



Getting Started

The following topics explain how to get started configuring the Firepower Threat Defense (FTD) .

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Is This Guide for You?

This guide explains how to configure Firepower Threat Defense using the Firepower Device Manager (FDM) web-based configuration interface included on the Firepower Threat Defense devices.

The FDM lets you configure the basic features of the software that are most commonly used for small or mid-size networks. It is especially designed for networks that include a single device or just a few, where you do not want to use a high-powered multiple-device manager to control a large network containing many Firepower Threat Defense devices.

If you are managing large numbers of devices, or if you want to use the more complex features and configurations that Firepower Threat Defense allows, use the Firepower Management Center (FMC) to configure your devices instead of the integrated FDM.

You can use the FDM on the following devices.

Table 1: FDM Supported Models

Device Model	Minimum FTD Software Version
Firepower 1010, 1120, 1140	6.4
Firepower 1150	6.5
Firepower 2110, 2120, 2130, 2140	6.2.1
Firepower 4110, 4115, 4120, 4125, 4140, 4145, 4150	6.5
Firepower 4112	6.6
Firepower 9300	6.5

Device Model	Minimum FTD Software Version
FTDv (FTDv)for VMware	6.2.2
FTDv for Kernel-based Virtual Machine (KVM) hypervisor	6.2.3
FTDv for the Microsoft Azure Cloud	6.5
FTDv for the Amazon Web Services (AWS) Cloud	6.6
ASA 5508-X, 5516-X	6.1
ASA 5525-X, 5545-X, 5555-X	6.1
ISA 3000 (Cisco 3000 Series Industrial Security Appliances)	6.2.3

New Features in FDM/FTD Version 6.6.0

Released: April 6, 2020

The following table lists the new features available in Firepower Threat Defense 6.6.0 when configured using FDM.

Feature	Description
Platform Features	
FDM support for FTDv for the Amazon Web Services (AWS) Cloud.	You can configure Firepower Threat Defense on FTDv for the AWS Cloud using FDM.
FDM for the Firepower 4112.	We introduced Firepower Threat Defense for the Firepower 4112. Note Requires FXOS 2.8.1.
e1000 Interfaces on FTDv for VMware.	Prevents upgrade. Version 6.6 ends support for e1000 interfaces on FTDv for VMware. You cannot upgrade until you switch to vmxnet3 or ixgbe interfaces. Or, you can deploy a new device. For more information, see the Cisco Secure Firewall Threat Defense Virtual Getting Started Guide .
Firewall and IPS Features	
Ability to enable intrusion rules that are disabled by default.	Each system-defined intrusion policy has a number of rules that are disabled by default. Previously, you could not change the action for these rules to alert or drop. You can now change the action for rules that are disabled by default. We changed the Intrusion Policy page to display all rules, even those that are disabled by default, and allow you to edit the action for these rules.

Feature	Description
Intrusion Detection System (IDS) mode for the intrusion policy.	<p>You can now configure the intrusion policy to operate in Intrusion Detection System (IDS) mode. In IDS mode, active intrusion rules issue alerts only, even if the rule action is Drop. Thus, you can monitor or test how an intrusion policy works before you make it an active prevention policy in the network.</p> <p>In FDM, we added an indication of the inspection mode to each intrusion policy on the Policies > Intrusion page, and an Edit link so that you can change the mode.</p> <p>In the Firepower Threat Defense API, we added the inspectionMode attribute to the IntrusionPolicy resource.</p>
Support for manually uploading Vulnerability Database (VDB), Geolocation Database, and Intrusion Rule update packages.	<p>You can now manually retrieve update packages for VDB, Geolocation Database, and Intrusion Rules, and then upload them from your workstation to the Firepower Threat Defense device using FDM. For example, if you have an air-gapped network, where FDM cannot retrieve updates from the Cisco Cloud, you can now get the update packages you need.</p> <p>We updated the Device > Updates page to allow you to select and upload a file from your workstation.</p>
Firepower Threat Defense API support for access control rules that are limited based on time.	<p>Using the Firepower Threat Defense API, you can create time range objects, which specify one-time or recurring time ranges, and apply these objects to access control rules. Using time ranges, you can apply an access control rule to traffic during certain times of day, or for certain periods of time, to provide flexibility to network usage. You cannot use FDM to create or apply time ranges, nor does FDM show you if an access control rule has a time range applied to it.</p> <p>The TimeRangeObject, Recurrence, TimeZoneObject, DayLightSavingDateRange, and DayLightSavingDayRecurrence resources were added to the Firepower Threat Defense API. The timeRangeObjects attribute was added to the accessrules resource to apply a time range to the access control rule. In addition, there were changes to the GlobalTimeZone and TimeZone resources.</p>
Object group search for access control policies.	<p>While operating, the Firepower Threat Defense device expands access control rules into multiple access control list entries based on the contents of any network 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 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 FDM. It impacts only how the device interprets and processes them while matching connections to access control rules. Object group search is disabled by default.</p> <p>In FDM, you must use FlexConfig to enable the object-group-search access-control command.</p>
VPN Features	


Feature	Description
Backup peer for site-to-site VPN. (Firepower Threat Defense API only.)	<p>You can use the Firepower Threat Defense API to add a backup peer to a site-to-site VPN connection. For example, if you have two ISPs, you can configure the VPN connection to fail over to the backup ISP if the connection to the first ISP becomes unavailable.</p> <p>Another main use of a backup peer is when you have two different devices on the other end of the tunnel, such as a primary-hub and a backup-hub. The system would normally establish the tunnel to the primary hub. If the VPN connection fails, the system automatically can re-establish the connection with the backup hub.</p> <p>We updated the Firepower Threat Defense API so that you can specify more than one interface for <code>outsideInterface</code> in the <code>SToSConnectionProfile</code> resource. We also added the <code>BackupPeer</code> resource, and the <code>remoteBackupPeers</code> attribute to the <code>SToSConnectionProfile</code> resource.</p> <p>You cannot configure a backup peer using FDM, nor will the existence of a backup peer be visible in FDM.</p>
Support for Datagram Transport Layer Security (DTLS) 1.2 in remote access VPN.	<p>You can now use DTLS 1.2 in remote access VPN. This can be configured using the Firepower Threat Defense API only, you cannot configure it using FDM. However, DTLS 1.2 is now part of the default SSL cipher group, and you can enable the general use of DTLS using FDM in the <code>AnyConnect</code> attributes of the group policy. Note that DTLS 1.2 is not supported on the ASA 5508-X or 5516-X models.</p> <p>We updated the <code>protocolVersion</code> attribute of the <code>sslcipher</code> resource to accept <code>DTLSV1_2</code> as an enum value.</p>
Deprecated support for less secure Diffie-Hellman groups, and encryption and hash algorithms.	<p>The following features are deprecated and will be removed in a future release. You should avoid configuring these features in IKE proposals or IPSec policies for use in VPNs. Please transition away from these features and use stronger options as soon as is practical.</p> <ul style="list-style-type: none"> • Diffie-Hellman groups: 2, 5, and 24. • Encryption algorithms for users who satisfy export controls for strong encryption: DES, 3DES, AES-GMAC, AES-GMAC-192, AES-GMAC-256. DES continues to be supported (and is the only option) for users who do not satisfy export controls. • Hash algorithms: MD5.
Routing Features	

Feature	Description
Virtual routers and Virtual Routing and Forwarding (VRF)-Lite.	<p>You can create multiple virtual routers to maintain separate routing tables for groups of interfaces. Because each virtual router has its own routing table, you can provide clean separation in the traffic flowing through the device.</p> <p>Virtual routers implement the “light” version of Virtual Routing and Forwarding, or VRF-Lite, which does not support Multiprotocol Extensions for BGP (MBGP).</p> <p>We changed the Routing page so you can enable virtual routers. When enabled, the Routing page shows a list of virtual routers. You can configure separate static routes and routing processes for each virtual router.</p> <p>We also added the <code>[vrf name all]</code> keyword set to the following CLI commands, and changed the output to indicate virtual router information where applicable: clear ospf, clear route, ping, show asptable routing, show bgp, show ipv6 route, show ospf, show route, show snort counters.</p> <p>We added the following command: show vrf.</p>
OSPF and BGP configuration moved to the Routing pages.	<p>In previous releases, you configured OSPF and BGP in the Advanced Configuration pages using Smart CLI. Although you still configure these routing processes using Smart CLI, the objects are now available directly on the Routing pages. This makes it easier for you to configure processes per virtual router.</p> <p>The OSPF and BGP Smart CLI objects are no longer available on the Advanced Configuration page. If you configured these objects before upgrading to 6.6, you can find them on the Routing page after upgrade.</p>
High Availability Features	
The restriction for externally authenticated users logging into the standby unit of a high availability (HA) pair has been removed.	<p>Previously, an externally-authenticated user could not directly log into the standby unit of an HA pair. The user first needed to log into the active unit, then deploy the configuration, before login to the standby unit was possible.</p> <p>This restriction has been removed. Externally-authenticated users can log into the standby unit even if they never logged into the active unit, so long as they provide a valid username/password.</p>

Feature	Description
<p>Change to how interfaces are handled by the BreakHASStatus resource in the Firepower Threat Defense API.</p>	<p>Previously, you could include the clearIntfs query parameter to control the operational status of the interfaces on the device where you break the high availability (HA) configuration.</p> <p>Starting with version 6.6, there is a new attribute, interfaceOption, which you should use instead of the clearIntfs query parameter. This attribute is optional when used on the active node, but required when used on a non-active node. You can choose from one of two options:</p> <ul style="list-style-type: none"> • DISABLE_INTERFACES (the default)—All data interfaces on the standby device (or this device) are disabled. • ENABLE_WITH_STANDBY_IP—If you configured a standby IP address for an interface, the interface on the standby device (or this device) is reconfigured to use the standby address. Any interface that lacks a standby address is disabled. <p>If you use break HA on the active node when the devices are in a healthy active/standby state, this attribute applies to the interfaces on the standby node. In any other state, such as active/active or suspended, the attribute applies to the node on which you initiate the break.</p> <p>If you do use the clearIntfs query parameter, clearIntfs=true will act like interfaceOption = DISABLE_INTERFACES. This means that breaking an active/standby pair with clearIntfs=true will no longer disable both devices; only the standby device will be disabled.</p> <p>When you break HA using FDM, the interface option is always set to DISABLE_INTERFACES. You cannot enable the interfaces with the standby IP address. Use the API call from the API Explorer if you want a different result.</p>
<p>The last failure reason for High Availability problems is now displayed on the High Availability page.</p>	<p>If High Availability (HA) fails for some reason, such as the active device becoming unavailable and failing over to the standby device, the last reason for failure is now shown below the status information for the primary and secondary device. The information includes the UTC time of the event.</p>
<p>Interface Features</p>	
<p>PPPoE support.</p>	<p>You can now configure PPPoE for routed interfaces. PPPoE is not supported on High Availability units.</p> <p>New/Modified screens: Device > Interfaces > Edit > IPv4 Address > Type > PPPoE</p> <p>New/Modified commands: show vpdn group, show vpdn username, show vpdn session pppoe state</p>

Feature	Description
Management interface acts as a DHCP client by default.	<p>The Management interface now defaults to obtaining an IP address from DHCP instead of using the 192.168.45.45 IP address. This change makes it easier for you to deploy an Firepower Threat Defense in your existing network. This feature applies to all platforms except for the Firepower 4100/9300 (where you set the IP address when you deploy the logical device), and the FTDv and ISA 3000 (which still use the 192.168.45.45 IP address). The DHCP server on the Management interface is also no longer enabled.</p> <p>You can still connect to the default inside IP address by default (192.168.1.1).</p>
HTTP proxy support for FDM management connections.	<p>You can now configure an HTTP proxy for the management interface for use with FDM connections. All management connections, including manual and scheduled database updates, go through the proxy.</p> <p>We added the System Settings > HTTP Proxy page to configure the setting. In addition, we added the HTTPProxy resource to the Firepower Threat Defense API.</p>
Set the MTU for the Management interface.	<p>You can now set the MTU for the Management interface up to 1500 bytes. The default is 1500 bytes.</p> <p>New/Modified commands: configure network mtu, configure network management-interface mtu-management-channel</p> <p>No modified screens.</p>
Licensing Features	
Smart Licensing and Cloud Services enrollment are now separate, and you can manage your enrollments separately.	<p>You can now enroll for cloud services using your security account rather than your Smart Licensing account. Enrolling using the security account is the recommended approach if you intend to manage the device using Cisco Defense Orchestrator. You can also unregister from cloud services without unregistering from Smart Licensing.</p> <p>We changed how the System Settings > Cloud Services page behaves, and added the ability to unregister from cloud services. In addition, the Web Analytics feature was removed from the page and you can now find it at System Settings > Web Analytics. In the Firepower Threat Defense API, the CloudServices resources were modified to reflect the new behavior.</p>

Feature	Description
Support for Permanent License Reservation.	<p>If you have an air-gapped network, where there is no path to the internet, you cannot register directly with the Cisco Smart Software Manager (CSSM) for Smart Licensing. In this situation, you can now get authorization to use Universal Permanent License Reservation (PLR) mode, where you can apply a license that does not need direct communication with CSSM. If you have an air-gapped network, please contact your account representative and ask for authorization to use Universal PLR mode in your CSSM account, and to obtain the necessary licenses. ISA 3000 does not support Universal PLR.</p> <p>We added the ability to switch to PLR mode, and to cancel and unregister a Universal PLR license, to the Device > Smart License page. In the Firepower Threat Defense API, there are new resources for <code>PLRAuthorizationCode</code>, <code>PLRCode</code>, <code>PLRReleaseCode</code>, <code>PLRRequestCode</code>, and actions for <code>PLRRequestCode</code>, <code>InstallPLRCode</code>, and <code>CancelReservation</code>.</p>
Administrative and Troubleshooting Features	
FDM direct support for Precision Time Protocol (PTP) configuration for ISA 3000 devices.	<p>You can use FDM to configure the Precision Time Protocol (PTP) on ISA 3000 devices. PTP is a time-synchronization protocol developed to synchronize the clocks of various devices in a packet-based network. The protocol is designed specifically for industrial, networked measurement and control systems. In previous releases, you had to use FlexConfig to configure PTP.</p> <p>We grouped PTP with NTP on the same System Settings page, and renamed the System Settings > NTP page to Time Services. We also added the PTP resource to the Firepower Threat Defense API.</p>
Trust chain validation for the FDM management web server certificate.	<p>When you configure a non-self-signed certificate for the FDM web server, you now need to include all intermediate certificates, and the root certificate, in the trust chain. The system validates the entire chain.</p> <p>We added the ability to select the certificates in the chain on the Management Web Server tab on the Device > System Settings > Management Access page.</p>
Support for encrypting backup files.	<p>You can now encrypt backup files using a password. To restore an encrypted backup, you must supply the correct password.</p> <p>We added the ability to choose whether to encrypt backup files for recurring, scheduled, and manual jobs, and to supply the password on restore, to the Device > Backup and Restore page. We also added the <code>encryptArchive</code> and <code>encryptionKey</code> attributes to the <code>BackupImmediate</code> and <code>BackupSchedule</code> resources, and <code>encryptionKey</code> to the <code>RestoreImmediate</code> resource in the Firepower Threat Defense API.</p>

Feature	Description
Support for selecting which events to send to the Cisco cloud for use by cloud services.	<p>When you configure the device to send events to the Cisco cloud, you can now select which types of events to send: intrusion, file/malware, and connection. For connection events, you can send all events or just the high-priority events, which are those related to connections that trigger intrusion, file, or malware events, or that match Security Intelligence blocking policies.</p> <p>We changed how the Send Events to the Cisco Cloud Enable button works. The feature is on the System Settings > Cloud Services page.</p>
Firepower Threat Defense REST API version 5 (v5).	<p>The Firepower Threat Defense REST API for software version 6.6 has been incremented to version 5. You must replace v1/v2/v3/v4 in the API URLs with v5, or preferentially, use /latest/ to signify you are using the most recent API version that is supported on the device.</p> <p>The v5 API includes many new resources that cover all features added in software version 6.6. Please re-evaluate all existing calls, as changes might have been made to the resource models you are using. To open the API Explorer, where you can view the resources, log into FDM, then click the more options button () and choose API Explorer.</p>

Logging Into the System

There are two interfaces to the Firepower Threat Defense device:

FDM Web Interface

The FDM runs in your web browser. You use this interface to configure, manage, and monitor the system.

Command Line Interface (CLI, Console)

Use the CLI for troubleshooting. You can also use it for initial setup instead of the FDM.

The following topics explain how to log into these interfaces and manage your user account.

Your User Role Controls What You Can See and Do

Your username is assigned a role, and your role determines what you can do or what you can see in the FDM. The locally-defined **admin** user has all privileges, but if you log in using a different account, you might have fewer privileges.

The upper-right corner of the FDM window shows your username and privilege level.

admin  
Administrator

The privileges are:

- **Administrator**—You can see and use all features.

- **Read-Write User**—You can do everything a read-only user can do, and you can also edit and deploy the configuration. The only restrictions are for system-critical actions, which include installing upgrades, creating and restoring backups, viewing the audit log, and ending the sessions of other FDM users.
- **Read-Only User**—You can view dashboards and the configuration, but you cannot make any changes. If you try to make a change, the error message explains that this is due to lack of permission.

These privileges are not related to those available for CLI users.

Logging Into the FDM

Use the FDM to configure, manage, and monitor the system. The features that you can configure through the browser are not configurable through the command-line interface (CLI); you must use the web interface to implement your security policies.

Use a current version of the following browsers: Firefox, Chrome, Safari, Edge, or Internet Explorer.



Note If you type in the wrong password and fail to log in on 3 consecutive attempts, your account is locked for 5 minutes. You must wait before trying to log in again.

Before you begin

Initially, you can log into the FDM using the **admin** username only. However, you can then configure authorization for additional users defined in an external AAA server, as described in [Managing FDM and FTD User Access](#).

There can be up to 5 active logins at one time. This includes users logged into the device manager and active API sessions, which are represented by non-expired API tokens. If you exceed this limit, the oldest session, either the device manager login or API token, is expired to allow the new session. These limits do not apply to SSH sessions.

Procedure

Step 1 Using a browser, open the home page of the system, for example, <https://ftd.example.com>.

You can use any of the following addresses. You can use the IPv4 or IPv6 address or the DNS name, if you have configured one.

- The management address. By default (on most platforms), the Management interface is a DHCP client, so the IP address depends on your DHCP server.
- The address of a data interface that you have opened for HTTPS access. By default (on most platforms), the “inside” interface allows HTTPS access, so you can connect to the default inside address 192.168.1.1. See [Default Configuration Prior to Initial Setup, on page 28](#) for details about your model's inside IP address.

Tip If your browser is not configured to recognize the server certificate, you will see a warning about an untrusted certificate. Accept the certificate as an exception, or in your trusted root certificate store.

Step 2 Enter your username and password defined for the device, then click **Login**.

You can use the **admin** username, which is a pre-defined user. The default admin password is Admin123.

Your session will expire after 30 minutes of inactivity, and you will be prompted to log in again. You can log out by selecting **Log Out** from the user icon drop-down menu in the upper right of the page.



Logging Into the Command Line Interface (CLI)

Use the command-line interface (CLI) to set up the system and do basic system troubleshooting. You cannot configure policies through a CLI session.

To log into the CLI, do one of the following:

- Use the console cable included with the device to connect your PC to the console using a terminal emulator set for 9600 baud, 8 data bits, no parity, 1 stop bit, no flow control. See the hardware guide for your device for more information about the console cable.



Note On the Firepower device models, the CLI on the Console port is the Firepower eXtensible Operating System (FXOS). For the some device models, you can get to the Firepower Threat Defense CLI using the **connect ftd** command. For the Firepower 4100/9300, see [Connect to the Console of the Application](#). Use the FXOS CLI for chassis-level troubleshooting only. Use the Firepower Threat Defense CLI for basic configuration, monitoring, and normal system troubleshooting. See the FXOS documentation for information on FXOS commands.

- For the FTDv, open the virtual console.
- Use an SSH client to make a connection to the management IP address. You can also connect to the address on a data interface if you open the interface for SSH connections (see [Configuring the Management Access List](#)). SSH access to data interfaces is disabled by default. Log in using the **admin** username or another CLI user account. The default admin password is Admin123.

Tips

- After logging in, for information on the commands available in the CLI, enter **help** or **?**. For usage information, see [Cisco Firepower Threat Defense Command Reference](http://www.cisco.com/c/en/us/td/docs/security/firepower/command_ref/b_Command_Reference_for_Firepower_Threat_Defense.html) at http://www.cisco.com/c/en/us/td/docs/security/firepower/command_ref/b_Command_Reference_for_Firepower_Threat_Defense.html.
- You can create local user accounts that can log into the CLI using the **configure user add** command. However, these users can log into the CLI only. They cannot log into the FDM web interface.
- You can create user accounts for SSH access in an external server. For information about configuring external authentication for SSH access, see [Configuring External Authorization \(AAA\) for the FTD CLI \(SSH\) Users](#).

Changing Your Password

You should periodically change your password. The following procedure explains how to change the password while logged into FDM.



Note If you are logged into the CLI, you can change your password using the **configure password** command. You can change the password for a different CLI user with the **configure user password *username*** command.

Before you begin

This procedure applies to local users only. If your user account is defined on an external AAA server, you must change your password with that server.

Procedure

Step 1 Select **Profile** from the user icon drop-down list in the upper right of the menu.



Step 2 Click the **Password** tab.

Step 3 Enter your current password.

Step 4 Enter your new password and then confirm it.

Step 5 Click **Change**.

Setting User Profile Preferences

You can set preferences for the user interface and change your password.

Procedure

Step 1 Select **Profile** from the user icon drop-down list in the upper right of the menu.



Step 2 On the **Profile** tab, configure the following and click **Save**.

- **Time Zone for Scheduling Tasks**—Select the time zone you want to use for scheduling tasks such as backups and updates. The browser time zone is used for dashboards and events, if you set a different zone.
- **Color Theme**—Select the color theme you want to use in the user interface.

Step 3 On the **Password** tab, you can enter a new password and click **Change**.

Setting Up the System

You must complete an initial configuration to make the system function correctly in your network. Successful deployment includes attaching cables correctly and configuring the addresses needed to insert the device into your network and connect it to the Internet or other upstream router. The following procedure explains the process.

Before you begin

Before you start the initial setup, the device includes some default settings. For details, see [Default Configuration Prior to Initial Setup, on page 28](#).

Procedure

- Step 1** [Connect the Interfaces, on page 13](#)
- Step 2** [Complete the Initial Configuration Using the Setup Wizard, on page 24](#)

For details about the resulting configuration, see [Configuration After Initial Setup, on page 30](#).

Connect the Interfaces

The default configuration assumes that certain interfaces are used for the inside and outside networks. Initial configuration will be easier to complete if you connect network cables to the interfaces based on these expectations.

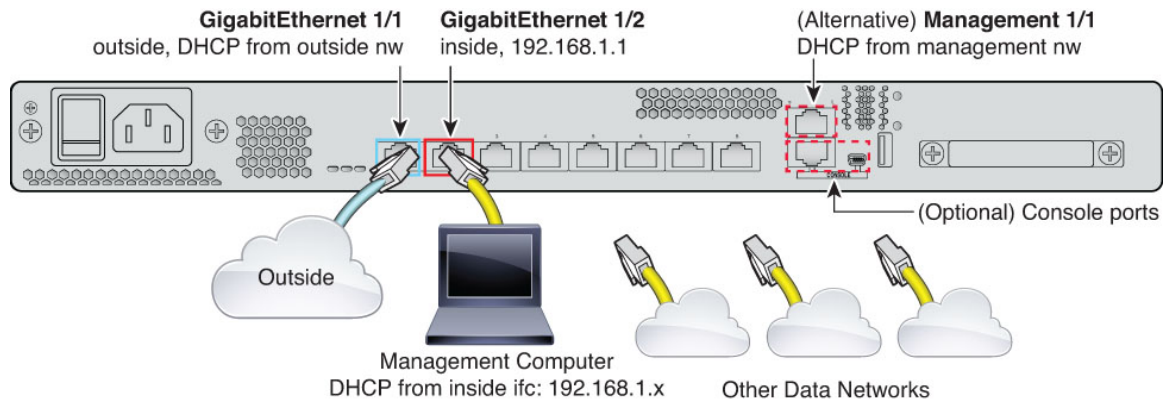
The default configuration for most models is designed to let you attach your management computer to the inside interface. Alternatively, you can also directly attach your workstation to the Management port. The interfaces are on different networks, so do not try to connect any of the inside interfaces and the Management port to the same network.

Do not connect any of the inside interfaces to a network that has an active DHCP server. This will conflict with the DHCP server already running on the inside interface. If you want to use a different DHCP server for the network, disable the unwanted DHCP server after initial setup.

The following topics show how to cable the system for this topology when using the inside interfaces to configure the device.

Cabling for ASA 5508-X and 5516-X

Figure 1: Cabling the ASA 5508-X or 5516-X



- Connect your management computer to either of the following interfaces:
 - GigabitEthernet 1/2—Connect your management computer directly to GigabitEthernet 1/2 for initial configuration, or connect GigabitEthernet 1/2 to your inside network. GigabitEthernet 1/2 has a default IP address (192.168.1.1) and also runs a DHCP server to provide IP addresses to clients (including the management computer), so make sure these settings do not conflict with any existing inside network settings
 - Management 1/1—Connect your management computer to the management network. The Management 1/1 interface obtains an IP address from DHCP, so make sure your network includes a DHCP server.

If you need to change the Management 1/1 IP address from the default to configure a static IP address, you must also cable your management PC to the console port. See [\(Optional\) Change Management Network Settings at the CLI, on page 23](#).

You can later configure the FDM management access from other interfaces.

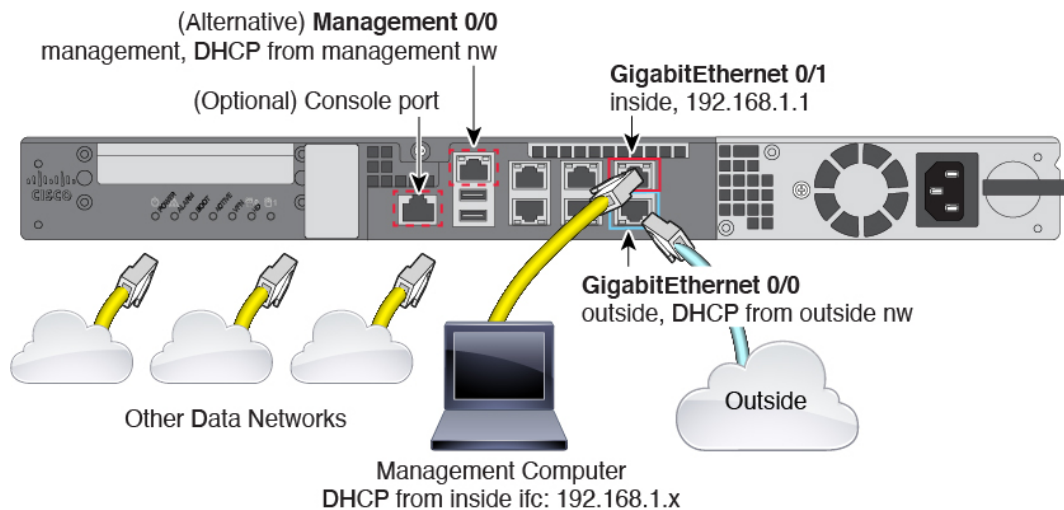
- Connect the outside network to the GigabitEthernet1/1 interface.

By default, the IP address is obtained using IPv4 DHCP, but you can set a static address during initial configuration.

- Connect other networks to the remaining interfaces.

Cabling for ASA 5525-X, 5545-X, and 5555-X

Figure 2: Cabling the ASA 5500-X



- Connect your management computer to either of the following interfaces:
 - GigabitEthernet 0/1—Connect your management computer directly to GigabitEthernet 0/1 for initial configuration, or connect GigabitEthernet 0/1 to your inside network. GigabitEthernet 0/1 has a default IP address (192.168.1.1) and also runs a DHCP server to provide IP addresses to clients (including the management computer), so make sure these settings do not conflict with any existing inside network settings
 - Management 0/0—Connect your management computer to the management network. The Management 0/0 interface obtains an IP address from DHCP, so make sure your network includes a DHCP server.

If you need to change the Management 0/0 IP address from the default to configure a static IP address, you must also cable your management computer to the console port. See [\(Optional\) Change Management Network Settings at the CLI, on page 23](#).

You can later configure the FDM management access from other interfaces.

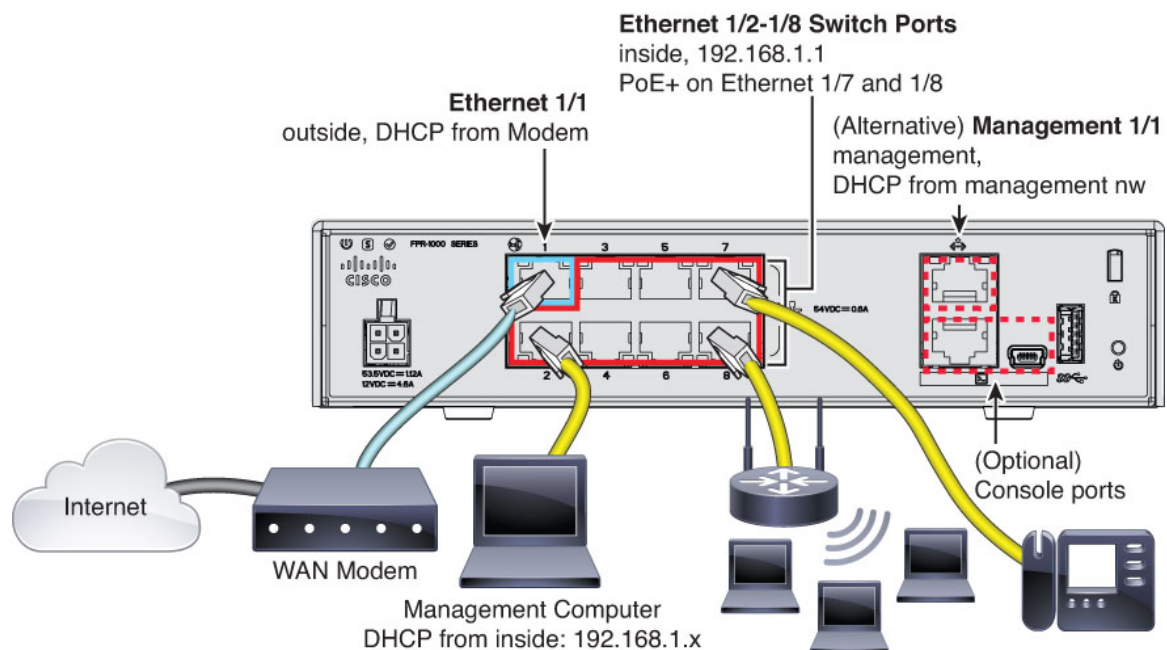
- Connect the outside network to the GigabitEthernet 0/0 interface.

By default, the IP address is obtained using DHCP, but you can set a static address during initial configuration.

- Connect other networks to the remaining interfaces.

Cabling for the Firepower 1010

Figure 3: Cabling the Firepower 1010



- Connect your management computer to one of the following interfaces:
 - Ethernet 1/2 through 1/8—Connect your management computer directly to one of the inside switch ports (Ethernet 1/2 through 1/8). inside has a default IP address (192.168.1.1) and also runs a DHCP server to provide IP addresses to clients (including the management computer), so make sure these settings do not conflict with any existing inside network settings.
 - Management 1/1—Connect your management computer to the management network. The Management 1/1 interface obtains an IP address from DHCP, so make sure your network includes a DHCP server.

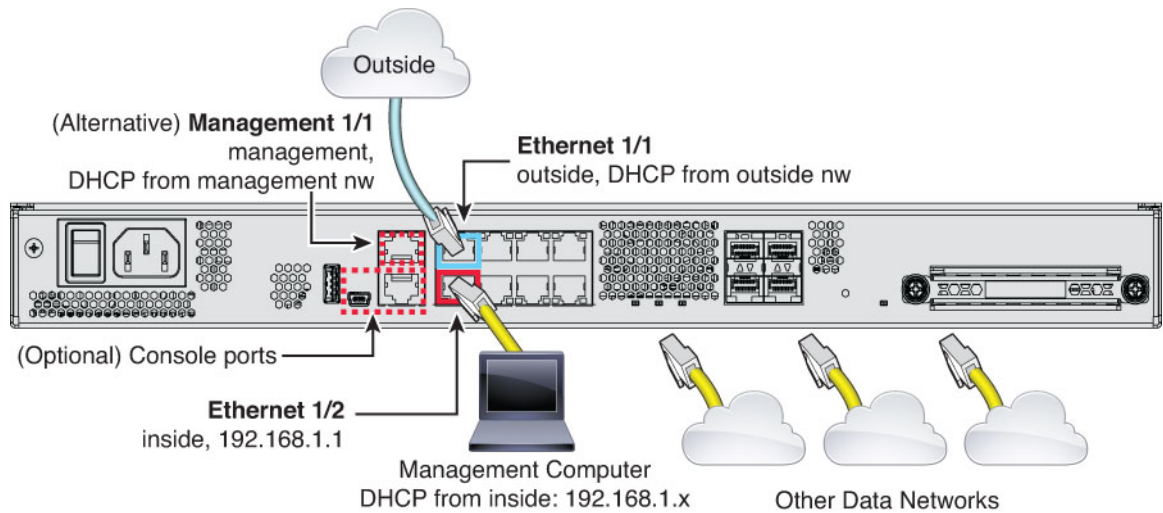
If you need to change the Management 1/1 IP address from the default to configure a static IP address, you must also cable your management computer to the console port. See [\(Optional\) Change Management Network Settings at the CLI, on page 23](#).

You can later configure management access from other interfaces.

- Connect the outside network to the Ethernet 1/1 interface.
By default, the IP address is obtained using IPv4 DHCP, but you can set a static address during initial configuration.
- Connect inside devices to the remaining switch ports, Ethernet 1/2 through 1/8.
Ethernet 1/7 and 1/8 are Power over Ethernet+ (PoE+) ports.

Cabling for the Firepower 1100

Figure 4: Cabling the Firepower 1100



- Connect your management computer to either of the following interfaces:
 - Ethernet 1/2—Connect your management computer directly to Ethernet 1/2 for initial configuration, or connect Ethernet 1/2 to your inside network. Ethernet 1/2 has a default IP address (192.168.1.1) and also runs a DHCP server to provide IP addresses to clients (including the management computer), so make sure these settings do not conflict with any existing inside network settings.
 - Management 1/1 (labeled MGMT)—Connect your management computer to the management network. The Management 1/1 interface obtains an IP address from DHCP, so make sure your network includes a DHCP server.

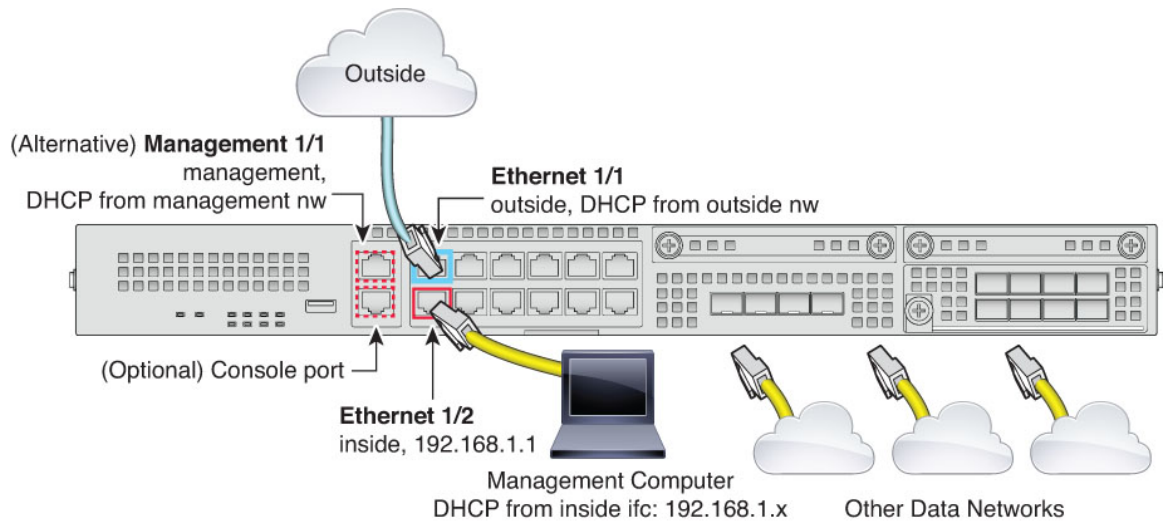
If you need to change the Management 1/1 IP address from the default to configure a static IP address, you must also cable your management computer to the console port. See [\(Optional\) Change Management Network Settings at the CLI, on page 23](#).

You can later configure management access from other interfaces.

- Connect the outside network to the Ethernet1/1 interface (labeled WAN).
By default, the IP address is obtained using IPv4 DHCP, but you can set a static address during initial configuration.
- Connect other networks to the remaining interfaces.

Cabling for the Firepower 2100

Figure 5: Cabling the Firepower 2100



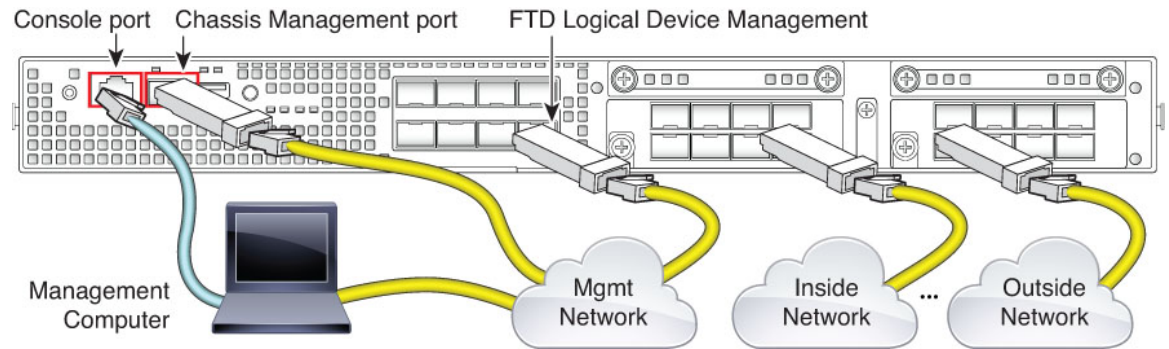
- Connect your management computer to either of the following interfaces:
 - Ethernet 1/2—Connect your management computer directly to Ethernet 1/2 for initial configuration, or connect Ethernet 1/2 to your inside network. Ethernet 1/2 has a default IP address (192.168.1.1) and also runs a DHCP server to provide IP addresses to clients (including the management computer), so make sure these settings do not conflict with any existing inside network settings
 - Management 1/1 (labeled MGMT)—Connect your management computer to the management network. The Management 1/1 interface obtains an IP address from DHCP, so make sure your network includes a DHCP server.

If you need to change the Management 1/1 IP address from the default to configure a static IP address, you must also cable your management computer to the console port. See [\(Optional\) Change Management Network Settings at the CLI, on page 23](#).

You can later configure management access from other interfaces.

- Connect the outside network to the Ethernet1/1 interface (labeled WAN).
By default, the IP address is obtained using IPv4 DHCP, but you can set a static address during initial configuration.
- Connect other networks to the remaining interfaces.

Cabling for the Firepower 4100



Perform the initial Firepower Threat Defense configuration on the logical device Management interface. You can later enable management from any data interface. The Firepower Threat Defense device requires internet access for licensing and updates, and the default behavior is to route management traffic to the gateway IP address you specified when you deployed the device. If you want to route management traffic over the backplane to the data interfaces instead, you can configure that setting in the FDM later.

Cable the following interfaces for initial chassis setup, continued monitoring, and logical device use.

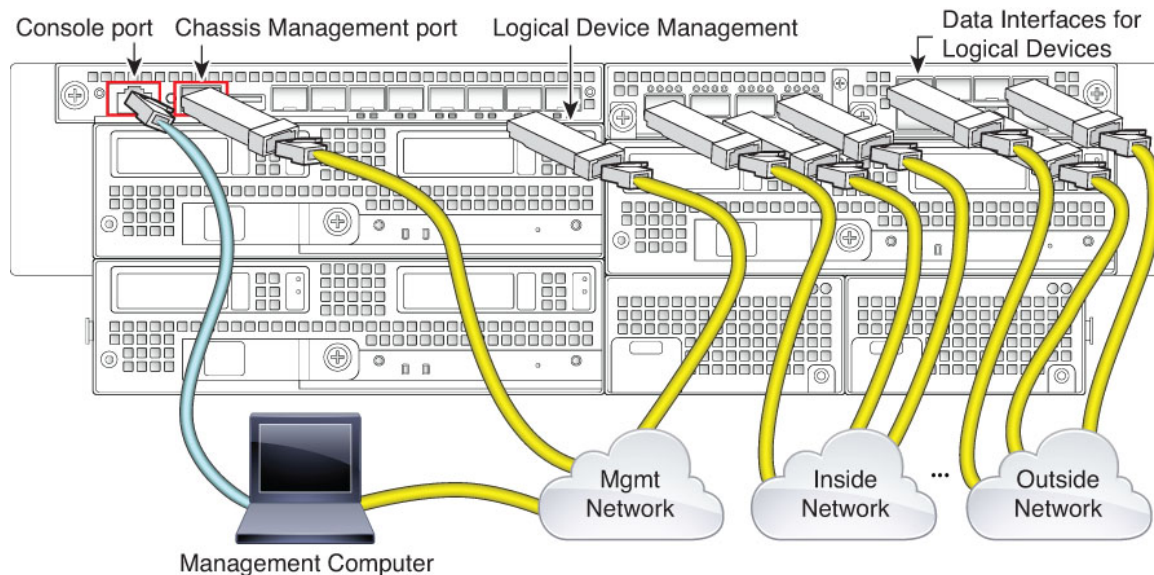
- Console port—Connect your management computer to the console port to perform initial setup of the chassis. The Firepower 4100 includes an RS-232-to-RJ-45 serial console cable. You might need to use a third party serial-to-USB cable to make the connection.
- Chassis Management port—Connect the chassis management port to your management network for configuration and ongoing chassis management.
- FTD Logical device Management interface—You can choose any interface on the chassis for this purpose other than the chassis management port, which is reserved for FXOS management.
- Data interfaces—Connect the data interfaces to your logical device data networks. You can configure physical interfaces, EtherChannels, and breakout ports to divide up high-capacity interfaces.

For High Availability, use a Data interface for the failover/state link.



Note All interfaces other than the console port require SFP/SFP+/QSFP transceivers. See the [hardware installation guide](#) for supported transceivers.

Cabling for the Firepower 9300



Perform the initial Firepower Threat Defense configuration on the logical device Management interface. You can later enable management from any data interface. The Firepower Threat Defense device requires internet access for licensing and updates, and the default behavior is to route management traffic to the gateway IP address you specified when you deployed the device. If you want to route management traffic over the backplane to the data interfaces instead, you can configure that setting in the FDM later.

Cable the following interfaces for initial chassis setup, continued monitoring, and logical device use.

- Console port—Connect your management computer to the console port to perform initial setup of the chassis. The Firepower 9300 includes an RS-232-to-RJ-45 serial console cable. You might need to use a third party serial-to-USB cable to make the connection.
- Chassis Management port—Connect the chassis management port to your management network for configuration and ongoing chassis management.
- Logical device Management interface—Use one or more interfaces to manage logical devices. You can choose any interfaces on the chassis for this purpose other than the chassis management port, which is reserved for FXOS management. Management interfaces can be shared among logical devices, or you can use a separate interface per logical device. Typically, you share a management interface with all logical devices, or if you use separate interfaces, put them on a single management network. But your exact network requirements may vary.
- Data interfaces—Connect the data interfaces to your logical device data networks. You can configure physical interfaces, EtherChannels, and breakout ports to divide up high-capacity interfaces. You can cable multiple logical devices to the same networks or to different networks, as your network needs dictate. All traffic must exit the chassis on one interface and return on another interface to reach another logical device.

For High Availability, use a Data interface for the failover/state link.



Note All interfaces other than the console port require SFP/SFP+/QSFP transceivers. See the [hardware installation guide](#) for supported transceivers.

Virtual Cabling for the FTDv

To install the FTDv, see the quick start guide for your virtual platform at <http://www.cisco.com/c/en/us/support/security/firepower-ngfw-virtual/products-installation-guides-list.html>. The FDM is supported on the following virtual platforms: VMware, KVM, Microsoft Azure, Amazon Web Services (AWS).

The FTDv default configuration puts the management interface and inside interface on the same subnet. You must have Internet connectivity on the management interface in order to use Smart Licensing and to obtain updates to system databases.

Thus, the default configuration is designed so that you can connect both the Management0/0 and GigabitEthernet0/1 (inside) to the same network on the virtual switch. The default management address uses the inside IP address as the gateway. Thus, the management interface routes through the inside interface, then through the outside interface, to get to the Internet.

You also have the option of attaching Management0/0 to a different subnet than the one used for the inside interface, as long as you use a network that has access to the Internet. Ensure that you configure the management interface IP address and gateway appropriately for the network.

Note that the management interface IP configuration is defined on **Device > System Settings > Management Interface**. It is not the same as the IP address for the Management0/0 (diagnostic) interface listed on **Device > Interfaces > View Configuration**.

How VMware Network Adapters and Interfaces Map to the FTD Physical Interfaces

You can configure up to 10 interfaces for a VMware FTDv device. You must configure a minimum of 4 interfaces.

Ensure that the Management0-0 source network is associated to a VM network that can access the Internet. This is required so that the system can contact the Cisco Smart Software Manager and also to download system database updates.

You assign the networks when you install the OVF. As long as you configure an interface, you can later change the virtual network through the VMware Client. However, if you need to add a new interface, be sure to add an interface at the end of the list; if you add or remove an interface anywhere else, then the hypervisor will renumber your interfaces, causing the interface IDs in your configuration to line up with the wrong interfaces.

The following table explains how the VMware network adapter and source interface map to the FTDv physical interface names. For additional interfaces, the naming follows the same pattern, increasing the relevant numbers by one. All additional interfaces are data interfaces. For more information on assigning virtual networks to virtual machines, see the VMware online help.

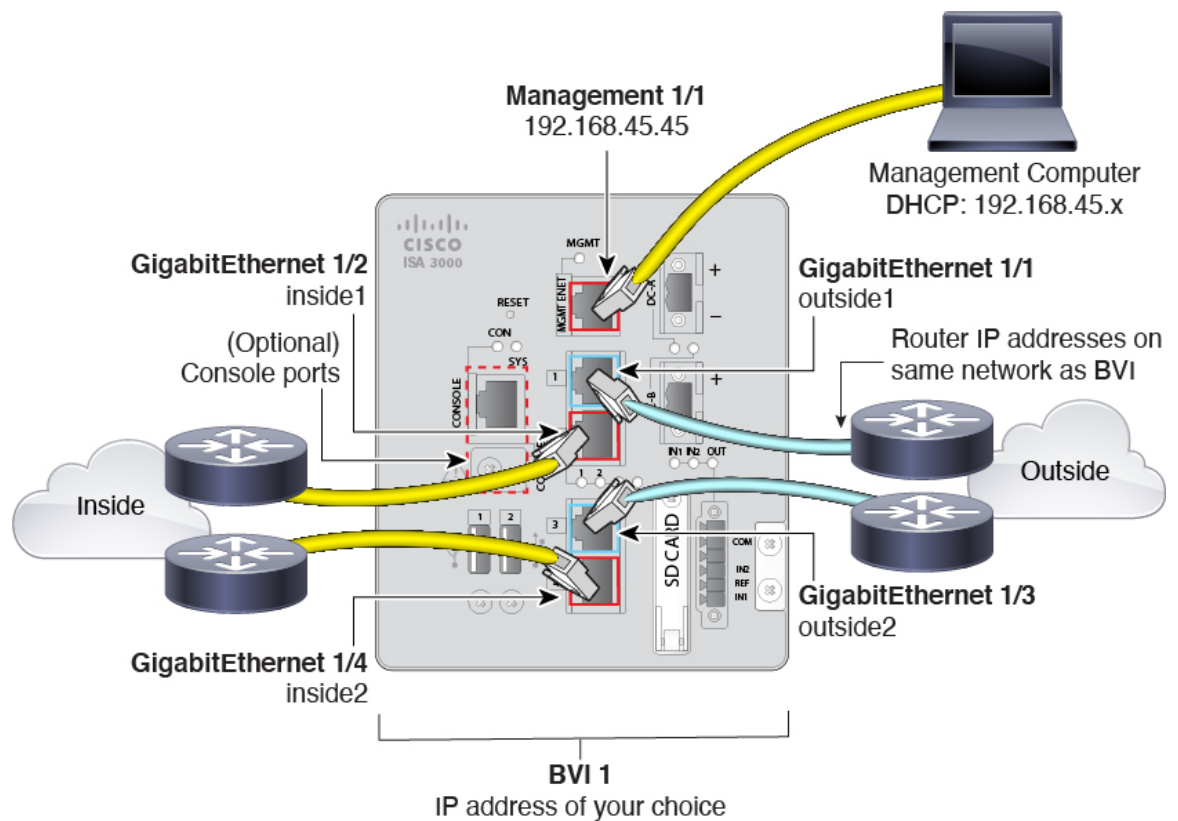
Table 2: Source to Destination Network Mapping

Network Adapter	Source Network	Destination Network (Physical Interface Name)	Function
Network adapter 1	Management0-0	Management0/0	Management

Network Adapter	Source Network	Destination Network (Physical Interface Name)	Function
Network adapter 2	Diagnostic0-0	Diagnostic0/0	Diagnostic
Network adapter 3	GigabitEthernet0-0	GigabitEthernet0/0	Outside data
Network adapter 4	GigabitEthernet0-1	GigabitEthernet0/1	Inside data
Network adapter 5	GigabitEthernet0-2	GigabitEthernet0/2	Data traffic
Network adapter 6	GigabitEthernet0-3	GigabitEthernet0/3	Data traffic
Network adapter 7	GigabitEthernet0-4	GigabitEthernet0/4	Data traffic
Network adapter 8	GigabitEthernet0-5	GigabitEthernet0/5	Data traffic
Network adapter 9	GigabitEthernet0-6	GigabitEthernet0/6	Data traffic
Network adapter 10	GigabitEthernet0-7	GigabitEthernet0/7	Data traffic

Cabling for ISA 3000

Figure 6: ISA 3000



- Connect GigabitEthernet 1/1 to an outside router, and GigabitEthernet 1/2 to an inside router.

These interfaces form a hardware bypass pair.

- Connect GigabitEthernet 1/3 to a redundant outside router, and GigabitEthernet 1/4 to a redundant inside router.

These interfaces form a hardware bypass pair if your model has copper ports; fiber does not support hardware bypass. These interfaces provide a redundant network path if the other pair fails. All 4 of these data interfaces are on the same network of your choice. You will need to configure the BVI 1 IP address to be on the same network as the inside and outside routers.

- Connect Management 1/1 to your management computer (or network).

If you need to change the Management 1/1 IP address from the default, you must also cable your management computer to the console port. See [\(Optional\) Change Management Network Settings at the CLI, on page 23](#).

(Optional) Change Management Network Settings at the CLI

If you cannot use the default management IP address, then you can connect to the console port and perform initial setup at the CLI, including setting the Management IP address, gateway, and other basic networking settings. You can only configure the Management interface settings; you cannot configure inside or outside interfaces, which you can later configure in the GUI.



Note You do not need to use this procedure for the Firepower 4100/9300, because you set the IP address manually when you deployed.



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](#).

Procedure

-
- Step 1** Connect to the FTD console port. See [Logging Into the Command Line Interface \(CLI\), on page 11](#) for more information.
- Step 2** Log in with the username **admin**.
The default admin password is Admin123.
- Step 3** The first time you log into the FTD, you are prompted to accept the End User License Agreement (EULA) and to change the admin password. You are then presented with the CLI setup script.
Defaults or previously-entered values appear in brackets. To accept previously entered values, press **Enter**.
See the following guidelines:
- **Enter the IPv4 default gateway for the management interface**—If you set a manual IP address, enter either **data-interfaces** or the IP address of the gateway router. The **data-interfaces** setting sends outbound management traffic over the backplane to exit a data interface. This setting is useful if you do not have

a separate Management network that can access the internet. Traffic originating on the Management interface includes license registration and database updates that require internet access. If you use **data-interfaces**, you can still use the FDM (or SSH) on the Management interface if you are directly-connected to the Management network, but for remote management for specific networks or hosts, you should add a static route using the **configure network static-routes** command. Note that the FDM management on data interfaces is not affected by this setting. If you use DHCP, the system uses the gateway provided by DHCP and uses the **data-interfaces** as a fallback method if DHCP doesn't provide a gateway.

- **If your networking information has changed, you will need to reconnect**—If you are connected with SSH to the default IP address but you change the IP address at initial setup, you will be disconnected. Reconnect with the new IP address and password. Console connections are not affected.
- **Manage the device locally?**—Enter **yes** to use the FDM. A **no** answer means you intend to use the FMC to manage the device.

Example:

```
You must accept the EULA to continue.
Press <ENTER> to display the EULA:
End User License Agreement
[...]

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

System initialization in progress. Please stand by.
You must change the password for 'admin' to continue.
Enter new password: *****
Confirm new password: *****
You must configure the network to continue.
You must configure at least one of IPv4 or IPv6.
Do you want to configure IPv4? (y/n) [y]:
Do you want to configure IPv6? (y/n) [n]:
Configure IPv4 via DHCP or manually? (dhcp/manual) [manual]:
Enter an IPv4 address for the management interface [192.168.45.45]: 10.10.10.15
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]: 10.10.10.1
Enter a fully qualified hostname for this system [firepower]: ftd-1.cisco.com
Enter a comma-separated list of DNS servers or 'none' [208.67.222.222,208.67.220.220]:
Enter a comma-separated list of search domains or 'none' []:
If your networking information has changed, you will need to reconnect.
For HTTP Proxy configuration, run 'configure network http-proxy'

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

>
```

Step 4 Log into the FDM on the new Management IP address.

Complete the Initial Configuration Using the Setup Wizard

When you initially log into the FDM, you are taken through the device setup wizard to complete the initial system configuration.

If you plan to use the device in a high availability configuration, please read [Prepare the Two Units for High Availability](#).



Note The Firepower 4100/9300 and ISA 3000 do not support the setup wizard, so this procedure does not apply to these models. For the Firepower 4100/9300, all initial configuration is set when you deploy the logical device from the chassis. For the ISA 3000, a special default configuration is applied before shipping.

Before you begin

Ensure that you connect a data interface to your gateway device, for example, a cable modem or router. For edge deployments, this would be your Internet-facing gateway. For data center deployments, this would be a back-bone router. Use the default “outside” interface for your model (see [Connect the Interfaces, on page 13](#) and [Default Configuration Prior to Initial Setup, on page 28](#)).

Then, connect your management computer to the “inside” interface for your hardware model. Alternatively, you can connect to the Management interface. For the FTDv, simply ensure that you have connectivity to the management IP address.

(Except for the FTDv, which requires connectivity to the internet from the management IP address.) The Management interface does not need to be connected to a network. By default, the system obtains system licensing and database and other updates through the data interfaces, typically the outside interface, that connect to the internet. If you instead want to use a separate management network, you can connect the Management interface to a network and configure a separate management gateway after you complete initial setup.

To change the Management interface network settings if you cannot access the default IP address, see [\(Optional\) Change Management Network Settings at the CLI, on page 23](#).

Procedure

- Step 1** Log into the FDM.
- Assuming you did not go through initial configuration in the CLI, open the FDM at **https://ip-address**, where the address is one of the following.
 - If you are connected to the inside interface: **https://192.168.1.1**.
 - (the FTDv) If you are connected to the Management interface: **https://192.168.45.45**.
 - (All other models) If you are connected to the Management interface: **https://dhcp_client_ip**
 - Log in with the username **admin**. The default admin password is Admin123. .
- Step 2** If this is the first time logging into the system, and you did not use the CLI setup wizard, you are prompted to read and accept the End User License Agreement and change the admin password.
- You must complete these steps to continue.
- Step 3** Configure the following options for the outside and management interfaces and click **Next**.
- Caution** Your settings are deployed to the device when you click **Next**. The interface will be named “outside” and it will be added to the “outside_zone” security zone. Ensure that your settings are correct.

Outside Interface

- **Configure IPv4**—The IPv4 address for the outside interface. You can use DHCP or manually enter a static IP address, subnet mask, and gateway. You can also select **Off** to not configure an IPv4 address. Do not configure an IP address on the same subnet as the default inside address (see [Default Configuration Prior to Initial Setup, on page 28](#)), either statically or through DHCP. You cannot configure PPPoE using the setup wizard. PPPoE may be required if the interface is connected to a DSL modem, cable modem, or other connection to your ISP, and your ISP uses PPPoE to provide your IP address. You can configure PPPoE after you complete the wizard. See [Configure a Physical Interface](#).
- **Configure IPv6**—The IPv6 address for the outside interface. You can use DHCP or manually enter a static IP address, prefix, and gateway. You can also select **Off** to not configure an IPv6 address.

Management Interface

- **DNS Servers**—The DNS server for the system's management address. Enter one or more addresses of DNS servers for name resolution. The default is the OpenDNS public DNS servers, or the DNS servers you obtain from the DHCP server. If you edit the fields and want to return to the default, click **Use OpenDNS** to reload the appropriate IP addresses into the fields. Your ISP might require that you use specific DNS servers. If after completing the wizard, you find that DNS resolution is not working, see [Troubleshooting DNS for the Management Interface](#).
- **Firewall Hostname**—The hostname for the system's management address.

Step 4 Configure the system time settings and click **Next**.

- **Time Zone**—Select the time zone for the system.
- **NTP Time Server**—Select whether to use the default NTP servers or to manually enter the addresses of your NTP servers. You can add multiple servers to provide backups.

Step 5 Configure the smart licenses for the system.

You must have a smart license account to obtain and apply the licenses that the system requires. Initially, you can use the 90-day evaluation license and set up smart licensing later.

To register the device now, select the option to register the device, click the link to log into your Smart Software Manager account, generate a new token, and copy the token into the edit box. You must also select your services region, and decide whether to send usage data to the Cisco Success Network. The on-screen text explains these settings in more detail.

If you do not want to register the device yet, select the evaluation mode option. The evaluation period last up to 90 days. To later register the device and obtain smart licenses, click **Device**, then click the link in the **Smart Licenses** group.

Step 6 Click **Finish**.

What to do next

- If you want to use features covered by optional licenses, such as category-based URL filtering, intrusion inspection, or malware prevention, enable the required licenses. See [Enabling or Disabling Optional Licenses](#).
- Connect the other data interfaces to distinct networks and configure the interfaces. For information on configuring interfaces, see [How to Add a Subnet](#) and [Interfaces](#).

- If you are managing the device through the inside interface, and you want to open CLI sessions through the inside interface, open the inside interface to SSH connections. See [Configuring the Management Access List](#).
- Go through the use cases to learn how to use the product. See [Best Practices: Use Cases for FTD](#).

What to Do if You Do Not Obtain an IP Address for the Outside Interface

The default device configuration includes a static IPv4 address for the inside interface. You cannot change this address through the initial device setup wizard, although you can change it afterwards.

The default inside IP address might conflict with other networks attached to the device. This is especially true if you use DHCP on the outside interface to obtain an address from your Internet Service Provider (ISP). Some ISPs use the same subnet as the inside network as the address pool. Because you cannot have two data interfaces with addresses on the same subnet, conflicting addresses from the ISP cannot be configured on the outside interface.


If there is a conflict between the inside static IP address and the DHCP-provided address on the outside interface, the connection diagram should show the outside interface as administratively UP, but with no IPv4 address.

The setup wizard will complete successfully in this case, and all the default NAT, access, and other policies and settings will be configured. Simply follow the procedure below to eliminate the conflict.


Before you begin

Verify that you have a healthy connection to the ISP. Although a subnet conflict will prevent you from getting an address on the outside interface, you will also fail to get one if you simply do not have a link to the ISP.

Procedure

-
- Step 1** Click **Device**, then click the link in the **Interfaces** summary.
 - Step 2** Mouse over the **Actions** column for the inside interface and click the edit icon (.
 - Step 3** On the **IPv4 Address** tab, enter a static address on a unique subnet, for example, 192.168.2.1/24 or 192.168.46.1/24. Note that the default management address is 192.168.45.45/24, so do not use that subnet.

You also have the option to use DHCP to obtain an address if you have a DHCP server already running on the inside network. However, you must first click **Delete** in the **DHCP SERVER IS DEFINED FOR THIS INTERFACE** group to remove the DHCP server from the interface.
 - Step 4** In the **DHCP SERVER IS DEFINED FOR THIS INTERFACE** area, click **Edit** and change the DHCP pool to a range on the new subnet, for example, 192.168.2.5-192.168.2.254.
 - Step 5** Click **OK** to save the interface changes.
 - Step 6** Click the **Deploy** button in the menu to deploy your changes.


 - Step 7** Click **Deploy Now**.

After deployment completes, the connection graphic should show that the outside interface now has an IP address. Use a client on the inside network to verify you have connectivity to the Internet or other upstream network.

Default Configuration Prior to Initial Setup

Before you initially configure the Firepower Threat Defense device using the local manager (FDM), the device includes the following default configuration.

For many models, this configuration assumes that you open the device manager through the inside interface, typically by plugging your computer directly into the interface, and use the DHCP server defined on the inside interface to supply your computer with an IP address. Alternatively, you can plug your computer into the Management interface and use DHCP to obtain an address. However, some models have different default configurations and management requirements. See the table below for details.



Note You can pre-configure many of these settings using the CLI setup ([\(\(Optional\) Change Management Network Settings at the CLI, on page 23\)](#)) before you perform setup using the wizard.

Default Configuration Settings

Setting	Default	Can be changed during initial configuration?
Password for admin user.	Admin123 Firepower 4100/9300: Set the password when you deploy the logical device.	Yes. You must change the default password.
Management IP address.	Obtained through DHCP. FTDv192.168.45.45 Firepower 4100/9300: Set the management IP address when you deploy the logical device.	No. For Firepower 4100/9300: Yes.
Management gateway.	The data interfaces on the device. Typically the outside interface becomes the route to the Internet. This gateway works for from-the-device traffic only. If the device receives a default gateway from the DHCP server, then that gateway is used. Firepower 4100/9300: Set the gateway IP address when you deploy the logical device. ISA 3000: 192.168.45.1. FTDv: 192.168.45.1	No. For Firepower 4100/9300: Yes.

Setting	Default	Can be changed during initial configuration?
DNS servers for the management interface.	The OpenDNS public DNS servers, 208.67.220.220 and 208.67.222.222. DNS servers obtained from DHCP are never used. Firepower 4100/9300: Set the DNS servers when you deploy the logical device.	Yes
Inside interface IP address.	192.168.1.1/24 Firepower 4100/9300: Data interfaces are not pre-configured. ISA 3000: BVI1 IP address is not preconfigured. BVI1 includes all inside and outside interfaces. FTDv: 192.168.45.1/24	No.
DHCP server for inside clients.	Running on the inside interface with the address pool 192.168.1.5 - 192.168.1.254. Firepower 4100/9300: No DHCP server enabled. ISA 3000: No DHCP server enabled. FTDv: The address pool on the inside interface is 192.168.45.46 - 192.168.45.254.	No.
DHCP auto-configuration for inside clients. (Auto-configuration supplies clients with addresses for WINS and DNS servers.)	Enabled on outside interface.	Yes, but indirectly. If you configure a static IPv4 address for the outside interface, DHCP server auto-configuration is disabled.
Outside interface IP address.	Obtained through DHCP from Internet Service Provider (ISP) or upstream router. Firepower 4100/9300: Data interfaces are not pre-configured. ISA 3000: BVI1 IP address is not preconfigured. BVI1 includes all inside and outside interfaces.	Yes.

Default Interfaces by Device Model

You cannot select different inside and outside interfaces during initial configuration. To change the interface assignments after configuration, edit the interface and DHCP settings. You must remove an interface from the bridge group before you can configure it as a non-switched interface.

FTD device	Outside Interface	Inside Interface
ASA 5508-X ASA 5516-X	GigabitEthernet1/1	GigabitEthernet1/2
ASA 5525-X ASA 5545-X ASA 5555-X	GigabitEthernet0/0	GigabitEthernet0/1
Firepower 1010	Ethernet1/1	VLAN1, which includes all other switch ports except the outside interface, which is a physical firewall interface.
Firepower 1120, 1140, 1150	Ethernet1/1	Ethernet1/2
Firepower 2100 series	Ethernet1/1	Ethernet1/2
Firepower 4100 series	Data interfaces are not pre-configured.	Data interfaces are not pre-configured.
Firepower 9300 appliance	Data interfaces are not pre-configured.	Data interfaces are not pre-configured.
FTDv	GigabitEthernet0/0	GigabitEthernet0/1
ISA 3000	GigabitEthernet1/1 and GigabitEthernet1/3 GigabitEthernet1/1 (outside1) and 1/2 (inside1), and GigabitEthernet1/3 (outside2) and 1/4 (inside2) (non-fiber models only) are configured as Hardware Bypass pairs. All inside and outside interfaces are part of BV11.	GigabitEthernet1/2 and GigabitEthernet1/4

Configuration After Initial Setup

After you complete the setup wizard, the device configuration will include the following settings. The table shows whether a particular setting is something you explicitly chose or whether it was defined for you based on your other selections. Validate any "implied" configurations and edit them if they do not serve your needs.



Note The Firepower 4100/9300 and ISA 3000 do not support the setup wizard. For the Firepower 4100/9300, all initial configuration is set when you deploy the logical device from the chassis. For the ISA 3000, a special default configuration is applied before shipping.

Setting	Configuration	Explicit, implied, or default configuration
Password for admin user.	Whatever you entered.	Explicit.

Setting	Configuration	Explicit, implied, or default configuration
Management IP address.	<p>Obtained through DHCP.</p> <p>FTDv: 192.168.45.45</p> <p>Firepower 4100/9300: The management IP address you set when you deployed the logical device.</p>	Default.
Management gateway.	<p>The data interfaces on the device. Typically the outside interface becomes the route to the Internet. The management gateway works for from-the-device traffic only. If the device receives a default gateway from the DHCP server, then that gateway is used.</p> <p>Firepower 4100/9300: The gateway IP address you set when you deployed the logical device.</p> <p>ISA 3000: 192.168.45.1</p> <p>FTDv: 192.168.45.1</p>	Default.
DNS servers for the management interface.	<p>The OpenDNS public DNS servers, 208.67.220.220, 208.67.222.222, or whatever you entered. DNS servers obtained from DHCP are never used.</p> <p>Firepower 4100/9300: The DNS servers you set when you deployed the logical device.</p>	Explicit.
Management hostname.	<p>firepower or whatever you entered.</p> <p>Firepower 4100/9300: The hostname you set when you deployed the logical device.</p>	Explicit.
Management access through data interfaces.	<p>A data interface management access list rule allows HTTPS access through the inside interface. SSH connections are not allowed. Both IPv4 and IPv6 connections are allowed.</p> <p>Firepower 4100/9300: No data interfaces have default management access rules.</p> <p>ISA 3000: No data interfaces have default management access rules.</p> <p>FTDv: No data interfaces have default management access rules.</p>	Implied.
System time.	<p>The time zone and NTP servers you selected.</p> <p>Firepower 4100/9300: System time is inherited from the chassis.</p> <p>ISA 3000: Cisco NTP servers: 0.sourcefire.pool.ntp.org, 1.sourcefire.pool.ntp.org, 2.sourcefire.pool.ntp.org.</p>	Explicit.
Smart license.	<p>Either registered with a base license, or the evaluation period activated, whichever you selected.</p> <p>Subscription licenses are not enabled. Go to the smart licensing page to enable them.</p>	Explicit.

Setting	Configuration	Explicit, implied, or default configuration
Inside interface IP address.	192.168.1.1/24 Firepower 4100/9300: Data interfaces are not pre-configured. ISA 3000: None. You must set the BV11 IP address manually. FTDv: 192.168.45.1/24	Default.
DHCP server for inside clients.	Running on the inside interface with the address pool 192.168.1.5 - 192.168.1.254. Firepower 4100/9300: No DHCP server enabled. ISA 3000: No DHCP server enabled. FTDv: The address pool on the inside interface is 192.168.45.46 - 192.168.45.254.	Default.
DHCP auto-configuration for inside clients. (Auto-configuration supplies clients with addresses for WINS and DNS servers.)	Enabled on outside interface if you use DHCP to obtain the outside interface IPv4 address. If you use static addressing, DHCP auto-configuration is disabled.	Explicit, but indirectly.
Data interface configuration.	<ul style="list-style-type: none"> • Firepower 1010—The outside interface, Ethernet1/1, is a physical firewall interface. All other interfaces are switch ports that are enabled and part of VLAN1, the inside interface. You can plug end points or switches into these ports and obtain addresses from the DHCP server for the inside interface. • Firepower 4100/9300—All data interfaces are disabled. • ISA 3000—All data interfaces are enabled and part of the same bridge group, BV11. GigabitEthernet1/2 and 1/3 are outside interfaces, and GigabitEthernet1/2 and 1/4 are inside interfaces. GigabitEthernet1/1 (outside1) and 1/2 (inside1), and GigabitEthernet1/3 (outside2) and 1/4 (inside2) (non-fiber models only) are configured as Hardware Bypass pairs. • All other models—The outside and inside interfaces are the only ones configured and enabled. All other data interfaces are disabled. 	Default.
Outside physical interface and IP address.	The default outside port based on the device model. See Default Configuration Prior to Initial Setup, on page 28 . The IP address is obtained by DHCP, or it is a static address as entered (IPv4, IPv6, or both). Firepower 4100/9300: Data interfaces are not pre-configured. ISA 3000: None. You must set the BV11 IP address manually.	Interface is Default. Addressing is Explicit.

Setting	Configuration	Explicit, implied, or default configuration
Static routes.	<p>If you configure a static IPv4 or IPv6 address for the outside interface, a static default route is configured for IPv4/IPv6 as appropriate, pointing to the gateway you defined for that address type. If you select DHCP, the default route is obtained from the DHCP server.</p> <p>Network objects are also created for the gateway and the "any" address, that is, 0.0.0.0/0 for IPv4, ::/0 for IPv6.</p>	Implied.
Security zones.	<p>inside_zone, containing the inside interfaces. For the Firepower 4100/9300, you need to add interfaces manually to this security zone.</p> <p>outside_zone, containing the outside interfaces. For the Firepower 4100/9300, you need to add interfaces manually to this zone.</p> <p>(You can edit these zones to add other interfaces, or create your own zones.)</p>	Implied.
Access control policy.	<p>A rule trusting all traffic from the <code>inside_zone</code> to the <code>outside_zone</code>. This allows without inspection all traffic from users inside your network to get outside, and all return traffic for those connections.</p> <p>The default action for any other traffic is to block it. This prevents any traffic initiated from outside to enter your network.</p> <p>Firepower 4100/9300: There are no pre-configured access rules.</p> <p>ISA 3000: A rule trusting all traffic from the <code>inside_zone</code> to the <code>outside_zone</code>, and a rule trusting all traffic from the <code>outside_zone</code> to the <code>inside_zone</code>. Traffic is not blocked. The device also has rules trusting all traffic between the interfaces in the <code>inside_zone</code> and in the <code>outside_zone</code>. This allows without inspection all traffic between users on the inside, and between users on the outside.</p>	Implied.
NAT	<p>An interface dynamic PAT rule translates the source address for any IPv4 traffic destined to the outside interface to a unique port on the outside interface's IP address.</p> <p>There are additional hidden PAT rules to enable HTTPS access through the inside interfaces, and routing through the data interfaces for the management address. These do not appear in the NAT table, but you will see them if you use the show nat command in the CLI.</p> <p>Firepower 4100/9300: NAT is not pre-configured.</p> <p>ISA 3000: NAT is not pre-configured.</p>	Implied.

Configuration Basics

The following topics explain the basic methods for configuring the device.

Configuring the Device

When you initially log into FDM, you are guided through a setup wizard to help you configure basic settings. Once you complete the wizard, use the following method to configure other features and to manage the device configuration.

If you have trouble distinguishing items visually, select a different color scheme in the user profile. Select **Profile** from the user icon drop-down menu in the upper right of the page.



Procedure

Step 1 Click **Device** to get to the **Device Summary**.

The dashboard shows a visual status for the device, including enabled interfaces and whether key settings are configured (colored green) or still need to be configured. For more information, see [Viewing Interface and Management Status, on page 39](#).

Above the status image is a summary of the device model, software version, VDB (System and Vulnerability Database) version, and the last time intrusion rules were updated. This area also shows high availability status, including links to configure the feature; see [High Availability \(Failover\)](#).

Below the image are groups for the various features you can configure, with summaries of the configurations in each group, and actions you can take to manage the system configuration.

Step 2 Click the links in each group to configure the settings or perform the actions.

Following is a summary of the groups:

- **Interface**—You should have at least two data interfaces configured in addition to the management interface. See [Interfaces](#).
- **Routing**—The routing configuration. You must define a default route. Other routes might be necessary depending on your configuration. See [Routing](#).
- **Updates**—Geolocation, intrusion rule, and vulnerability database updates, and system software upgrades. Set up a regular update schedule to ensure that you have the latest database updates if you use those features. You can also go to this page if you need to download an update before the regularly schedule update occurs. See [Updating System Databases and Feeds](#).
- **System Settings**—This group includes a variety of settings. Some are basic settings that you would configure when you initially set up the device and then rarely change. See [System Settings](#).
- **Smart License**—Shows the current state of the system licenses. You must install the appropriate licenses to use the system. Some features require additional licenses. See [Licensing the System](#).
- **Backup and Restore**—Back up the system configuration or restore a previous backup. See [Backing Up and Restoring the System](#).
- **Troubleshoot**—Generate a troubleshooting file at the request of the Cisco Technical Assistance Center. See [Creating a Troubleshooting File](#).
- **Site-to-Site VPN**—The site-to-site virtual private network (VPN) connections between this device and remote devices. See [Managing Site-to-Site VPNs](#).

- **Remote Access VPN**—The remote access virtual private network (VPN) configuration that allows outside clients to connect to your inside network. See [Configuring Remote Access VPN](#).
- **Advanced Configuration**—Use FlexConfig and Smart CLI to configure features that you otherwise cannot configure using FDM. See [Advanced Configuration](#).
- **Device Administration**—View the audit log or export a copy of the configuration. See [Auditing and Change Management](#).

Step 3 Click the **Deploy** button in the menu to deploy your changes.



Changes are not active on the device until you deploy them. See [Deploying Your Changes, on page 36](#).

What to do next

Click **Policies** in the main menu and configure the security policy for the system. You can also click **Objects** to configure the objects needed in those policies.

Configuring Security Policies

Use the security policies to implement your organization's acceptable use policy and to protect your network from intrusions and other threats.

Procedure

Step 1 Click **Policies**.

The Security Policies page shows the general flow of a connection through the system, and the order in which security policies are applied.

Step 2 Click the name of a policy and configure it.

You might not need to configure each policy type, although you must always have an access control policy. Following is a summary of the policies:

- **SSL Decryption**—If you want to inspect encrypted connections (such as HTTPS) for intrusions, malware, and so forth, you must decrypt the connections. Use the SSL decryption policy to determine which connections need to be decrypted. The system re-encrypts the connection after inspecting it. See [Configuring SSL Decryption Policies](#).
- **Identity**—If you want to correlate network activity to individual users, or control network access based on user or user group membership, use the identity policy to determine the user associated with a given source IP address. See [Configuring Identity Policies](#).
- **Security Intelligence**—Use the Security Intelligence policy to quickly drop connections from or to selected IP addresses or URLs. By blocking known bad sites, you do not need to account for them in your access control policy. Cisco provides regularly updated feeds of known bad addresses and URLs

so that the Security Intelligence block lists update dynamically. Using feeds, you do not need to edit the policy to add or remove items in the block lists. See [Configuring Security Intelligence](#).

- **NAT** (Network Address Translation)—Use the NAT policy to convert internal IP addresses to externally routeable addresses. See [Configure NAT](#).
- **Access Control**—Use the access control policy to determine which connections are allowed on the network. You can filter by security zone, IP address, protocol, port, application, URL, user or user group. You also apply intrusion and file (malware) policies using access control rules. Use this policy to implement URL filtering. See [Configuring the Access Control Policy](#).
- **Intrusion**—Use the intrusion policies to inspect for known threats. Although you apply intrusion policies using access control rules, you can edit the intrusion policies to selectively enable or disable specific intrusion rules. See [Intrusion Policies](#).

Step 3 Click the **Deploy** button in the menu to deploy your changes.



Changes are not active on the device until you deploy them. See [Deploying Your Changes, on page 36](#).

Searching for Rules or Objects

You can use full-text search on lists of policy rules or objects to help you find the item you want to edit. This is especially helpful when dealing with policies that have hundreds of rules, or long object lists.

The method for using search on rules and objects is the same for any type of policy (except the intrusion policy) or object: in the **Search** field, enter a string to find, and press Enter.

This string can exist in any part of the rule or object, and it can be a partial string. You can use the asterisk * as a wildcard that matches zero or more characters. Do not include the following characters, they are not supported as part of the search string: ?~!{}<>:%. The following characters are ignored: ;#&.

The string can appear within an object in the group. For example, you can enter an IP address and find the network objects or groups that specify that address.

When done, click the **x** on the right side of the search box to clear the filter.

Deploying Your Changes

When you update a policy or setting, the change is not immediately applied to the device. There is a two step process for making configuration changes:

1. Make your changes.
2. Deploy your changes.

This process gives you the opportunity to make a group of related changes without forcing you to run a device in a “partially configured” manner. In most cases, the deployment includes just your changes. However, if necessary, the system will reapply the entire configuration, which might be disruptive to your network. In addition, some changes require inspection engines to restart, with traffic dropping during the restart. Thus, consider deploying changes when potential disruptions will have the least impact.



Note If the deployment job fails, the system must roll back any partial changes to the previous configuration. Rollback includes clearing the data plane configuration and redeploying the previous version. This will disrupt traffic until the rollback completes.

After you complete the changes you want to make, use the following procedure to deploy them to the device.



Caution The FTD device drops traffic when the inspection engines are busy because of a software resource issue, or down because a configuration requires the engines to restart during configuration deployment. For detailed information on changes that require a restart, see [Configuration Changes that Restart Inspection Engines, on page 38](#).

Procedure

Step 1 Click the **Deploy Changes** icon in the upper right of the web page.

The icon is highlighted with a dot when there are undeployed changes.



The Pending Changes window shows a comparison of the deployed version of the configuration with the pending changes. These changes are color-coded to indicate removed, added, or edited elements. See the legend in the window for an explanation of the colors.

If the deployment requires that inspection engines be restarted, the page includes a message that provides detail on what changed that requires a restart. If momentary traffic loss at this time would be unacceptable, close the dialog box and wait until a better time to deploy changes.

If the icon is not highlighted, you can still click it to see the date and time of the last successful deployment job. There is also a link to show you the deployment history, which takes you to the audit page filtered to show deployment jobs only.



Step 2 If you are satisfied with the changes, you can click **Deploy Now** to start the job immediately.

The window will show that the deployment is in progress. You can close the window, or wait for deployment to complete. If you close the window while deployment is in progress, the job does not stop. You can see results in the task list or audit log. If you leave the window open, click the **Deployment History** link to view the results.

Optionally, you can do the following:

- **Name the Job**—To name the deployment job, click the drop-down arrow on the **Deploy Now** button and select **Name the Deployment Job**. Enter a name, then click **Deploy**. The name will appear in the audit and deployment history as part of the job, which might make it easier for you to find the job.

For example, if you name a job “DMZ Interface Configuration,” a successful deployment will be named “Deployment Completed: DMZ Interface Configuration.” In addition, the name is used as the Event Name in Task Started and Task Completed events related to the deployment job.

- **Discard Changes**—To discard all pending changes, click **More Options > Discard All**. You are prompted for confirmation.
- **Copy Changes**—To copy the list of changes to the clipboard, click **More Options > Copy to Clipboard**. This option works only if there are fewer than 500 changes.
- **Download Changes**—To download the list of changes as a file, click **More Options > Download as Text**. You are prompted to save the file to your workstation. The file is in YAML format. You can view it in a text editor if you do not have an editor that specifically supports YAML format.

Configuration Changes that Restart Inspection Engines

Any of the following configurations or actions restart inspection engines when you deploy configuration changes.



Caution When you deploy, resource demands may result in a small number of packets dropping without inspection. Additionally, deploying some configurations requires inspection engines to restart, which interrupts traffic inspection and drops traffic.

Deployment

Some changes require that inspection engines be restarted, which will result in momentary traffic loss. Following are the changes that require inspection engine restart:

- SSL decryption policy is enabled or disabled.
- The MTU changed on one or more physical interfaces (but not subinterfaces).
- You add or remove a file policy on an access control rule.
- The VDB was updated.
- Creating or breaking the high availability configuration.

In addition, some packets might be dropped during deployment if the Snort process is busy, with the total CPU utilization exceeding 60%. You can check the current CPU utilization for Snort using the **show asp inspect-dp snort** command.

System Database Updates

If you download an update to the Rules database or VDB, you must deploy the update for it to become active. This deployment might restart inspection engines. When you manually download an update, or schedule an update, you can indicate whether the system should automatically deploy changes after the download is complete. If you do not have the system automatically deploy the update, the update is applied the next time you deploy changes, at which time inspection engines might restart.

System Updates

Installing a system update or patch that does not reboot the system and includes a binary change requires inspection engines to restart. Binary changes can include changes to inspection engines, a preprocessor, the

vulnerability database (VDB), or a shared object rule. Note also that a patch that does not include a binary change can sometimes require a Snort restart.

Configuration Changes that Force a Full Deployment

In most cases, the deployment includes just your changes. However, if necessary, the system will reapply the entire configuration, which might be disruptive to your network. Following are some changes that force a full deployment.

- The Security Intelligence or Identity policies are initially enabled.
- Both the Security Intelligence and Identity policies are disabled.
- Creating an EtherChannel when you reuse data.
- Deleting an EtherChannel.
- Modifying the member interface associations of an EtherChannel.
- Deleting any interface that is used in the configuration. For example, deleting a subinterface that is part of a security zone used by an access control rule.
- Changing a FlexConfig object that is part of the FlexConfig policy, or deleting an object from the policy, when that object does not include negate lines. Omitting negate lines forces the system to full deploy, because there is no specific way to remove the configuration produced by the FlexConfig object. You can avoid this problem by always including the appropriate negate lines in each FlexConfig object.

Viewing Interface and Management Status

The Device Summary includes a graphical view of your device and select settings for the management address. To open the Device Summary, click **Device**.

Elements on this graphic change color based on the status of the element. Mousing over elements sometimes provides additional information. Use this graphic to monitor the following items.



Note The interface portion of the graphic, including interface status information, is also available on the **Interfaces** page and the **Monitoring > System** dashboard.

Interface Status

Mouse over a port to see its IP addresses, and enabled and link statuses. The IP addresses can be statically assigned or obtained using DHCP. Mousing over a Bridge Virtual Interface (BVI) also shows the list of member interfaces.

Interface ports use the following color coding:

- Green—The interface is configured, enabled, and the link is up.
- Gray—The interface is not enabled.
- Orange/Red—The interface is configured and enabled, but the link is down. If the interface is wired, this is an error condition that needs correction. If the interface is not wired, this is the expected status.

Inside, Outside Network Connections

The graphic indicates which port is connected to the outside (or upstream) and inside networks, under the following conditions.

- **Inside Network**—The port for the inside network is shown for the interface named “inside” only. If there are additional inside networks, they are not shown. If you do not name any interface “inside,” no port is marked as the inside port.
- **Outside Network**—The port for the outside network is shown for the interface named “outside” only. As with the inside network, this name is required, or no port is marked as the outside port.

Management Setting Status

The graphic shows whether the gateway, DNS servers, NTP servers, and Smart Licensing are configured for the management address, and whether those settings are functioning correctly.

Green indicates that the feature is configured and functioning correctly, gray indicates that it is not configured or not functioning correctly. For example, the DNS box is gray if the servers cannot be reached. Mouse over the elements to see more information.

If you find problems, correct them as follows:

- **Management port and gateway**—Select **System Settings > Management Interface**.
- **DNS servers**—Select **System Settings > DNS Server**.
- **NTP servers**—Select **System Settings > NTP**. Also see [Troubleshooting NTP](#).
- **Smart License**—Click the **View Configuration** link in the Smart License group.

Viewing System Task Status

System tasks include actions that occur without your direct involvement, such as retrieving and applying various database updates. You can view a list of these tasks and their status to verify that these system tasks are completing successfully.

The task list shows consolidated status for system tasks and deployment jobs. The audit log contains more detailed information, and is available under **Device > Device Administration > Audit Log**. For example, the audit log shows separate events for task start and task end, whereas the task list merges those events into a single entry. In addition, the audit log entry for a deployment includes detailed information about the deployed changes.

Procedure

- Step 1** Click the **Task List** button in the main menu.



The task list opens, displaying the status and details of system tasks.

- Step 2** Evaluate the task status.

If you find a persistent problem, you might need to fix the device configuration. For example, a persistent failure to obtain database updates could indicate that there is no path to the Internet for the device's management IP address. You might need to contact the Cisco Technical Assistance Center (TAC) for some issues as indicated in the task descriptions.

You can do the following with the task list:

- Click the **Success** or **Failures** buttons to filter the list based on these statuses.
- Click the delete icon (🗑️) for a task to remove it from the list.
- Click **Remove All Completed Tasks** to empty the list of all tasks that are not in progress.

Using the CLI Console to Monitor and Test the Configuration

FTD devices include a command line interface (CLI) that you can use for monitoring and troubleshooting. Although you can open an SSH session to get access to all of the system commands, you can also open a CLI Console in the FDM to use read-only commands, such as the various **show** commands and **ping**, **traceroute**, and **packet-tracer**. If you have Administrator privileges, you can also enter the **failover**, **reboot**, and **shutdown** commands.

You can keep the CLI Console open as you move from page to page, configure, and deploy features. For example, after deploying a new static route, you could use **ping** in the CLI Console to verify that the target network is reachable.

The CLI Console uses the base Firepower Threat Defense CLI. You cannot enter the diagnostic CLI, expert mode, or FXOS CLI (on models that use FXOS) using the CLI Console. Use SSH if you need to enter those other CLI modes.

For detailed information on commands, see [Cisco Firepower Threat Defense Command Reference](https://www.cisco.com/c/en/us/td/docs/security/firepower/command_ref/b_Command_Reference_for_Firepower_Threat_Defense.html), https://www.cisco.com/c/en/us/td/docs/security/firepower/command_ref/b_Command_Reference_for_Firepower_Threat_Defense.html.

Notes:

- Although **ping** is supported in CLI Console, the **ping system** command is not supported.
- The system can process at most 2 concurrent commands. Thus, if another user is issuing commands (for example, using the REST API), you might need to wait for other commands to complete before entering a command. If this is a persistent problem, use an SSH session instead of the CLI Console.
- Commands return information based on the deployed configuration. If you make a configuration change in the FDM, but do not deploy it, you will not see the results of your change in the command output. For example, if you create a new static route but do not deploy it, that route will not appear in **show route** output.

Procedure

Step 1 Click the **CLI Console** button in the upper right of the web page.



Step 2 Type the commands at the prompt and press **Enter**.

Some commands take longer to produce output than others, please be patient. If you get a message that the command execution timed out, please try again. You will also get a time out error if you enter a command that requires interactive responses, such as **show perfstats**. If the problem persists, you might need to use an SSH client instead of the CLI Console.

Following are some tips on how to use the window.

- Press the **Tab** key to automatically complete a command after partially typing it. Also, Tab will list out the parameters available at that point in the command. Tab works down to three levels of keyword. After three levels, you need to use the command reference for more information.
- You can stop command execution by pressing Ctrl+C.
- To move the window, click and hold anywhere in the header, then drag the window to the desired location.
- Click the **Expand** (🔍) or **Collapse** (🔍) button to make the window bigger or smaller.
- Click the **Undock Into Separate Window** (📄) button to detach the window from the web page into its own browser window. To dock it again, click the **Dock to Main Window** (📄) button.
- Click and drag to highlight text, then press Ctrl+C to copy output to the clipboard.
- Click the **Clear CLI** (🗑️) button to erase all output.
- Click the **Copy Last Output** (📄) button to copy the output from the last command you entered to the clipboard.

Step 3 When you are finished, simply close the console window. Do not use the **exit** command.

Although the credentials you use to log into the FDM validate your access to the CLI, you are never actually logged into the CLI when using the console.

Using FDM and the REST API Together

When you set up the device in local management mode, you can configure the device using the FDM and the Firepower Threat Defense REST API. In fact, the FDM uses the REST API to configure the device.

However, please understand that the REST API can provide additional features than the ones available through the FDM. Thus, for any given feature, you might be able to configure settings using the REST API that cannot appear when you view the configuration through the FDM.

If you do configure a feature setting that is available in the REST API but not in the FDM, and then make a change to the overall feature (such as remote access VPN) using the FDM, that setting might be undone. Whether an API-only setting is preserved can vary, and in many cases, API changes to settings not available in the FDM are preserved through the FDM edits. For any given feature, you should verify whether your changes are preserved.

In general, you should avoid using both the FDM and the REST API simultaneously for any given feature. Instead, choose one method or the other, feature by feature, for configuring the device.

You can view, and try out, the API methods using API Explorer. Click the more options button () and choose **API Explorer**.

