screens: **Devices** > **Device Management** > **Device** > **General**
Update the FMC IP address on FTD.	6.7.0	6.7.0	If you change the FMC IP address, you can now use the FTD CLI to update the device. New/modified commands: **configure manager edit**
Alarms for the Cisco ISA 3000 series.	6.7	Any	Configuring alarms for the Cisco ISA 3000 series was validated using FlexConfig. You should be able to configure the alarms in older releases that support FlexConfig, except for the dual power supply alarms. Supported platforms: Secure Firewall Threat Defense on the ISA 3000.