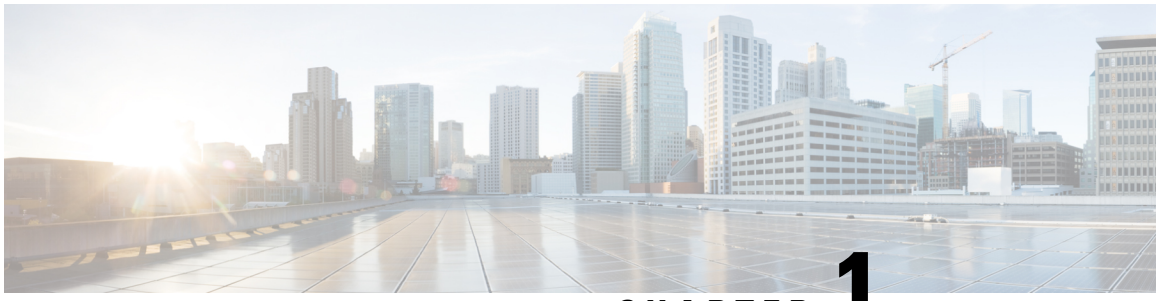


Secure Firewall 3100 Threat Defense Getting Started: Firewall Management Center at a Central Headquarters

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CHAPTER 1

Before You Begin

The mid-range Secure Firewall 3100 supports your evolving world. It makes hybrid work and zero trust practical, with the flexibility to ensure strong return on investment. The Secure Firewall 3100 is a threat-focused security appliance that delivers business resiliency and superior threat defense. It offers outstanding performance for multiple firewall use cases, even when advanced threat functions are enabled. These performance capabilities are enabled by a modern CPU architecture coupled with purpose-built hardware that optimizes firewall, cryptographic, and threat inspection functions. The Secure Firewall 3100 supports use cases from the Internet edge to the data center and private cloud. The Secure Firewall 3100 supports multi-instance and clustering to deliver increased performance that can scale to meet your needs as your organization grows.

Install the firewall at a branch office and manage it on the outside interface using a central Secure Firewall Management Center.

Note Outside management is not supported with clustering or multi-instance mode. See the getting started guide for a Firewall Management Center on a local management network. Zero-Touch Provisioning is not supported with clustering or multi-instance mode, even on the Management interface.

For high availability if you use zero-touch provisioning, we recommend using the Management interface. If you use zero-touch provisioning on outside and want to use high availability, you will have to change the outside IP address to a static address after registration.

- Power on the firewall, on page 1
- Which application is installed: Firewall Threat Defense or ASA?, on page 3
- Access the Firewall Threat Defense CLI, on page 4
- Check the version and reimage, on page 5
- Obtain licenses, on page 6
- (If Needed) Power off the firewall, on page 7

Power on the firewall

System power is controlled by a rocker power switch located on the rear of the firewall. The rocker power switch provides a soft notification that supports graceful shutdown of the system to reduce the risk of system software and data corruption.

Note The first time you boot up the firewall, Firewall Threat Defense initialization can take approximately 15 to 30 minutes.

Before you begin

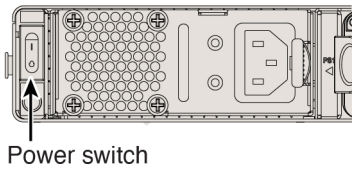
It's important that you provide reliable power for your firewall (for example, using an uninterruptable power supply (UPS)). Loss of power without first shutting down can cause serious file system damage. There are many processes running in the background all the time, and losing power does not allow the graceful shutdown of your system.

Procedure

Step 1 Attach the power cord to the firewall, and connect it to an electrical outlet.

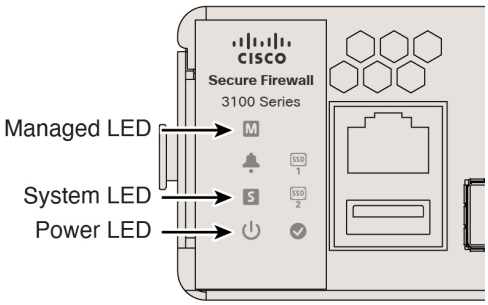
Step 2 Turn the power on using the rocker power switch located on the rear of the chassis, adjacent to the power cord.

Figure 1: Power switch



Step 3 Check the LEDs for the current status.

Figure 2: LEDs



- Power LED—Solid green means the firewall is powered on.
- System (S) LED—See the following behavior:

Table 1: System (S) LED Behavior

LED Behavior	Description	Time After Device Powered On (minutes:seconds)
Fast flashing green	Booting up	01:00
Fast flashing amber (error condition)	Failed to boot up	01:00
Solid green	Application loaded	15:00 - 30:00
Solid amber (error condition)	Application failed to load	15:00 - 30:00

- Managed (M) LED—After you connect the outside interface to the internet (see Cable the firewall, on page 11), check the Managed LED to check the cloud connection status for zero-touch provisioning.

Table 2: Zero-Touch Provisioning: Managed (M) LED behavior

M LED	Description	Time after firewall powered on (minutes:seconds)
Slow flashing green	Connected to the Cisco cloud and ready for onboarding	15:00 - 30:00
Alternating green and amber (error condition)	Failed to connect to the Cisco cloud	15:00 - 30:00
Solid green	Onboarded	20:00 - 45:00

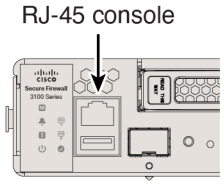
Which application is installed: Firewall Threat Defense or ASA?

Both applications, Firewall Threat Defense or ASA, are supported on the hardware. Connect to the console port and determine which application was installed at the factory.

Procedure

Step 1 Connect to the console port.

Figure 3: Console Port



Step 2 See the CLI prompts to determine if your firewall is running Firewall Threat Defense or ASA.

Firewall Threat Defense

You see the firepower login (FXOS) prompt. You can disconnect without logging in and setting a new password. If you need to log in all the way, see Access the Firewall Threat Defense CLI, on page 4.

```
firepower login:
```

ASA

You see the ASA prompt.

```
ciscoasa>
```

Step 3 If you are running the wrong application, see *Cisco Secure Firewall ASA and Secure Firewall Threat Defense Reimage Guide*.

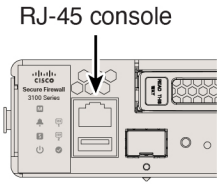
Access the Firewall Threat Defense CLI

You might need to access the CLI for configuration or troubleshooting.

Procedure

Step 1 Connect to the console port.

Figure 4: Console Port



Step 2 You connect to FXOS. Log in to the CLI using the **admin** username and the password (the default is **Admin123**). The first time you log in, you are prompted to change the password.

```
firepower login: admin
Password: Admin123
Successful login attempts for user 'admin' : 1

[...]

Hello admin. You must change your password.
Enter new password: ********
Confirm new password: ********
Your password was updated successfully.
```

```
[...]

firepower#
```

Step 3 Change to the Firewall Threat Defense CLI.

Note
If you want to use the Firewall Device Manager for initial setup, do not access the Firewall Threat Defense CLI, which starts the CLI setup.

For zero-touch provisioning, if you must access the CLI and run through the setup script, answer **n** when prompted: `Do you want to configure IPv4? (y/n) [y]:` and `Do you want to configure IPv6? (y/n) [y]:`. You also must accept the default local manager: `Manage the device locally? (yes/no) [yes]:`.

connect ftd

The first time you connect to the Firewall Threat Defense CLI, you are prompted to complete initial setup.

Example:

```
firepower# connect ftd
>
```

To exit the Firewall Threat Defense CLI, enter the **exit** or **logout** command. This command returns you to the FXOS prompt.

Example:

```
> exit
firepower#
```

Check the version and reimage

We recommend that you install your target version before you configure the firewall. Alternatively, you can perform an upgrade after you are up and running, but upgrading, which preserves your configuration, may take longer than using this procedure.

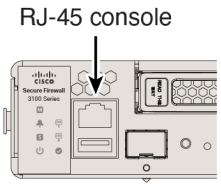
What version should I run?

Cisco recommends running a Gold Star release indicated by a gold star next to the release number on the software download page. You can also refer to the release strategy described in https://www.cisco.com/c/en/us/products/collateral/security/firewalls/bulletin-c25-743178.html.

Procedure

Step 1 Connect to the console port.

Figure 5: Console Port



Step 2 At the FXOS CLI, show the running version.

scope ssa

show app-instance

Example:

```
Firepower# scope ssa
Firepower /ssa # show app-instance

Application Name Slot ID Admin State Operational State Running Version Startup Version Cluster Oper
 State
---------------- ------- ----------- ----------------- --------------- ---------------
------------------
ftd              1       Enabled     Online            7.6.0.65        7.6.0.65        Not Applicable
```

Step 3 If you want to install a new version, perform these steps.

a) By default, the Management interface uses DHCP. If you need to set a static IP address for the Management interface, enter the following commands.

scope fabric-interconnect a

set out-of-band static ip *ip* **netmask** *netmask* **gw** *gateway*

commit-buffer

b) Perform the reimage procedure in the FXOS troubleshooting guide.

You will need to download the new image from a server accessible from the Management interface.

After the firewall reboots, you connect to the FXOS CLI again.

c) At the FXOS CLI, you are prompted to set the admin password again.

For zero-touch provisioning, when you onboard the device, for the **Password Reset** area, be sure to choose **No** because you already set the password.

d) Shut down the firewall. See (If Needed) Power off the firewall, on page 7.

Obtain licenses

When you bought your device from Cisco or a reseller, your licenses should have been linked to your Smart Software License account. If you don't have an account on the Smart Software Manager, click the link to set up a new account.

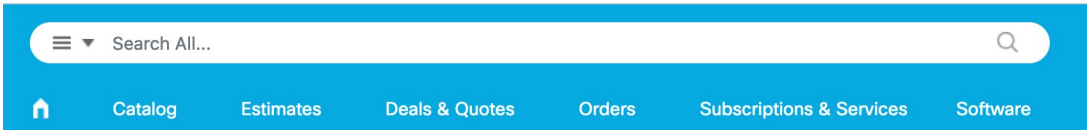
If you have not already done so, register the Firewall Management Center with the Smart Software Manager. Registering requires you to generate a registration token in the Smart Software Manager. See the *Cisco Secure Firewall Management Center Administration Guide* for detailed instructions.

The Firewall Threat Defense has the following licenses:

- Essentials—Required
- IPS
- Malware Defense
- URL Filtering
- Cisco Secure Client
- Carrier—Diameter, GTP/GPRS, M3UA, SCTP

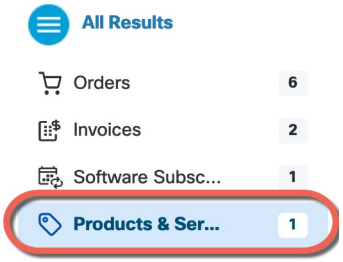
1. If you need to add licenses yourself, go to Cisco Commerce Workspace and use the **Search All** field.

Figure 6: License Search



2. Search for the license PIDs. Check with your ordering guide for the PIDs you want.
3. Choose **Products & Services** from the results.

Figure 7: Results



(If Needed) Power off the firewall

It's important that you shut down your system properly. Simply unplugging the power or pressing the power switch can cause serious file system damage. There are many processes running in the background all the time, and unplugging or shutting off the power does not allow the graceful shutdown of your firewall system.

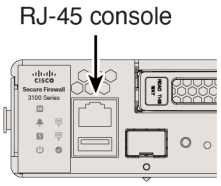
Power off the firewall at the CLI

You can use the FXOS CLI to safely shut down the system and power off the firewall.

Procedure

Step 1 Connect to the console port.

Figure 8: Console Port



Step 2 In the FXOS CLI, connect to local-mgmt mode.

firepower # **connect local-mgmt**

Step 3 Shut down the system.

firepower(local-mgmt) # **shutdown**

Example:

```
firepower(local-mgmt)# shutdown
This command will shutdown the system.  Continue?
Please enter 'YES' or 'NO': yes
INIT: Stopping Cisco Threat Defense......ok
```

Step 4 Monitor the system prompts as the firewall shuts down. When the shutdown is complete, you will see the following prompt.

```
System is stopped.
It is safe to power off now.
Do you want to reboot instead? [y/N]
```

Step 5 You can now turn off the power switch and unplug the power to physically remove power from the chassis if necessary.

Power off the firewall using the Firewall Management Center

Shut down your system properly using the Firewall Management Center.

Procedure

Step 1 Shut down the firewall.

a) Choose **Devices** > **Device Management**.

b) Next to the device that you want to restart, click **Edit** ( ).

c) Click the **Device** tab.

d) Click **Shut Down Device** ( ) in the **System** section.

e) When prompted, confirm that you want to shut down the device.

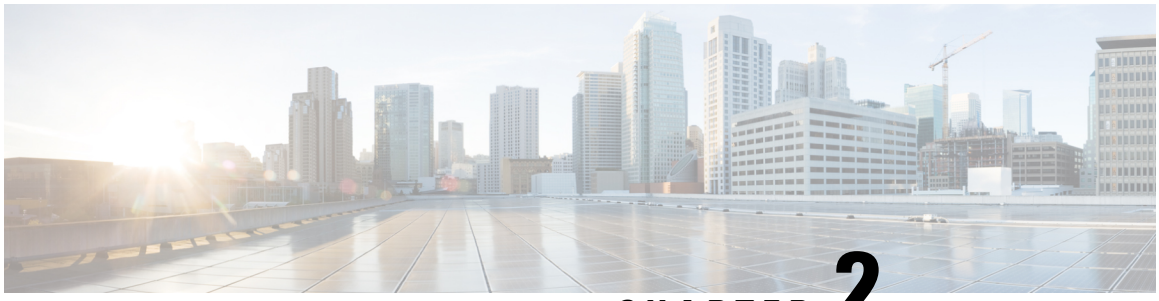
Step 2 If you have a console connection to the firewall, monitor the system prompts as the firewall shuts down. When shutdown is complete, you will see the following prompt.

```
System is stopped.
It is safe to power off now.

Do you want to reboot instead? [y/N]
```

If you do not have a console connection, wait approximately 3 minutes to ensure the system has shut down.

Step 3 You can now turn off the power switch and unplug the power to physically remove power from the chassis if necessary.



CHAPTER 2

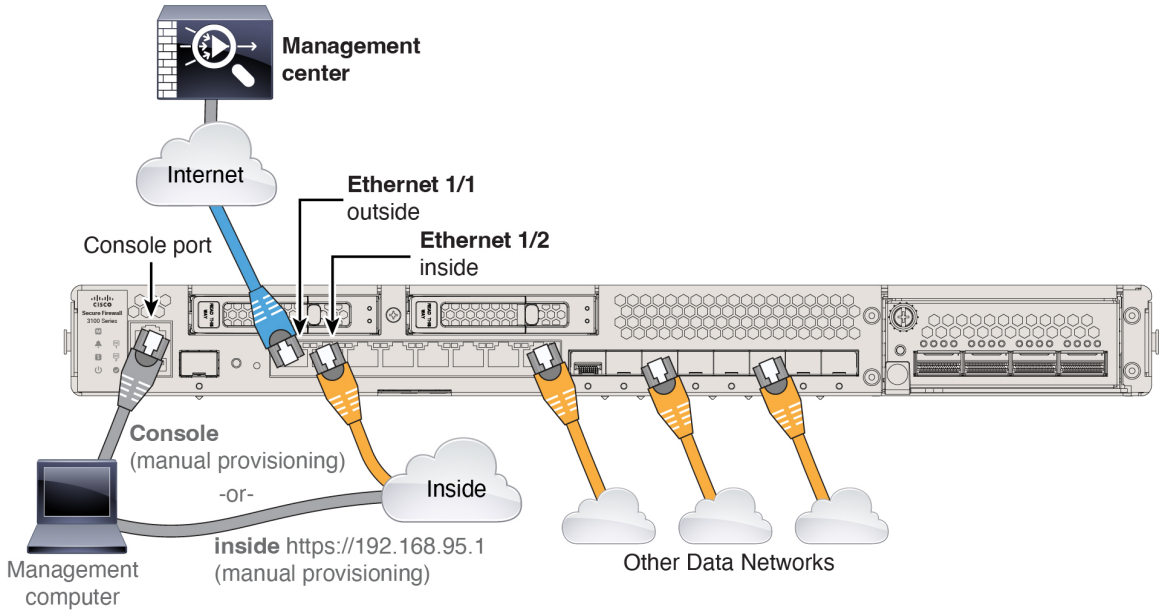
Cable and Register the Firewall

Cable the firewall and then register the firewall to the Firewall Management Center.

- Cable the firewall, on page 11
- Perform initial configuration (manual provisioning only), on page 12
- Register the firewall with the Firewall Management Center, on page 21

Cable the firewall

- Obtain a console adapter—The chassis ships with a DB-9 to RJ-45 serial cable, so you may need to buy a third-party DB-9-to-USB serial cable to make the connection.
- Install SFPs into Ethernet 1/9 and higher—The fixed ports are 1/10-Gbps ports that require SFP/SFP+ modules.
- See the hardware installation guide for more information.
- If you use zero-touch provisioning, do not cable both the outside and the Management interface. This guide covers management on the outside interface, but you may want to use zero-touch provisioning on Management with high availability. If you use zero-touch provisioning on outside and want to use high availability, you will have to change the outside IP address to a static address after registration.



Perform initial configuration (manual provisioning only)

For manual provisioning, perfom initial configuration of the firewall using the Secure Firewall Device Manager or using the CLI.

Initial configuration: Firewall Device Manager

Using this method, after you register the firewall, the following interfaces will be preconfigured in addition to the Management interface:

- Ethernet 1/1—**outside**, IP address from DHCP, IPv6 autoconfiguration
- Ethernet 1/2— **inside**, 192.168.95.1/24
- Default route—Obtained through DHCP on the outside interface
- Additional interfaces—Any interface configuration from the Firewall Device Manager is preserved.

Other settings, such as the DHCP server on inside, access control policy, or security zones, are not preserved.

Procedure

Step 1 Connect your computer to the inside interface (Ethernet 1/2).

Step 2 Log into the Firewall Device Manager.

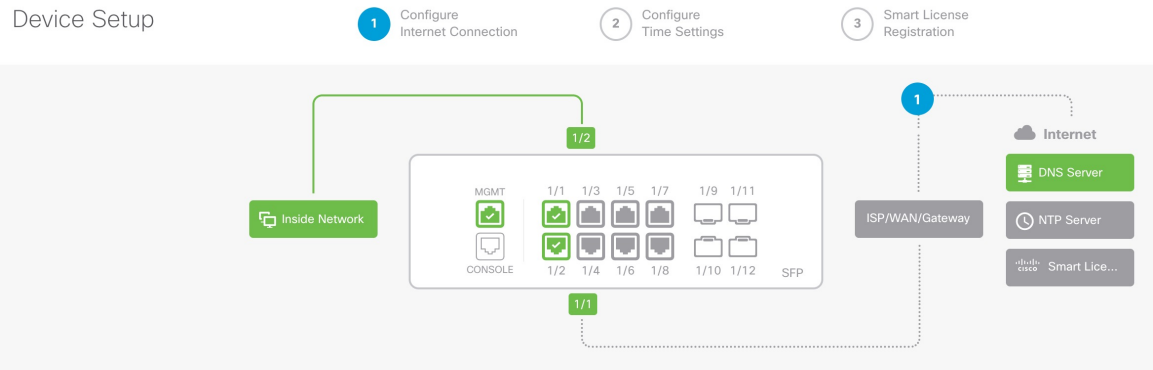
a) Go to https://192.168.95.1.

b) Log in with the username **admin** and the default password **Admin123**.

c) You are prompted to read and accept the General Terms and change the admin password.

Step 3 Use the setup wizard.

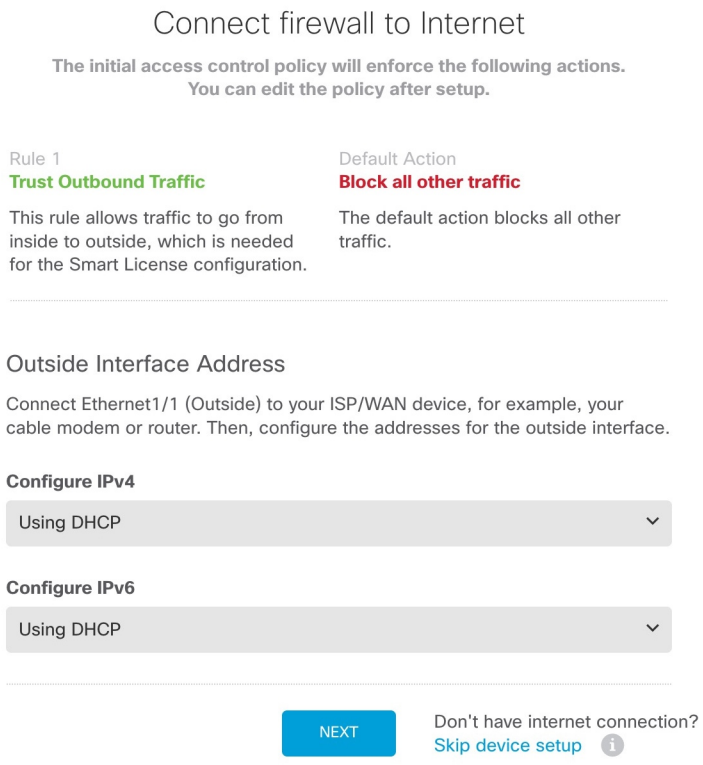
Figure 9: Device Setup



Note
The exact port configuration depends on your model.

a) Configure the outside and management interfaces.

Figure 10: Connect firewall to Internet



1. **Outside Interface Address**—Use a static IP address if you plan for high availability. You cannot configure PPPoE using the setup wizard; you can configure PPPoE after you complete the wizard.

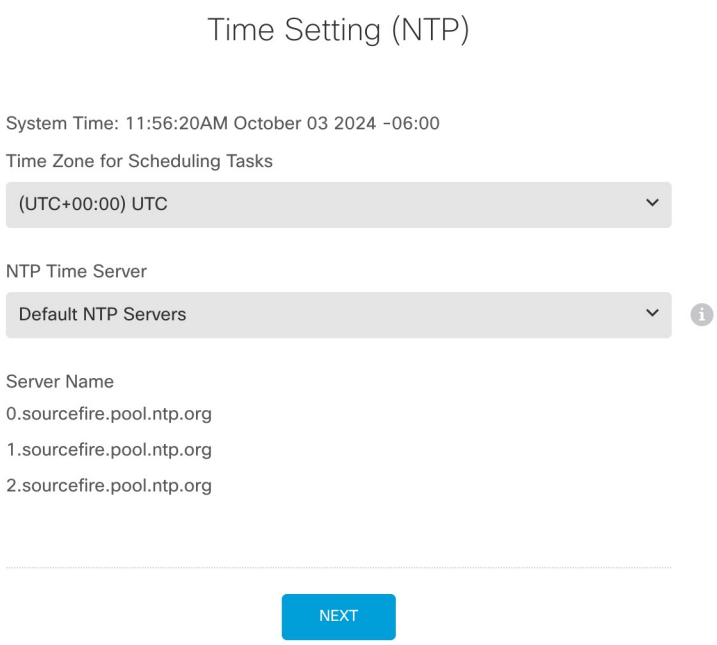
2. **Management Interface**—The Management interface settings are used even though you are using manager access on the outside interface. For example, management traffic that is routed over the backplane through the outside interface will resolve FQDNs using these Management interface DNS servers, and not the outside interface DNS servers.

   DNS Servers—The DNS server for the system's management address. The default is the OpenDNS public DNS servers. These will probably match the outside interface DNS servers you set later since they are both accessed from the outside interface.

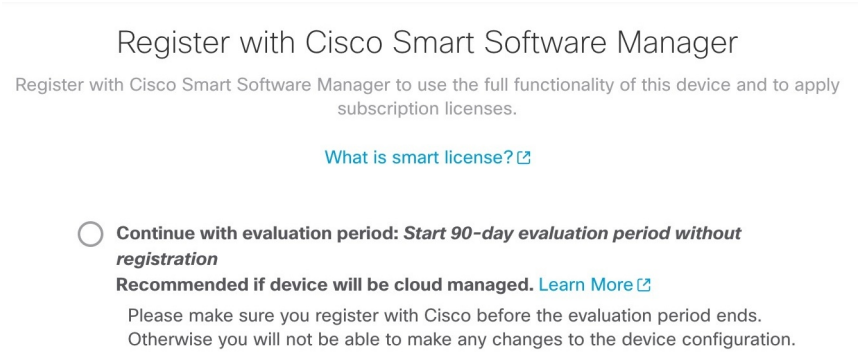
   Firewall Hostname

b) Configure the **Time Setting (NTP)** and click **Next**.

Figure 11: Time Setting (NTP)



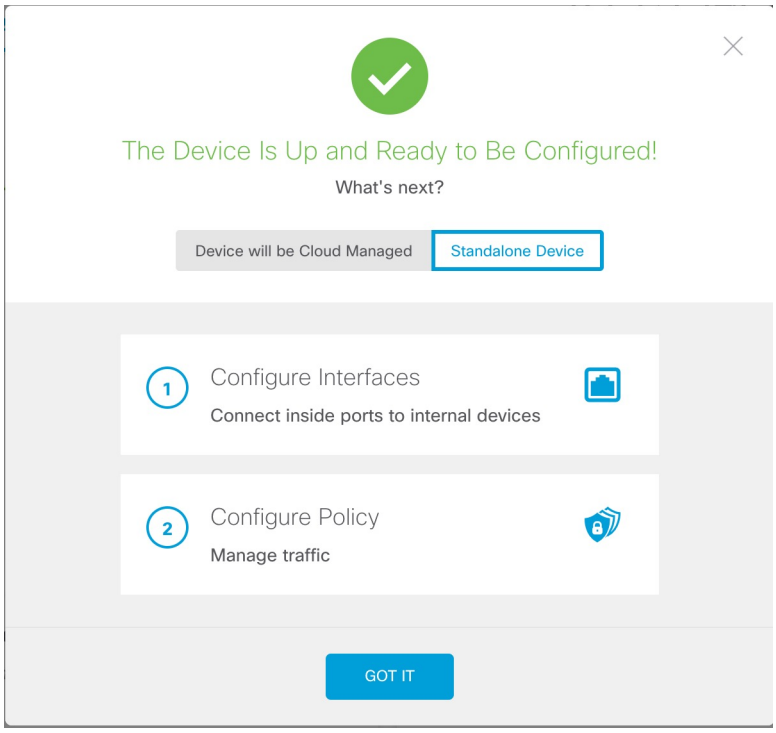
c) Select **Start 90 day evaluation period without registration**.



Do not register the Firewall Threat Defense with the Smart Software Manager; all licensing is performed on the Firewall Management CenterSecurity Cloud Control.

d) Click **Finish**.

Figure 12: What's Next



e) Choose **Standalone Device**, and then **Got It**.

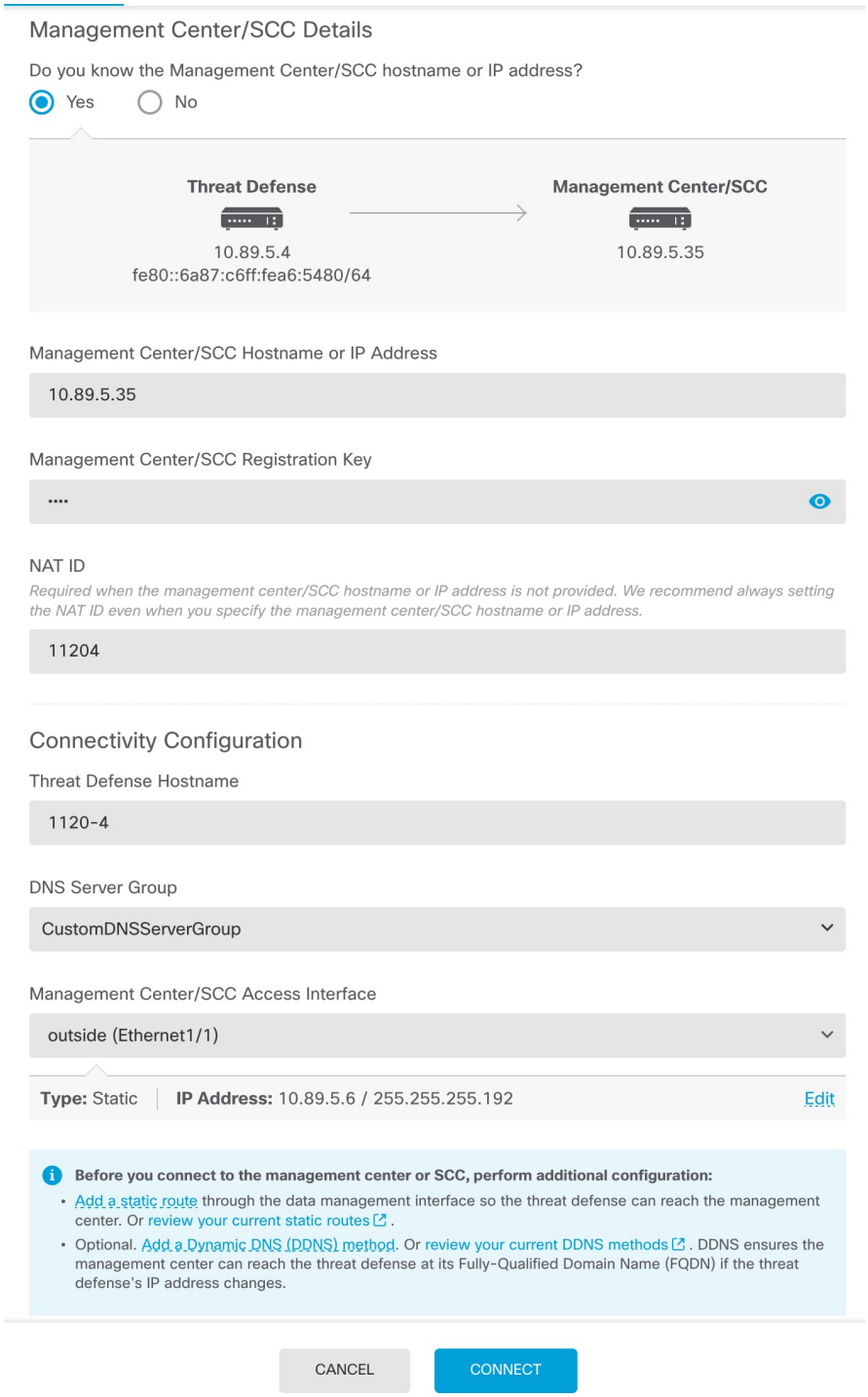
Step 4 If you want to configure additional interfaces, choose **Device**, and then click the link in the **Interfaces** summary.

Step 5 Register with the Firewall Management CenterSecurity Cloud Control by choosing **Device** > **System Settings** > **Central Management** and clicking **Proceed**

Configure the **Management Center/SCC/Details**.

Note
Older versions may show "CDO" instead of "SCC."

Figure 13: Management Center/SCC Details



a) For **Do you know the Management Center/SCC Hostname or IP address**, click **Yes** if you can reach the Firewall Management Center using an IP address or hostname or **No** if the Firewall Management Center is behind NAT or does not have a public IP address or hostname.

b) If you chose **Yes**, enter the **Management Center/SCC Hostname/IP Address**.

c) Specify the **Management Center/SCC Registration Key**.

This key is a one-time registration key of your choice that you will also specify on the Firewall Management Center when you register the firewall. The registration key must be between 2 and 36 characters. Valid characters include alphanumerical characters (A–Z, a–z, 0–9) and the hyphen (-). This ID can be used for multiple firewalls registering to the Firewall Management Center.

d) Specify a **NAT ID**.

This ID is a unique, one-time string of your choice that you will also specify on the Firewall Management Center. We recommend that you specify the NAT ID even if you know the IP addresses of both devices. The NAT ID must be between 2 and 36 characters. Valid characters include alphanumerical characters (A–Z, a–z, 0–9) and the hyphen (-). This ID *cannot* be used for any other firewalls registering to the Firewall Management Center. The NAT ID is used in combination with the IP address to verify that the connection is coming from the correct device; only after authentication of the IP address/NAT ID will the registration key be checked.

Step 6 Configure the **Connectivity Configuration**.

a) Specify the **Threat Defense Hostname**.

This FQDN will be used for the outside interface.

b) Specify the **DNS Server Group**.

Choose an existing group, or create a new one. The default DNS group is called **CiscoUmbrellaDNSServerGroup**, which includes the OpenDNS servers.

To retain the outside DNS server setting after registration, you need to re-configure the DNS Platform Settings in the Firewall Management Center.

c) For the **Management Center/SCC Access Interface**, click **Data Interface**, and then choose **outside**.

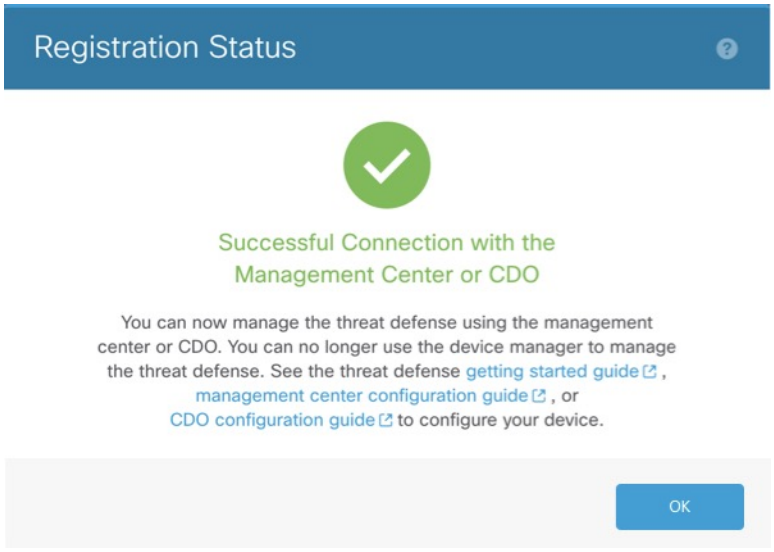
Step 7 (Optional) Click **Add a Dynamic DNS (DDNS) method**.

DDNS ensures the Firewall Management Center can reach the Firewall Threat Defense at its FQDN if the Firewall Threat Defense's IP address changes.

Step 8 Click **Connect**.

The **Registration Status** dialog box shows the current status of the Firewall Management CenterSecurity Cloud Control registration.

Figure 14: Successful Connection



Step 9 After the **Saving Management Center/SCC Registration Settings** step on the status screen, go to the Firewall Management CenterSecurity Cloud Control and add the firewall. See Add a firewall using manual provisioning, on page 27.

Initial configuration: CLI

Set the dedicated Management IP address, gateway, and other basic networking settings using the CLI setup script.

Procedure

Step 1 Connect to the console port and access the Firewall Threat Defense CLI. See Access the Firewall Threat Defense CLI, on page 4.

Step 2 Complete the CLI setup script for the Management interface settings.

Note
You cannot repeat the CLI setup script unless you clear the configuration, for example, by reimaging. However, all of these settings can be changed later at the CLI using **configure network** commands. See *Cisco Secure Firewall Threat Defense Command Reference*.

```
You must accept the EULA to continue.
Press <ENTER> to display the EULA:
Cisco General Terms
[...]

Please enter 'YES' or press <ENTER> to AGREE to the EULA:

System initialization in progress.  Please stand by.
You must configure the network to continue.
```

```
Configure at least one of IPv4 or IPv6 unless managing via data interfaces.
Do you want to configure IPv4? (y/n) [y]:
Do you want to configure IPv6? (y/n) [y]: n
```

Guidance: Enter **y** for at least one of these types of addresses. Although you do not plan to use the Management interface, you must set an IP address, for example, a private address.

```
Configure IPv4 via DHCP or manually? (dhcp/manual) [manual]:
```

Guidance: Choose **manual**. DHCP is not supported when using the outside interface for manager access. Make sure this interface is on a different subnet from the manager access interface to prevent routing issues.

```
Enter an IPv4 address for the management interface [192.168.45.61]: 10.89.5.17
Enter an IPv4 netmask for the management interface [255.255.255.0]: 255.255.255.192
Enter the IPv4 default gateway for the management interface [data-interfaces]:
```

Guidance: Set the gateway to be **data-interfaces**. This setting forwards management traffic over the backplane so it can be routed through the outside interface.

```
Enter a fully qualified hostname for this system [firepower]: 1010-3
Enter a comma-separated list of DNS servers or 'none' [208.67.222.222,208.67.220.220,2620:119:35::35]:
Enter a comma-separated list of search domains or 'none' []: cisco.com
If your networking information has changed, you will need to reconnect.
Disabling IPv6 configuration: management0
Setting DNS servers: 208.67.222.222,208.67.220.220,2620:119:35::35
Setting DNS domains:cisco.com
```

Guidance: Set the Management interface DNS servers. These will probably match the outside interface DNS servers you set later, since they are both accessed from the outside interface.

```
Setting hostname as 1010-3
Setting static IPv4: 10.89.5.17 netmask: 255.255.255.192 gateway: data on management0
Updating routing tables, please wait...
All configurations applied to the system. Took 3 Seconds.
Saving a copy of running network configuration to local disk.
For HTTP Proxy configuration, run 'configure network http-proxy'

Manage the device locally? (yes/no) [yes]: no
```

Guidance: Enter **no** to use the Firewall Management Center.

```
Setting hostname as 1010-3
Setting static IPv4: 10.89.5.17 netmask: 255.255.255.192 gateway: data on management0
Updating routing tables, please wait...
All configurations applied to the system. Took 3 Seconds.
Saving a copy of running network configuration to local disk.
For HTTP Proxy configuration, run 'configure network http-proxy'
```

Guidance: Enter **routed**. Outside manager access is only supported in routed firewall mode.

```
Configuring firewall mode ...


Device is in OffBox mode - disabling/removing port 443 from iptables.
Update policy deployment information
    - add device configuration
    - add network discovery
    - add system policy

You can register the sensor to a Firepower Management Center and use the
Firepower Management Center to manage it. Note that registering the sensor
to a Firepower Management Center disables on-sensor Firepower Services
management capabilities.

When registering the sensor to a Firepower Management Center, a unique
alphanumeric registration key is always required.  In most cases, to register
```

```
a sensor to a Firepower Management Center, you must provide the hostname or
the IP address along with the registration key.
'configure manager add [hostname | ip address ] [registration key ]'

However, if the sensor and the Firepower Management Center are separated by a
NAT device, you must enter a unique NAT ID, along with the unique registration
key.
'configure manager add DONTRESOLVE [registration key ] [ NAT ID ]'

Later, using the web interface on the Firepower Management Center, you must
use the same registration key and, if necessary, the same NAT ID when you add
this sensor to the Firepower Management Center.
>
```

Step 3 Configure the outside interface for manager access.

configure network management-data-interface

After you press **Enter**, you are prompted to configure basic network settings for the outside interface.

Manual IP Address

```
> configure network management-data-interface
Data interface to use for management: ethernet1/1
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
```

Guidance: To retain the outside DNS servers after registration, you need to re-configure the DNS Platform Settings in the Firewall Management Center.

```
DDNS server update URL [none]:
Do you wish to clear all the device configuration before applying ? (y/n) [n]:

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.

>
```

IP Address from DHCP

```
> configure network management-data-interface
Data interface to use for management: ethernet1/1
Specify a name for the interface [outside]:
IP address (manual / dhcp) [dhcp]:
DDNS server update URL [none]:
https://dwinchester:pa$$w0rd17@domains.example.com/nic/update?hostname=<h>&myip=<a>
Do you wish to clear all the device configuration before applying ? (y/n) [n]:

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 4 Identify the Firewall Management Center.

configure manager add {*hostname* | *IPv4_address* | *IPv6_address* | **DONTRESOLVE**} *reg_key nat_id*

- {*hostname* | *IPv4_address* | *IPv6_address* | **DONTRESOLVE**}—Specifies either the FQDN or IP address of the Firewall Management Center. If the Firewall Management Center is not directly addressable, use **DONTRESOLVE**, in which case the firewall must have a reachable IP address or hostname.
- *reg_key*—Specifies a one-time registration key of your choice that you will also specify on the Firewall Management Center when you register the Firewall Threat Defense. The registration key must be between 2 and 36 characters. Valid characters include alphanumerical characters (A–Z, a–z, 0–9) and the hyphen (-).
- *nat_id*—Specifies a unique, one-time string of your choice that you will also specify on the Firewall Management Center. The NAT ID must be between 2 and 36 characters. Valid characters include alphanumerical characters (A–Z, a–z, 0–9) and the hyphen (-). This ID cannot be used for any other devices registering to the Firewall Management Center.

Example:

```
> configure manager add fmc-1.example.com regk3y78 natid56
Manager successfully configured.
```

Step 5 Shut down the Firewall Threat Defense so you can send the device to the remote branch office.

It's important that you shut down your system properly. Simply unplugging the power or pressing the power switch can cause serious file system damage. Remember that there are many processes running in the background all the time, and unplugging or shutting off the power does not allow the graceful shutdown of your system.

a) Enter the **shutdown** command.
b) Observe the Power LED and Status LED to verify that the chassis is powered off (appear unlit).
c) After the chassis has successfully powered off, you can then unplug the power to physically remove power from the chassis if necessary.

Register the firewall with the Firewall Management Center

Register the firewall with the Firewall Management Center depending on which deployment method you are using.

Add a firewall using the serial number (zero-touch provisioning)

Zero-Touch Provisioning lets you register devices to the Firewall Management Center by serial number without having to perform any initial setup on the device. The Firewall Management Center integrates with Security Cloud Control for this functionality.

Note For Firewall Management Center version 7.4, you need to add the device using Security Cloud Control; see the 7.4 guide for more information. The native Firewall Management Center workflow was added in 7.6. Also, for cloud integration in 7.4, see the **SecureX Integration** page in the Firewall Management Center.

Default Configuration After Registration

When you use zero-touch provisioning, the following interfaces are preconfigured. Note that other settings, such as the DHCP server on inside, access control policy, or security zones, are not configured.

- Ethernet 1/1—"outside", IP address from DHCP, IPv6 autoconfiguration
- Ethernet 1/2 (or for the , the VLAN1 interface)— "inside", 192.168.95.1/24
- Default route—Obtained through DHCP on the outside interface

Requirements

Zero-Touch Provisioning is not supported with clustering or multi-instance mode.

When you use the outside interface for manager access, it uses DHCP by default. Before you can enable high availability, you need to change the IP address to a static address. Alternatively, you can use the Management interface instead; DHCP is supported on Management with high availability.

Before you begin

- If the device does not have a public IP address or FQDN, set a public IP address/FQDN for the Firewall Management Center (for example, if it is behind NAT), so the device can initiate the management connection. See **Administration** > **Configuration** > **Manager Remote Access**.
- DHCP server for either Management or Ethernet 1/1 that provides an IP address and default gateway.
- Network access to the OpenDNS public DNS servers. IPv4: 208.67.220.220 and 208.67.222.222; IPv6: 2620:119:35::35. DNS servers obtained from DHCP are never used.

  The following names need to be resolved:

Table 3: FQDNs for zero-touch provisioning

FQDNs
*.cisco.com (many FQDNs)
*.defenseorchestrator.com (many FQDNs)
*.defenseorchestrator.eu (for the EU, many FQDNs)
0.sourcefire.pool.ntp.org, 1.sourcefire.pool.ntp.org, 2.sourcefire.pool.ntp.org
1.200.159.162.in-addr.arpa
60.19.239.178.in-addr.arpa
connected.by.freedominter.net
time.cloudflare.com

FQDNs
udc.neo4j.org

Procedure

Step 1 The first time you add a device using a serial number, integrate the Firewall Management Center with Security Cloud Control.

Note
For a Firewall Management Center high-availability pair, you also need to integrate the secondary Firewall Management Center with Security Cloud Control.

a) Choose **Integrations** > **Security Cloud Control**.
b) Click **Enable Security Cloud Control** to open a separate browser tab to log you into your Security Cloud Control account and confirm the displayed code.

Make sure this page is not blocked by a pop-up blocker. If you do not already have a Security Cloud Control account, you can add one during this procedure.

For detailed information about this integration, see the "System Configuration" chapter in the *Cisco Secure Firewall Management Center Administration Guide*.

Security Cloud Control onboards the on-prem Firewall Management Center after you integrate the Firewall Management Center with Security Cloud Control. Security Cloud Control needs the Firewall Management Center in its inventory for zero-touch provisioning to operate. However, you do not need to use Security Cloud Control directly. If you do use Security Cloud Control, its Firewall Management Center support is limited to device onboarding, viewing its managed devices, viewing objects associated with the Firewall Management Center, and cross-launching the Firewall Management Center.

c) Make sure **Enable Zero-Touch Provisioning** is checked.
d) Click **Save**.

Step 2 Obtain your device's serial number.

The device includes two serial numbers: the chassis serial number and the PCB (circuit board) serial number. Either serial number should work.

- If you have the shipping box, you can see the chassis serial number on the label.
- The chassis serial number is on the compliance label on a pull-out tab at the front of the device.
- The PCB serial number is on a label on the chassis called "S/N."
- You can view the serial numbers using the following CLI commands:
  - FXOS—**show chassis detail** shows both serial numbers.
  - Firewall Threat Defense—**show inventory** shows the chassis serial number. **show serial-number** shows the PCB serial number.

Step 3 Check your LEDs to make sure the firewall is ready for registration.

Table 4: Zero-Touch Provisioning: Managed (M) LED behavior

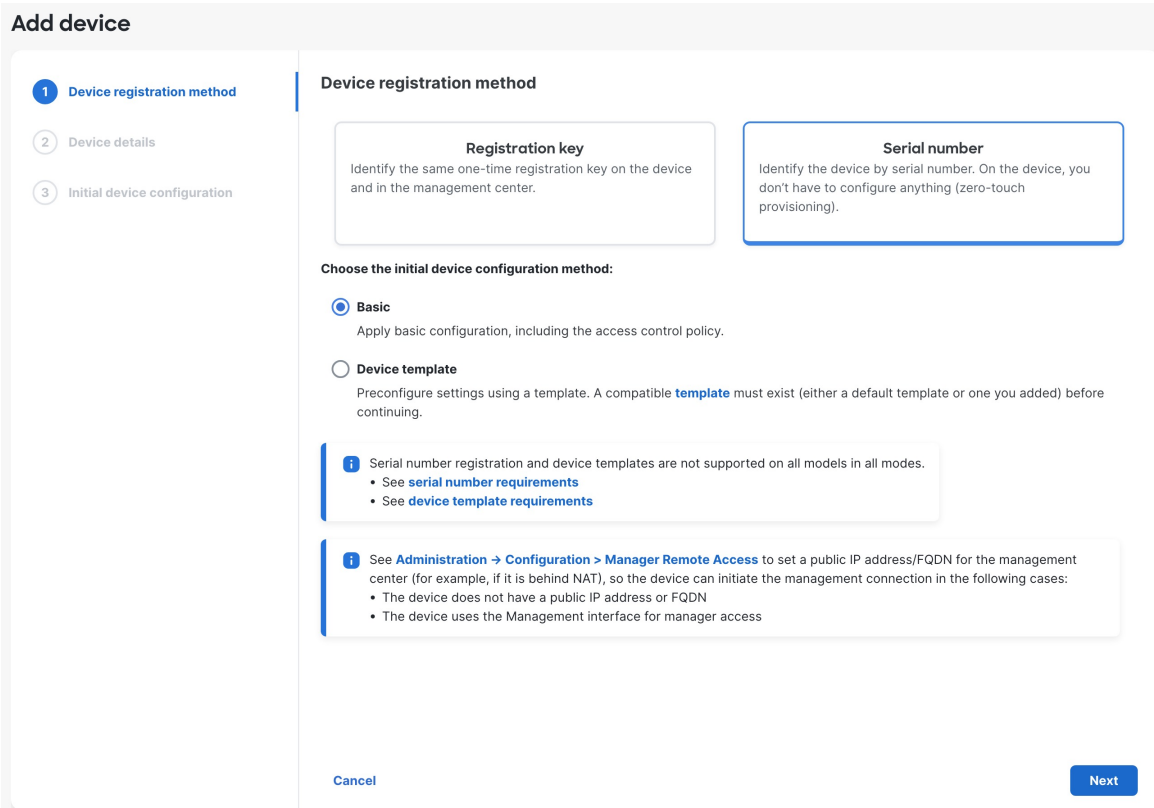
M LED	Description	Time after firewall powered on (minutes:seconds)
Slow flashing green	Connected to the Cisco cloud and ready for onboarding	15:00 - 30:00
Alternating green and amber (error condition)	Failed to connect to the Cisco cloud	15:00 - 30:00
Solid green	Onboarded	20:00 - 45:00

Step 4 Choose **Devices** > **Device Management**.

Step 5 From the **Add** drop-down menu, choose **Device**.

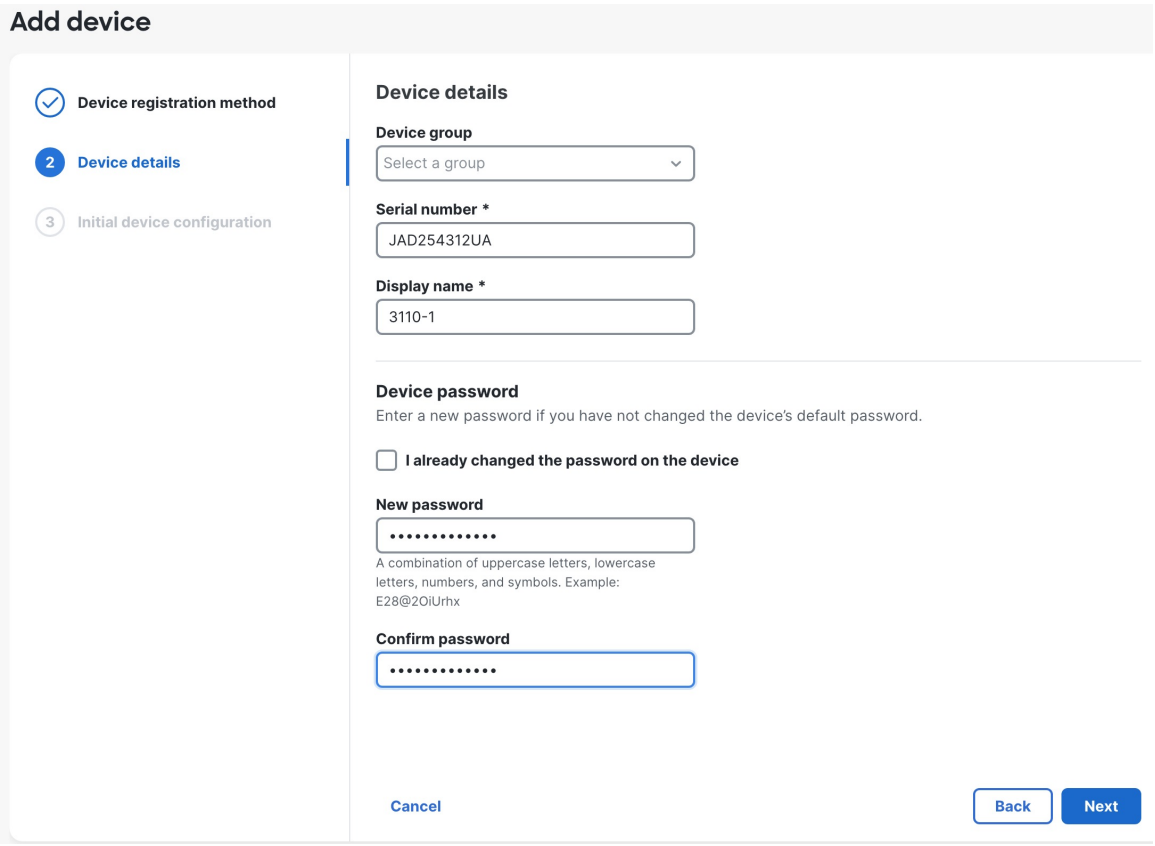
Step 6 Click **Serial Number**, click **Basic**, and then click **Next**.

Figure 15: Device Registration Method



Step 7 Configure the device details and click **Next**.

Figure 16: Device Details

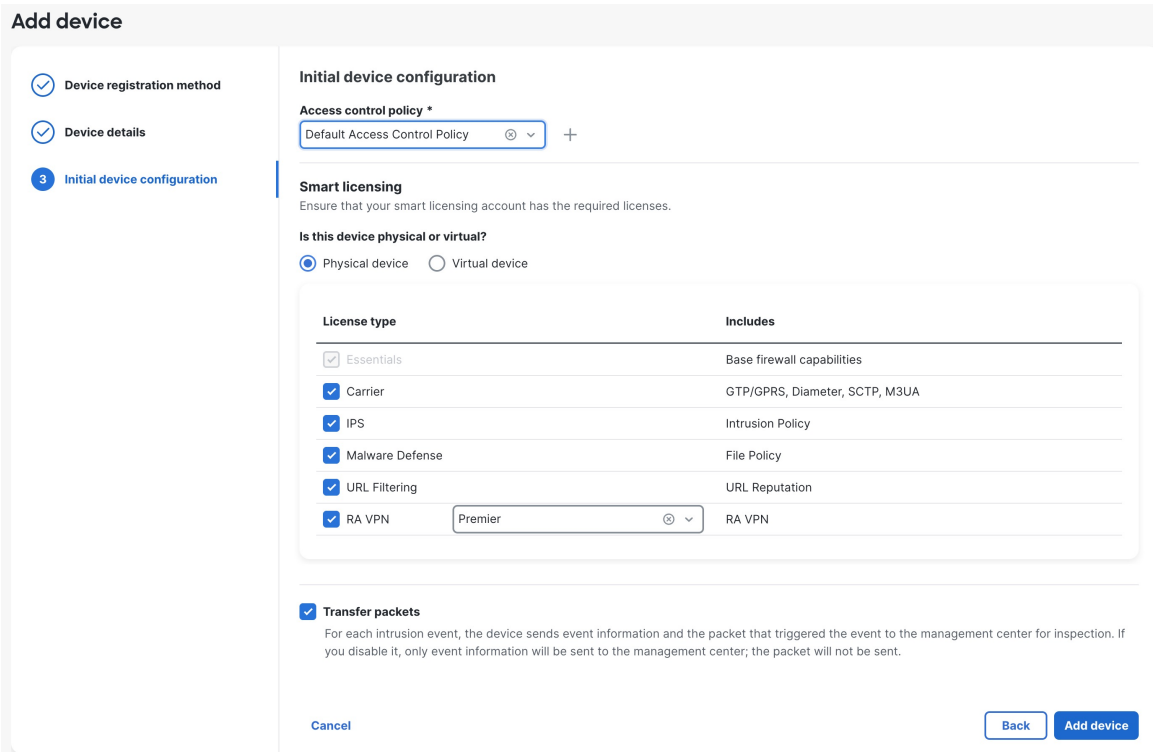


- **Domain**—In a multidomain environment, choose the leaf domain.
- **Device group**—In a single domain environment, add the device to a **Device group**.
- **Serial number**—Enter the IP address or the hostname of the device you want to add. Leave this field blank if you don't know the device IP address (for example, it's behind NAT).
- **Display name**—Enter a name for the device as you want it to display in the Firewall Management Center. You cannot change this name later.
- **Device password**—If this device is unconfigured or a fresh install, then you need to set a **New Password** and confirm the password.

  Check **I already changed the password on the device** only if you already logged in and changed the password. Otherwise, registration will fail.

Step 8 Configure the initial device configuration.

Figure 17: Initial Device Configuration



- **Access control policy**—Choose an initial policy to deploy to the device at registration, or create a new policy. Unless you already have a customized policy you know you need to use, choose **Add** (+), and choose **Block all traffic**. You can change this later to allow traffic.
- **Smart licensing**—Choose your licenses.
  - **Is this device physical or virtual?**—Choose **Physical device**
  - **License type**—Check each license type to assign to the device.

  You can also apply licenses after you add the device.
- **Transfer packets**—Enable this option so that for each intrusion event, the device transfers the packet to the Firewall Management Center for inspection.

  For each intrusion event, the device sends event information and the packet that triggered the event to the Firewall Management Center for inspection. If you disable it, only event information will be sent to the Firewall Management Center; the packet will not be sent.

Step 9 Click **Add device**.

It may take up to two minutes for the Firewall Management Center to verify the device's heartbeat and establish communication.

When using zero-touch provisioning on the outside interface, Security Cloud Control acts as a DDNS provider and does the following:

- Enables DDNS on outside using the **FMC Only** method. This method is only supported for zero-touch provisioning devices.
- Maps the outside IP address with the following hostname: *serial-number*.**local**.
- Provides the IP address/hostname mapping to the Firewall Management Center so it can resolve the hostname to the correct IP address.
- Informs the Firewall Management Center if the IP address ever changes, for example, if the DHCP lease renews.

If you use zero-touch provisioning on the Management interface, DDNS is not supported. The Firewall Management Center must be publicly reachable so the device can initiate the management connection.

You can continue to use Security Cloud Control as the DDNS provider, or you can later change the DDNS configuration in the Firewall Management Center to a different method.

Add a firewall using manual provisioning

Register the firewall to the Firewall Management Center manually using the device IP address or hostname and a registration key.

Procedure

Step 1 Log into the Firewall Management Center.

a) Enter the following URL.

https://*fmc_ip_address*

b) Enter your username and password.

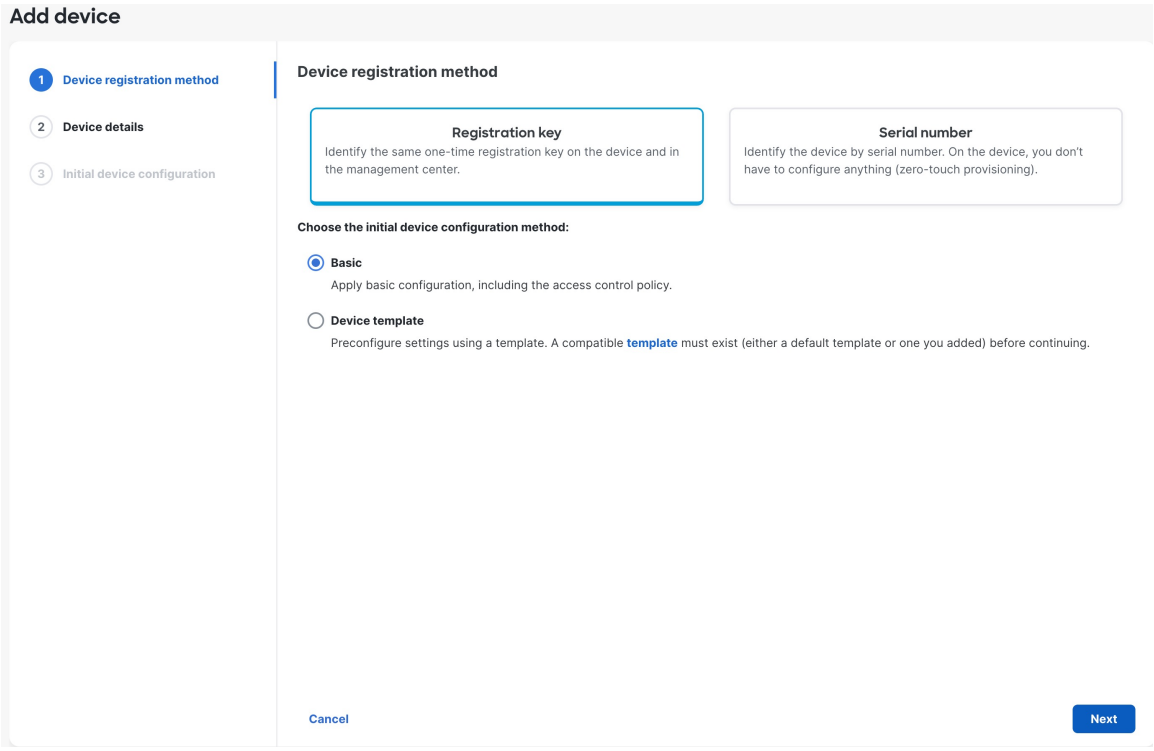
c) Click **Log In**.

Step 2 Choose **Devices** > **Device Management**.

Step 3 From the **Add** drop-down menu, choose **Device**.

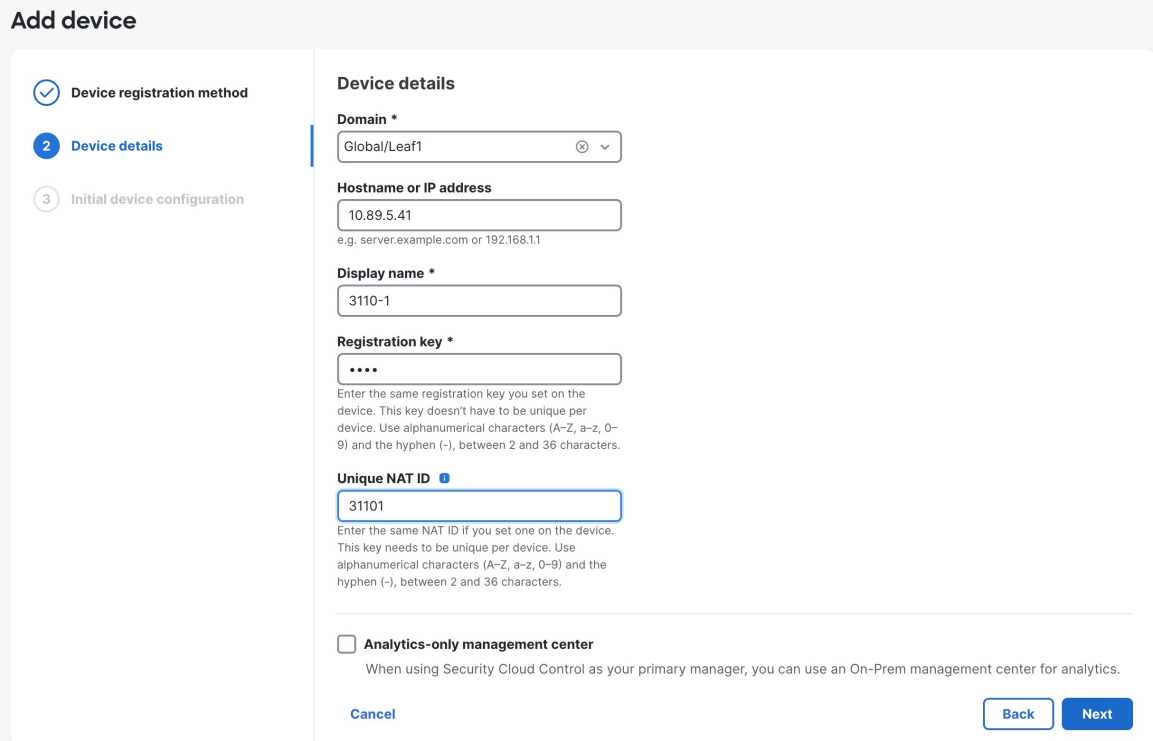
Step 4 Click **Registration Key**, click **Basic**, and then click **Next**.

Figure 18: Device Registration Method



Step 5 Configure the device details and click **Next**.

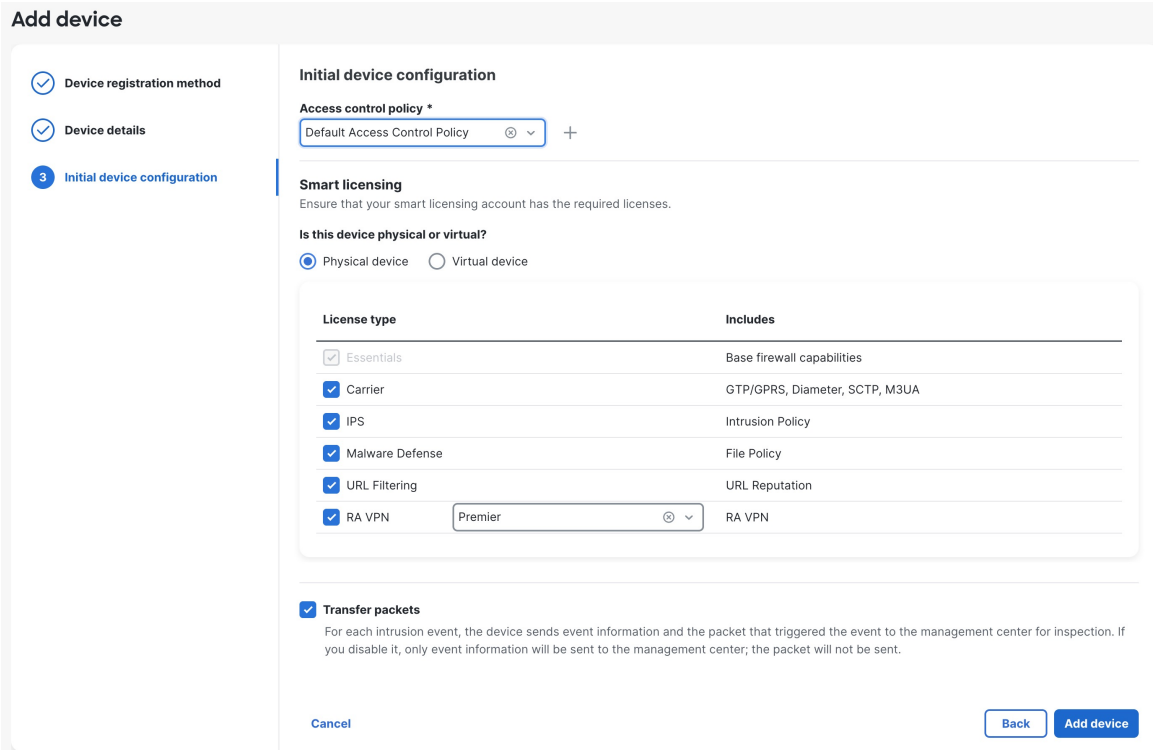
Figure 19: Device Details



- **Domain**—In a multidomain environment, choose the leaf domain.
- **Device group**—In a single domain environment, add the device to a **Device group**.
- **Hostname or IP address**—Enter the IP address or the hostname of the device you want to add. Leave this field blank if you don't know the device IP address (for example, it's behind NAT).
- **Display name**—Enter a name for the device as you want it to display in the Firewall Management Center. You cannot change this name later.
- **Registration key**—Enter the same registration key from your initial configuration.
- **Unique NAT ID**—Enter the same ID from your initial configuration.
- **Analytics-only management center**—Leave this unchecked.

Step 6 Configure the initial device configuration.

Figure 20: Initial Device Configuration



- **Access control policy**—Choose an initial policy to deploy to the device at registration, or create a new policy. Unless you already have a customized policy you know you need to use, choose **Add** (+), and choose **Block all traffic**. You can change this later to allow traffic.
- **Smart licensing**—Choose your licenses.
  - **Is this device physical or virtual?**—Choose **Physical device**
  - **License type**—Check each license type to assign to the device.

  You can also apply licenses after you add the device.
- **Transfer packets**—Enable this option so that for each intrusion event, the device transfers the packet to the Firewall Management Center for inspection.

  For each intrusion event, the device sends event information and the packet that triggered the event to the Firewall Management Center for inspection. If you disable it, only event information will be sent to the Firewall Management Center; the packet will not be sent.

Step 7 Click **Add device**.

It may take up to two minutes for the Firewall Management Center to verify the device's heartbeat and establish communication. If the registration succeeds, the device is added to the list. If it fails, you will see an error message. If the device fails to register, check the following items:

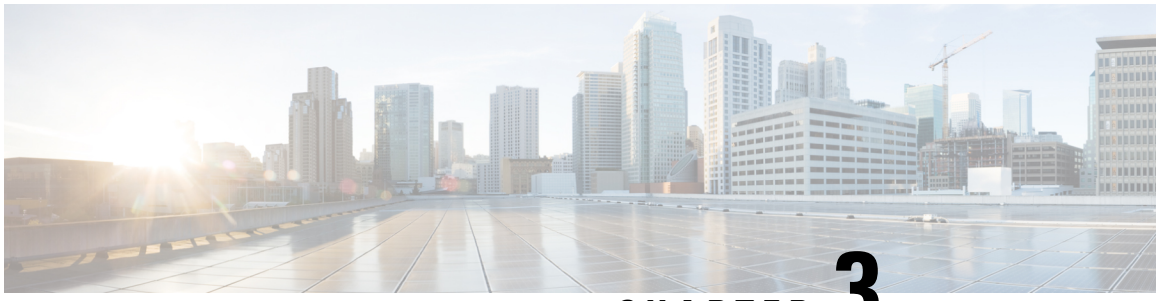
- Ping—Access the device CLI, and ping the Firewall Management Center IP address using the following command:

  ping system *ip_address*

If the ping is not successful, check your network settings using the **show network** command. If you need to change the device IP address, use the **configure network** {**ipv4** | **ipv6**} **manual** command.

- Registration key, NAT ID, and Firewall Management Center IP address—Make sure you are using the same registration key, and if used, NAT ID, on both devices. You can set the registration key and NAT ID on the device using the **configure manager add** command.

For more troubleshooting information, see https://cisco.com/go/fmc-reg-error.



CHAPTER 3

Configure a Basic Policy

Configure a basic security policy with the following settings:

- Inside and outside interfaces—Assign a static IP address to the inside interface, and use DHCP for the outside interface.
- DHCP server—Use a DHCP server on the inside interface for clients.
- Default route—Add a default route through the outside interface.
- NAT—Use interface PAT on the outside interface.
- Access control—Allow traffic from inside to outside.

You can also ccustomize your security policy to include more advanced inspections.

- Configure interfaces, on page 33
- Configure the DHCP server, on page 38
- Configure NAT, on page 39
- Configure an access control rule, on page 42
- Enable SSH on the outside interface, on page 45
- Deploy the configuration, on page 46

Configure interfaces

When you use zero-touch provisioning or the Firewall Device Manager for initial setup, the following interfaces are preconfigured:

- Ethernet 1/1—**outside**, IP address from DHCP, IPv6 autoconfiguration
- Ethernet 1/2— **inside**, 192.168.95.1/24
- Default route—Obtained through DHCP on the outside interface

If you performed additional interface-specific configuration within Firewall Device Manager before registering with the Firewall Management Center, then that configuration is preserved.

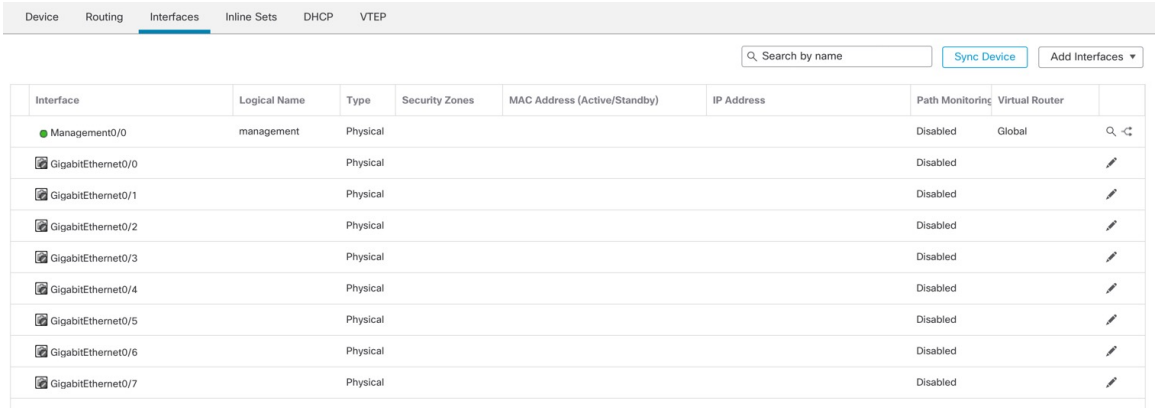
The following example configures a routed-mode inside interface with a static address and a routed-mode outside interface using DHCP. It also adds a DMZ interface for an internal web server.

Procedure

Step 1 Choose **Devices** > **Device Management**, and click **Edit** (✎) for the firewall.

Step 2 Click **Interfaces**.

Figure 21: Interfaces

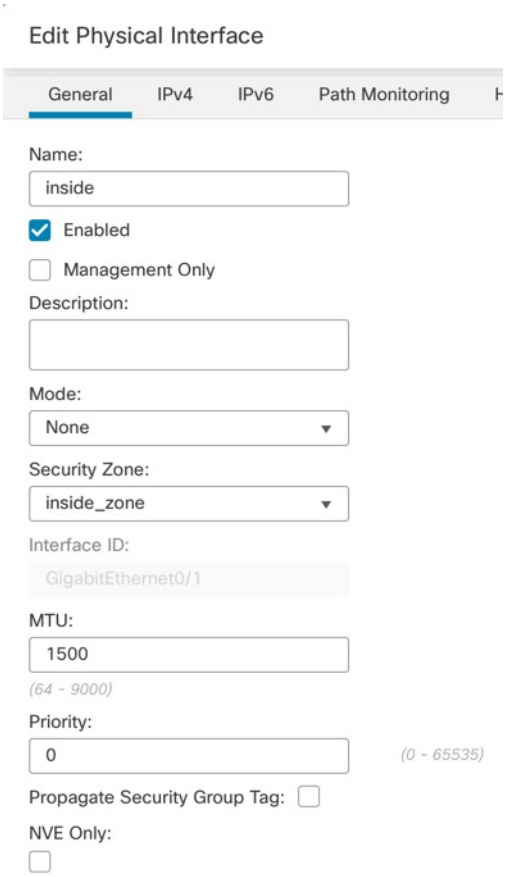


Step 3 To create breakout ports from a 40-Gb or larger interface, click the **Break** icon for the interface.

If you already used the full interface in your configuration, you will have to remove the configuration before you can proceed with the breakout.

Step 4 Click **Edit** (✎) for the interface that you want to use for inside.

Figure 22: General Tab



a) From the **Security Zone** drop-down list, choose an existing inside security zone or add a new one by clicking **New**.

   For example, add a zone called **inside_zone**. You apply your security policy based on zones or groups. For example, configure your access control policy to enable traffic to go from the inside zone to the outside zone, but not from outside to inside.

   If the inside interface was preconfigured, the rest of these fields are optional.

b) Enter a **Name** up to 48 characters in length.

   For example, name the interface **inside**.

c) Check the **Enabled** check box.

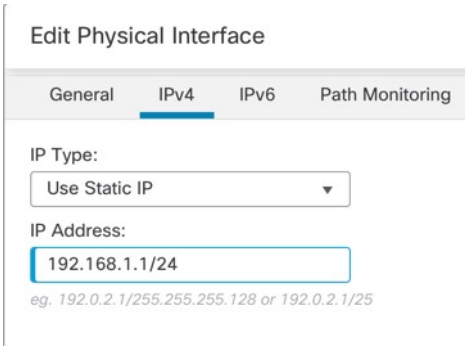
d) Leave the **Mode** set to **None**.

e) Click the **IPv4** and/or **IPv6** tab.

   - **IPv4**—Choose **Use Static IP** from the drop-down list, and enter an IP address and subnet mask in slash notation.

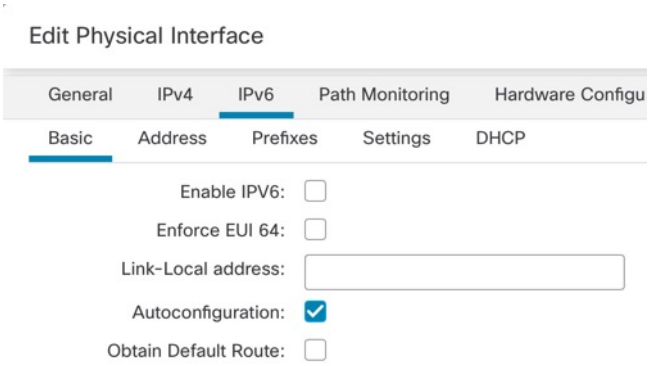
     For example, enter **192.168.1.1/24**

Figure 23: IPv4 Tab



- **IPv6**—Check the **Autoconfiguration** check box for stateless autoconfiguration.

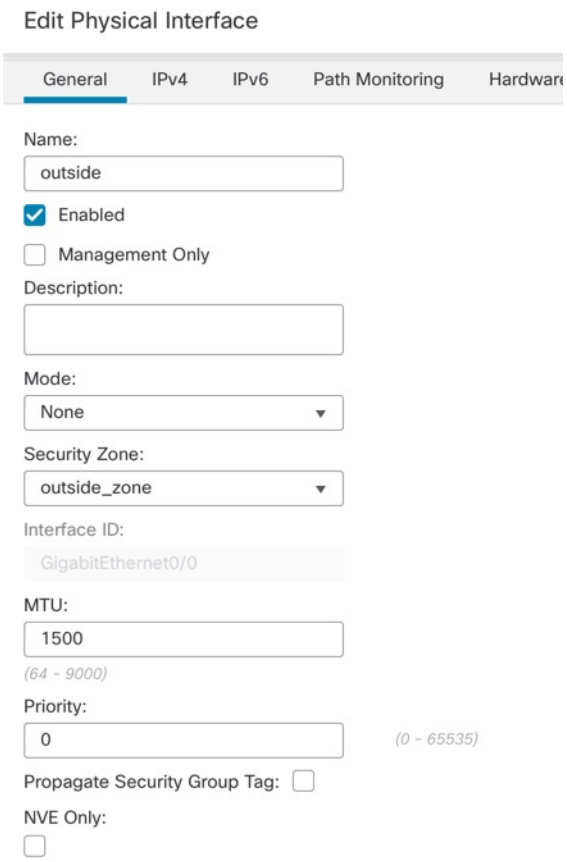
Figure 24: IPv6 Tab



f) Click **OK**.

Step 5 Click **Edit** (✎) for the interface that you want to use for outside.

Figure 25: General Tab



a) From the **Security Zone** drop-down list, choose an existing outside security zone or add a new one by clicking **New**.

For example, add a zone called **outside_zone**.

You should not alter any other basic settings because doing so will disrupt the Firewall Management Center management connection.

b) Click **OK**.

Step 6 Configure a DMZ interface to host a web server, for example.

a) Click **Edit** (✎) for the interface you want to use.
b) From the **Security Zone** drop-down list, choose an existing DMZ security zone or add a new one by clicking **New**.

For example, add a zone called **dmz_zone**.

c) Enter a **Name** up to 48 characters in length.

For example, name the interface **dmz**.

d) Check the **Enabled** check box.
e) Leave the **Mode** set to **None**.
f) Click the **IPv4** and/or **IPv6** tab and configure the IP address as desired.
g) Click **OK**.

Step 7 Click **Save**.

Configure the DHCP server

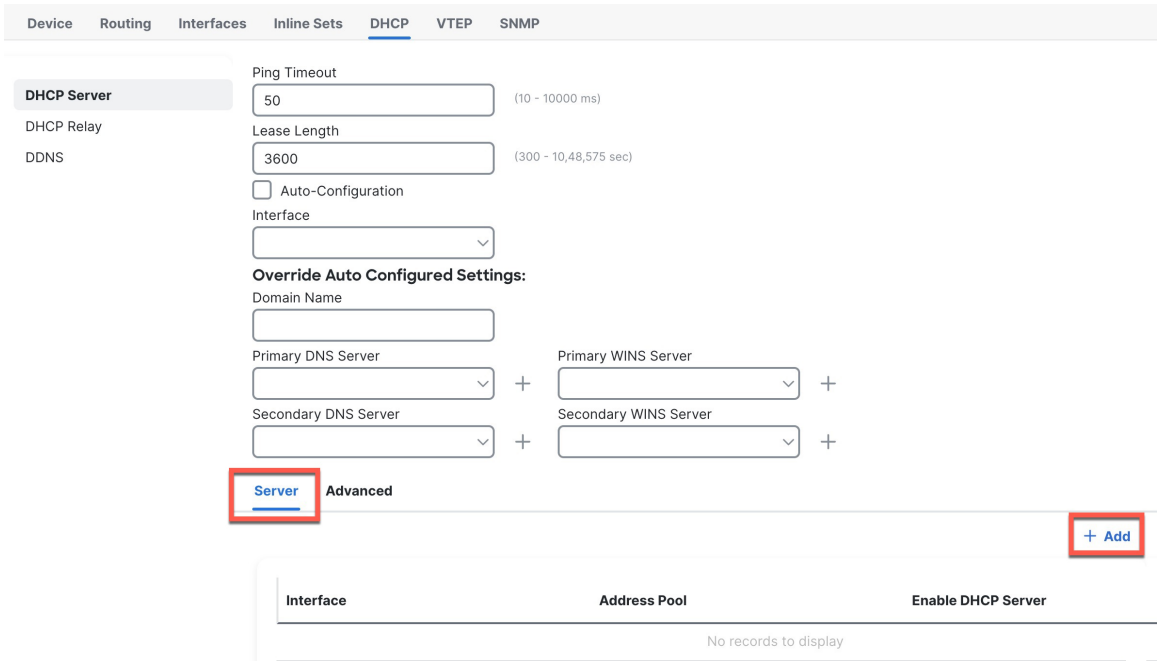
Enable the DHCP server if you want clients to use DHCP to obtain IP addresses from the firewall.

Procedure

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

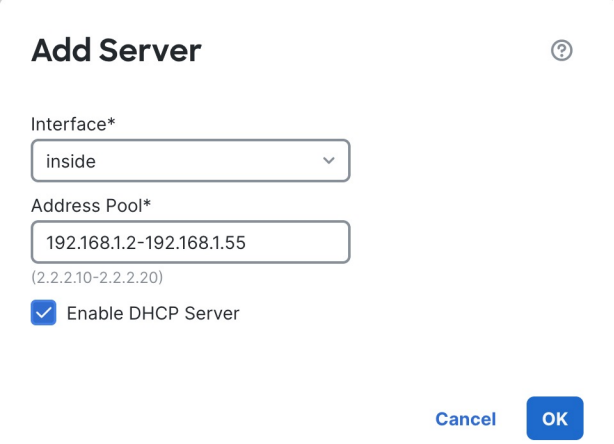
Step 2 Choose **DHCP** > **DHCP Server**.

Figure 26: DHCP Server



Step 3 In the **Server** area, click **Add** and configure the following options.

Figure 27: Add Server



- **Interface**—Choose the interface name from the drop-down list.
- **Address Pool**—Set the range of IP addresses. The IP addresses must be on the same subnet as the selected interface and cannot include the IP address of the interface itself.
- **Enable DHCP Server**—Enable the DHCP server on the selected interface.

Step 4 Click **OK**.

Step 5 Click **Save**.

Configure NAT

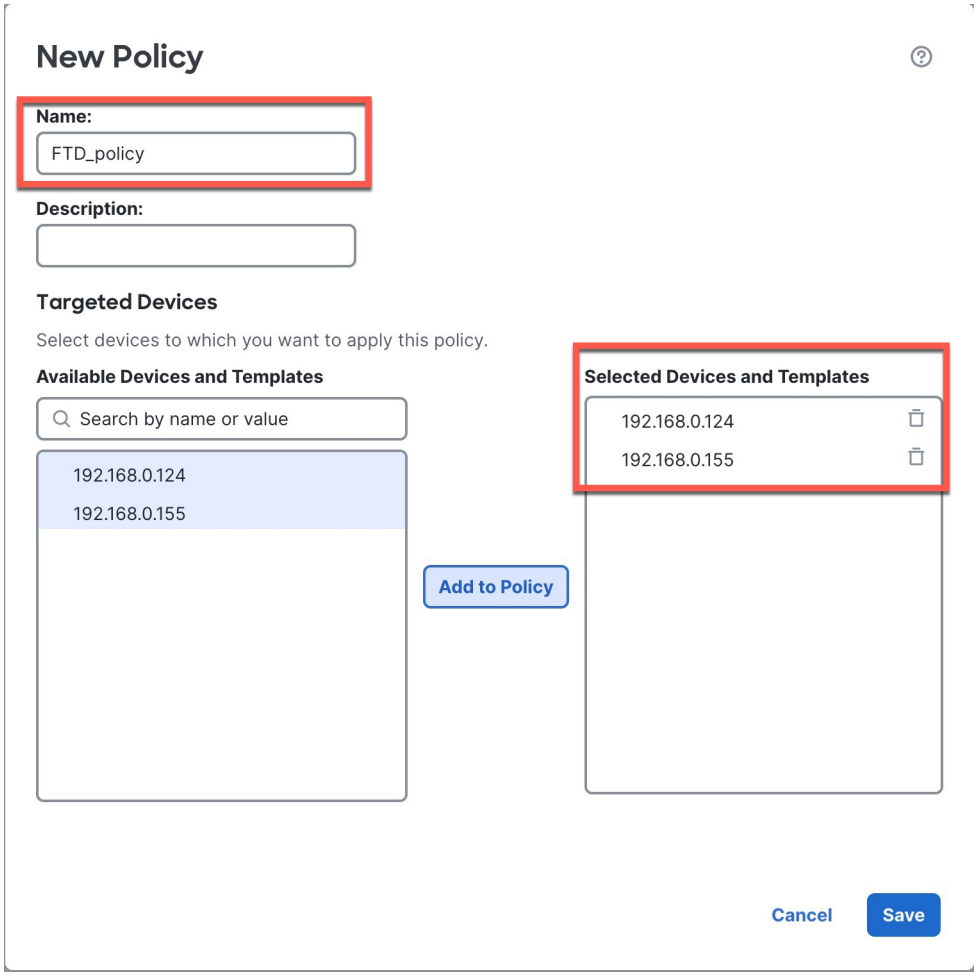
This procedure creates a NAT rule for internal clients to convert the internal addresses to a port on the outside interface IP address. This type of NAT rule is called *interface Port Address Translation (PAT)*.

Procedure

Step 1 Choose **Devices** > **NAT**, and click **New Policy**.

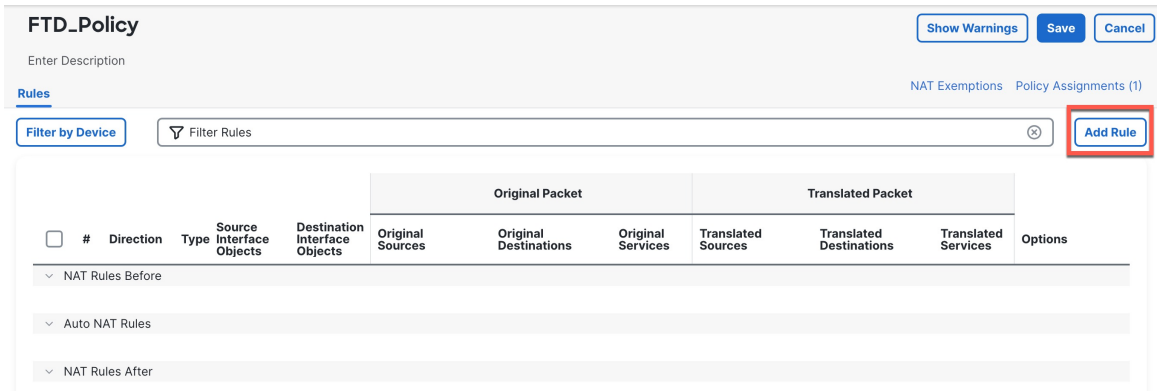
Step 2 Name the policy, select the devices that you want to use the policy, and click **Save**.

Figure 28: New Policy



The policy is added the Firewall Management Center. You still have to add rules to the policy.

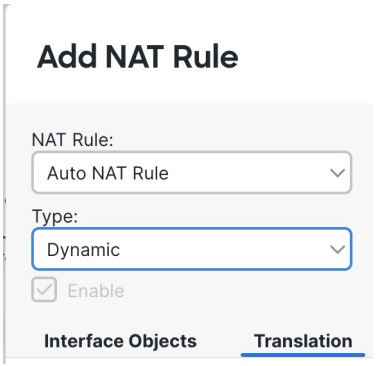
Figure 29: NAT Policy



Step 3 Click **Add Rule**.

Step 4 Configure the basic rule options:

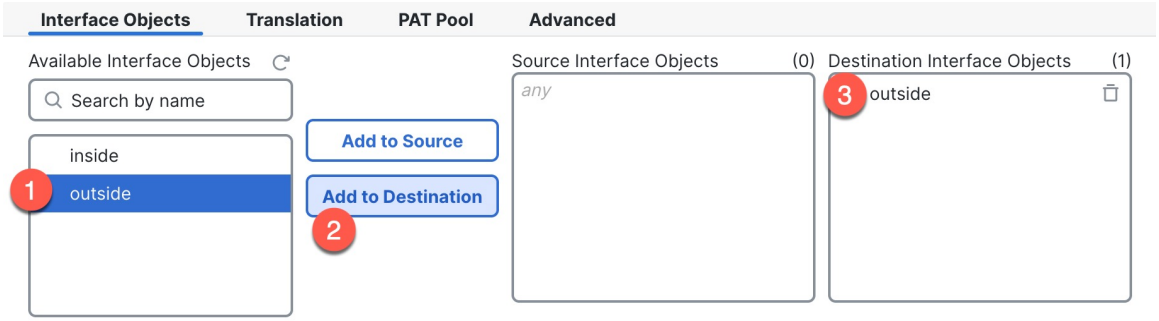
Figure 30: Basic Rule Options



- **NAT Rule**—Choose **Auto NAT Rule**.
- **Type**—Choose **Dynamic**.

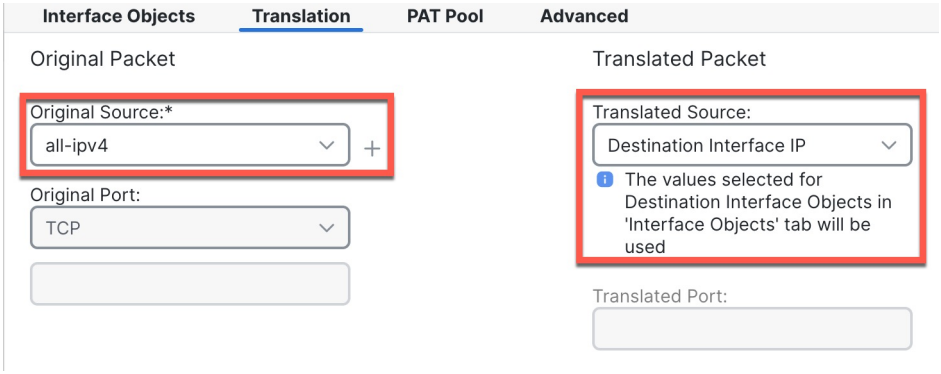
Step 5 On the **Interface Objects** page, add the outside zone from the **Available Interface Objects** area to the **Destination Interface Objects** area.

Figure 31: Interface Objects



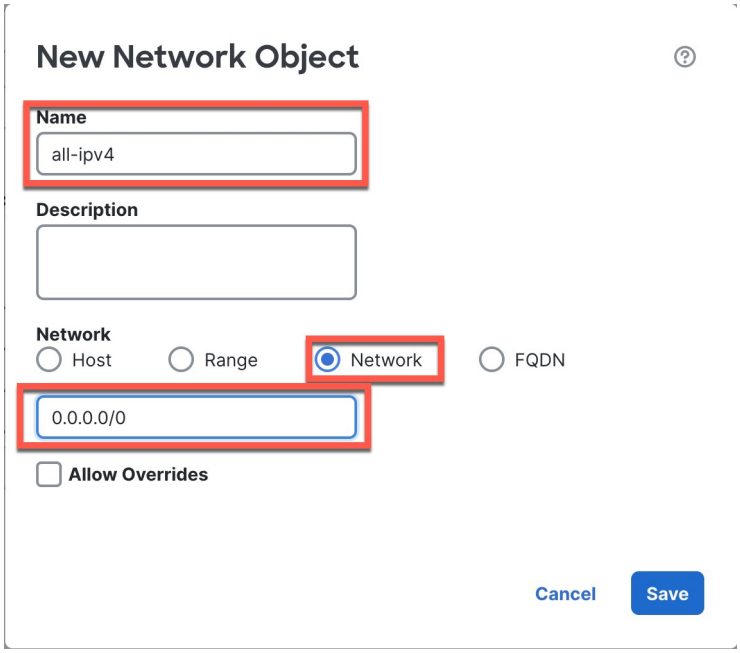
Step 6 On the **Translation** page, configure the following options:

Figure 32: Translation



- **Original Source**—Click **Add** (+) to add a network object for all IPv4 traffic (**0.0.0.0/0**).

Figure 33: New Network Object



Note
You cannot use the system-defined **any-ipv4** object, because Auto NAT rules add NAT as part of the object definition, and you cannot edit system-defined objects.

- **Translated Source**—Choose **Destination Interface IP**.

Step 7 Click **Save** to add the rule.

The rule is saved to the **Rules** table.

Step 8 Click **Save** on the **NAT** page to save your changes.

Configure an access control rule

If you created a basic **Block all traffic** access control policy when you registered the firewall, then you need to add rules to the policy to allow traffic through the firewall. The access control policy can include multiple rules that are evaluated in order.

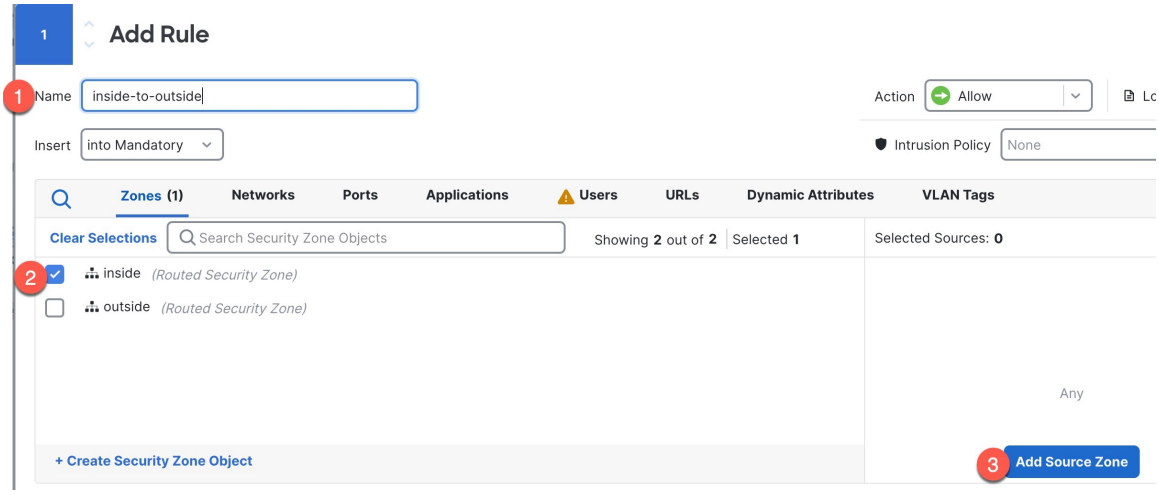
This procedure creates an access control rule to allow all traffic from the inside zone to the outside zone.

Procedure

Step 1 Choose **Policies** > **Security policies** > **Access Control**, and click **Edit** (✎) for the access control policy assigned to the device.

Step 2 Click **Add Rule**, and set the following parameters.

Figure 34: Source Zone

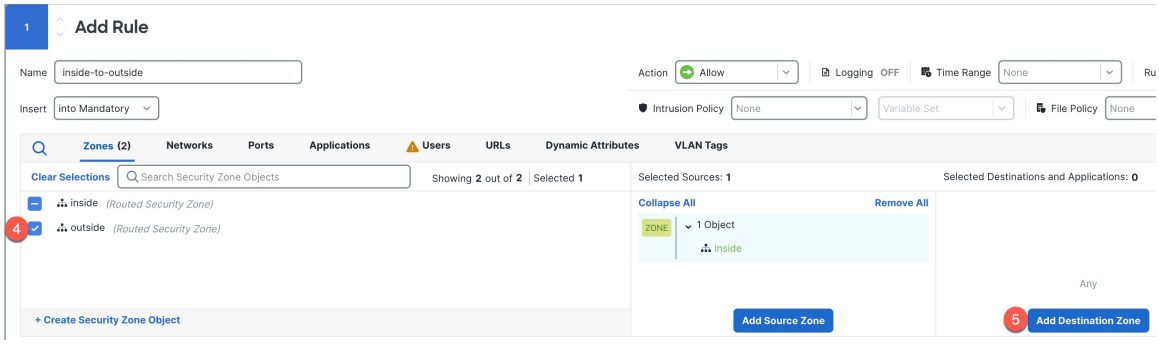


1. Name this rule, for example, **inside-to-outside**.

2. Select the inside zone from **Zones**

3. Click **Add Source Zone**.

Figure 35: Destination Zone



4. Select the outside zone from **Zones**.

5. Click **Add Destination Zone**.

Leave the other settings as is.

Step 3 (Optional) Customize associated policies by clicking on the policy type in the packet flow diagram.

Prefilter, Decryption, Security Intelligence, and Identity policies are applied before an access control rule. Customizing these policies is not required, but after you know your network's needs, they let you improve network performance by either fastpathing trusted traffic (bypassing processing) or blocking traffic so no further processing is required.

Figure 36: Policies Applied Before Access Control



- **Prefilter Rules**—The Default Prefilter Policy passes all traffic for the other rules to act on (analyzes). The only change to the default policy you can make is to **block** tunnel traffic. Otherwise, you can create a new prefilter policy to associate with the access control policy that can analyze (pass on), fastpath (bypass further checks) or block.

  Prefiltering lets you improve performance by dealing with traffic before it gets any further, by either blocking or fastpathing. In a new policy, you can add *tunnel* rules and *prefilter* rules. A tunnel rule lets you fastpath, block, or rezone plaintext (non-encrypted), passthrough tunnels. A prefilter rule lets you fastpath or block non-tunneled traffic identified by IP address, port, and protocol.

  For example, if you know you want to block all FTP traffic on your network, but fastpath SSH traffic from an administrator, you can add a new prefilter policy.

- **Decryption**—Decryption is not applied by default. Decryption is a way to expose network traffic to deep inspection. In most cases, you don't want to decrypt traffic, and can only do so if it is legally allowed. For maximum network protection, a decryption policy might be a good idea for traffic going to critical servers or coming from untrusted network segments.

- **Security Intelligence**—(Requires the IPS license) Security Intelligence is enabled by default. Security Intelligence is another early defense against malicious activity applied before passing connections to the access control policy for further processing. Security Intelligence uses reputation intelligence to quickly block connections to or from IP addresses, URLs, and domain names provided by Talos, the threat intelligence organization at Cisco. You can add or delete additional IP addresses, URLs, or domains if desired.

  Note
  If you do not have the IPS license, this policy will not be deployed even though it shows in your access control policy as enabled.

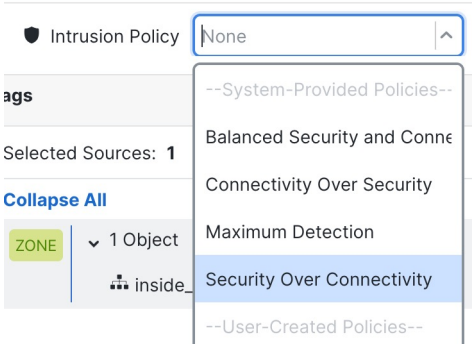
- **Identity**—Identity is not applied by default. You can require a user to authenticate before allowing traffic to be processed by the access control policy.

Step 4 (Optional) Add an Intrusion policy that is applied after the access control rule.

The Intrusion policy is a defined set of intrusion detection and prevention configurations that inspects traffic for security violations. The Firewall Management Center includes many system-provided policies you can enable as-is or that you can customize. This step enables a system-provided policy.

a) Click the **Intrusion Policy** drop-down list.

Figure 37: System-Provided Intrusion Policies



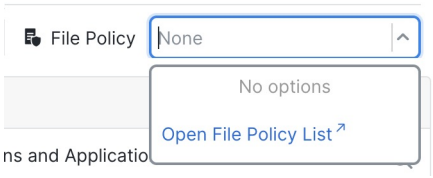
b) Choose one of the system-provided policies from the list.

We recommend **Balanced Security and Connections** for most use cases.

Step 5 (Optional) Add a File policy that is applied after the access control rule.

a) Click the **File Policy** drop-down list and choose either an existing policy or add one by choosing the **Open File Policy List**.

Figure 38: File Policy



For a new policy, the **Policies** > **Security policies** > **Malware & File** page opens in a separate tab.

b) See the *Cisco Secure Firewall Device Manager Configuration Guide* for details on creating the policy.

c) Return to the **Add Rule** page and select the newly created policy from the drop-down list.

Step 6 Click **Apply**.

The rule is added to the **Rules** table.

Step 7 Click **Save**.

Enable SSH on the outside interface

This section describes how to enable SSH connections to the outside interface so you can manage the firewall remotely.

By default, you can use the **admin** user for which you configured the password during initial setup.

Procedure

Step 1 Choose **Devices** > **Platform Settings** and create or edit the Firewall Threat Defense policy.

Step 2 Select **SSH Access**.

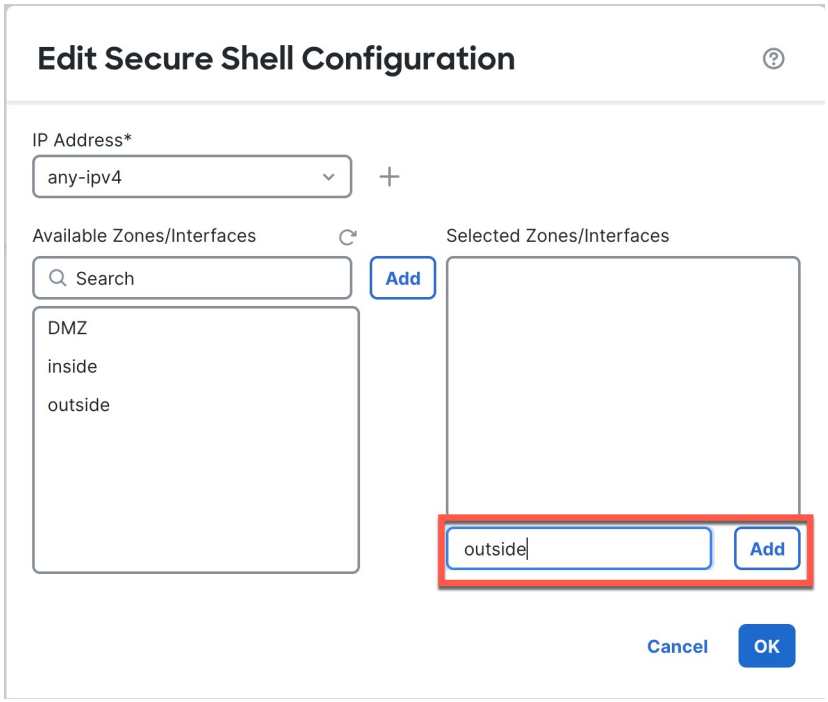
Step 3 Identify the outside interface and IP addresses that allow SSH connections.

a) Click **Add** to add a new rule, or click **Edit** to edit an existing rule.

b) Configure the rule properties:

- **IP Address**—The network object or group that identifies the hosts or networks you are allowing to make SSH connections. Choose an object from the drop-down menu, or click + to add a new network object.
- **Available Zones/Interfaces**—Add the outside zone or type the **outside** interface name into the field below the **Selected Zones/Interfaces** list and click **Add**.

Figure 39: Enable SSH on the Outside Interface



c) Click **OK**.

Step 4 Click **Save**.

You can now go to **Deploy** > **Deploy** and deploy the policy to assigned devices. The changes are not active until you deploy them.

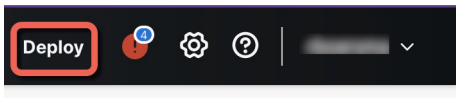
Deploy the configuration

Deploy the configuration changes to the device; none of your changes are active on the device until you deploy them.

Procedure

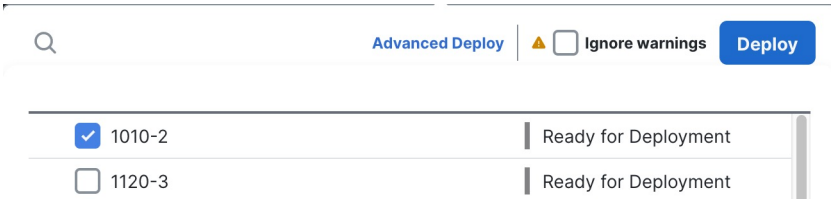
Step 1 Click **Deploy** in the upper right.

Figure 40: Deploy



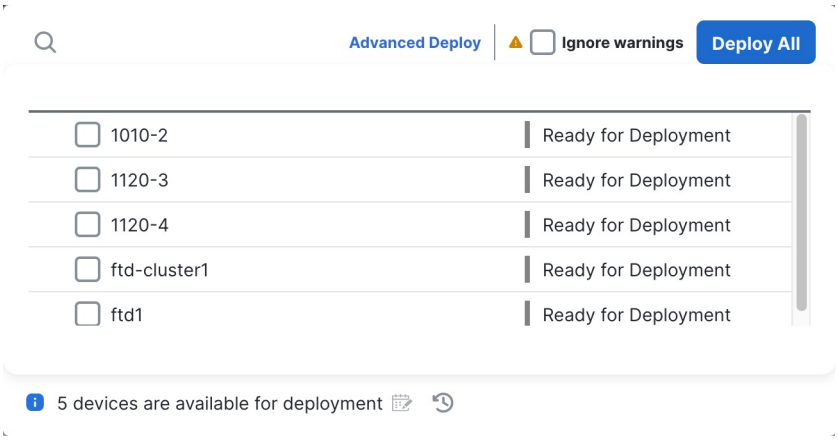
Step 2 For a quick deployment, check specific devices and then click **Deploy**.

Figure 41: Deploy Selected



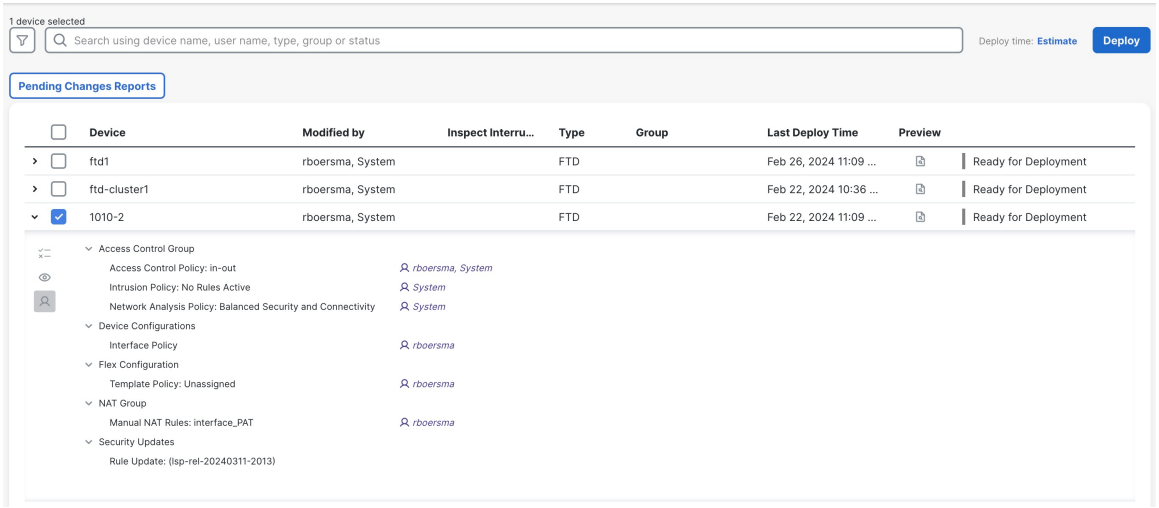
Or click **Deploy All** to deploy to all devices.

Figure 42: Deploy All



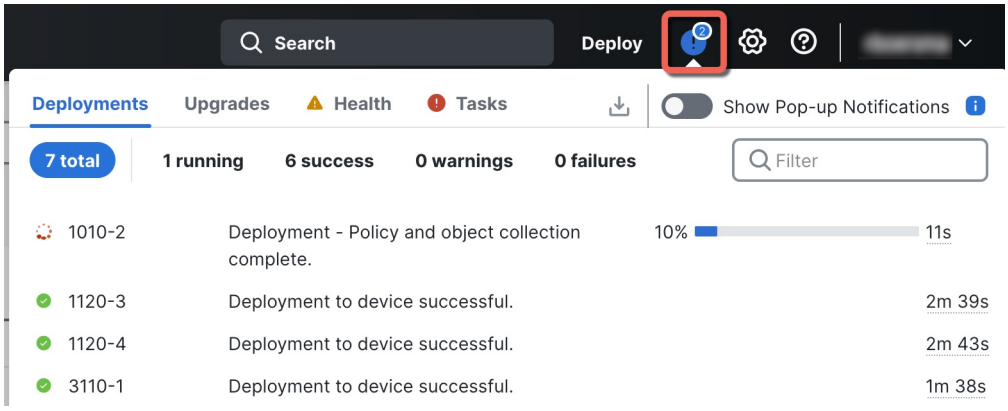
Otherwise, for additional deployment options, click **Advanced Deploy**.

Figure 43: Advanced Deployment



Step 3 Ensure that the deployment succeeds. Click the icon to the right of the **Deploy** button in the menu bar to see status for deployments.

Figure 44: Deployment Status



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