



# Managing the Secure Firewall Threat Defense Virtual with the Secure Firewall Management Center

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This chapter describes how to deploy a standalone threat defense virtual device managed with the management center.



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**Note** This document covers the latest threat defense virtual version features. If you are on an old version of software, refer to the procedures in the management center configuration guide for your version.

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- [About Secure Firewall Threat Defense Virtual with the Secure Firewall Management Center, on page 1](#)
- [Log In to the Secure Firewall Management Center, on page 2](#)
- [Register the Device with the Secure Firewall Management Center, on page 2](#)
- [Configure a Basic Security Policy, on page 5](#)
- [Access the Secure Firewall Threat Defense CLI, on page 17](#)

## About Secure Firewall Threat Defense Virtual with the Secure Firewall Management Center

The Secure Firewall Threat Defense Virtual is the virtualized component of the Cisco NGFW solution. The threat defense virtual provides next-generation firewall services, including stateful firewalling, routing, VPN, Next-Generation Intrusion Prevention System (NGIPS), Application Visibility and Control (AVC), URL filtering, and malware defense.

You can manage the threat defense virtual using the management center, a full-featured, multidevice manager on a separate server. The threat defense virtual registers and communicates with the management center on the Management interface that you allocated to the threat defense virtual machine.

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For troubleshooting purposes, you can access the threat defense CLI using SSH on the Management interface, or you can connect to the threat defense from the management center CLI.

This guide describes how to deploy a standalone threat defense virtual device managed with the management center. For detailed configuration information on the management center, see the [Management Center Administration Guide](#) and [Management Center Device Configuration Guide](#).

For information about installing the management center, see the [Cisco Firepower Management Center 1600, 2600, and 4600 Hardware Installation Guide](#) or [Management Center Virtual Getting Started Guide](#).

## Log In to the Secure Firewall Management Center

Use the management center to configure and monitor the threat defense.

### Before you begin

For information on supported browsers, refer to the release notes for the version you are using (see <https://www.cisco.com/go/firepower-notes>).

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**Step 1** Using a supported browser, enter the following URL.

**https://fmcv\_ip\_address**

*fmcv\_ip\_address* identifies the IP address or host name of the management center.

**Note** [https://\[fmcv\\_ipv6\\_public\\_address\]](#) specific to IPv6

**Step 2** Enter your username and password.

**Step 3** Click **Log In**.

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## Register the Device with the Secure Firewall Management Center

### Before you begin

Make sure the threat defense virtual machine has deployed successfully, is powered on, and has gone through its first boot procedures.



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**Note** This procedure assumes that you provided the registration information for the management center via the day0/bootstrap script. However, all of these settings can be changed later at the CLI using **configure network** commands. See the [Cisco Secure Firewall Threat Defense Command Reference](#).

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

**Step 2** From the **Add** drop-down list, choose **Add Device**, and enter the following parameters.

### Add Device ?

Host:†

Display Name:

Registration Key:.\*

Group:

Access Control Policy:.\*

**Smart Licensing**  
 Note: All virtual FTDs require a performance tier license.  
 Make sure your Smart Licensing account contains the available licenses you need.  
 It's important to choose the tier that matches the license you have in your account.  
 Click [here](#) for information about the FTD performance-tiered licensing.  
 Until you choose a tier, your FTDv defaults to the FTDv50 selection.

Performance Tier (only for FTDv 7.0 and above):

Malware  
 Threat  
 URL Filtering

**Advanced**

Unique NAT ID:†

Transfer Packets

- **Host**—Enter the IP address (IPv4 and IPv6) of the device you want to add. In the case of IPv6 enable setup, you can either have Ipv4 or Ipv6 in the hostname.
- **Display Name**—Enter the name for the device as you want it to display in the management center.
- **Registration Key**—Enter the same registration key that you specified in the threat defense virtual bootstrap configuration.
- **Domain**—Assign the device to a leaf domain if you have a multidomain environment.
- **Group**—Assign it to a device group if you are using groups.
- **Access Control Policy**—Choose an initial policy. Unless you already have a customized policy you know you need to use, choose **Create new policy**, and choose **Block all traffic**. You can change this later to allow traffic; see [Configure Access Control, on page 15](#).

The screenshot shows the 'New Policy' configuration page. It contains the following fields and options:

- Name:** ftd-ac\_policy
- Description:** (empty text box)
- Select Base Policy:** None
- Default Action:**
  - Block all traffic
  - Intrusion Prevention
  - Network Discovery
- Targeted Devices:**
  - Select devices to which you want to apply this policy.
  - Available Devices: 192.168.0.12
  - Selected Devices: (empty)
  - Search by name or value: (input field)
  - Add to Policy button

- **Smart Licensing**—Assign the Smart Licenses you need for the features you want to deploy: **Malware** (if you intend to use malware defense inspection), **Threat** (if you intend to use intrusion prevention), and **URL** (if you intend to implement category-based URL filtering).
- **Unique NAT ID**—Specify the NAT ID you specified in the threat defense virtual bootstrap configuration.
- **Transfer Packets**—Allow the device to transfer packets to the management center. When events like IPS or Snort are triggered with this option enabled, the device sends event metadata information and packet data to the management center for inspection. If you disable it, only event information will be sent to the management center, but packet data is not sent.

**Step 3** Click **Register**, and confirm a successful registration.

If the registration succeeds, the device is added to the list. If it fails, you will see an error message. If the threat defense virtual fails to register, check the following items:

- **Ping**—Access the threat defense CLI ([Access the Secure Firewall Threat Defense CLI, on page 17](#)), and ping the management center IP address using the following command:  

```
ping system ip_address
```

If the ping is not successful, check your network settings using the **show network** command. If you need to change the threat defense IP address, use the **configure network {ipv4 | ipv6} manual or DHCP** command.
- **NTP**—Make sure the NTP server matches the management center server set on the **System > Configuration > Time Synchronization** page.
- **Registration key, NAT ID, and the management center IP address**—Make sure you are using the same registration key, and if used, NAT ID, on both devices. You can set the registration key and NAT ID on the threat defense virtual

using the **configure manager add DONTRESOLVE**<registrationkey> <NATID> command. This command also lets you change the management center IP address.

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## Configure a Basic Security Policy

This section describes how to configure a basic security policy with the following settings:

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

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- Step 1** [Configure Interfaces, on page 5](#)
  - Step 2** [Configure the DHCP Server, on page 9](#)
  - Step 3** [Add the Default Route, on page 10](#)
  - Step 4** [Configure NAT, on page 12](#)
  - Step 5** [Configure Access Control, on page 15](#)
  - Step 6** [Deploy the Configuration, on page 16](#)
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## Configure Interfaces

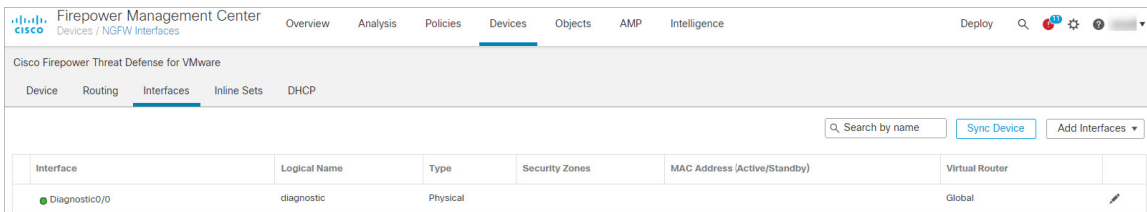
Enable the threat defense virtual interfaces, assign them to security zones, and set the IP addresses. Typically, you must configure at least a minimum of two interfaces to have a system that passes meaningful traffic. Normally, you would have an outside interface that faces the upstream router or internet, and one or more inside interfaces for your organization's networks. Some of these interfaces might be "demilitarized zones" (DMZs), where you place publically-accessible assets such as your web server.

A typical edge-routing situation is to obtain the outside interface address through DHCP from your ISP, while you define static addresses on the inside interfaces.

The following example configures a routed mode inside interface with a static address and a routed mode outside interface using DHCP.

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- Step 1** Choose **Devices > Device Management**, and click the **Edit** (✎) for the device.
  - Step 2** Click **Interfaces**.

## Configure Interfaces



**Step 3** Click the **Edit** (✎) for the interface that you want to use for *inside*.

The **General** tab appears.

**Edit Physical Interface**

General | IPv4 | IPv6 | Advanced | Hardware Configuration | FMC Access

Name:

Enabled  
 Management Only

Description:

Mode:

Security Zone:

Interface ID:

MTU:   
(64 - 9000)

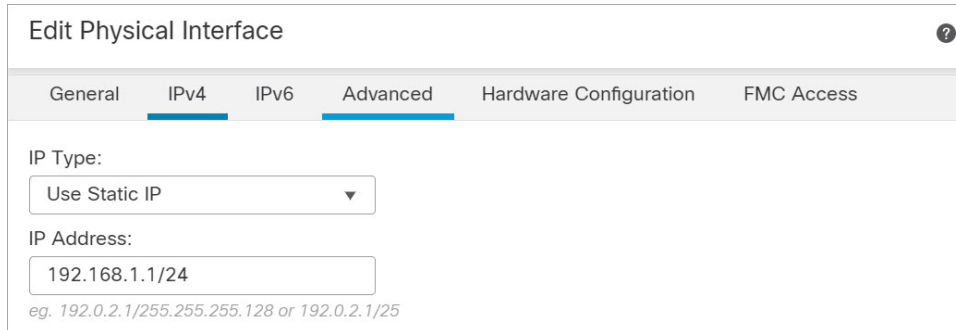
Priority:   
(0 - 65535)

Propagate Security Group Tag:

- Enter a **Name** up to 48 characters in length.  
For example, name the interface **inside**.
- Check the **Enabled** check box.
- Leave the **Mode** set to **None**.
- From the **Security Zone** drop-down list, choose an existing inside security zone or add a new one by clicking **New**.  
For example, add a zone called **inside\_zone**. Each interface must be assigned to a security zone and/or interface group. An interface can belong to only one security zone, but can also belong to multiple interface groups. You apply your security policy based on zones or groups. For example, you can assign the inside interface to the inside zone; and the outside interface to the outside zone. Then you can configure your access control policy to enable traffic to go from inside to outside, but not from outside to inside. Most policies only support security zones; you can use zones or interface groups in NAT policies, prefilter policies, and QoS policies.
- Click the **IPv4** and/or **IPv6** tab.

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

For example, enter **192.168.1.1/24**



The screenshot shows the 'Edit Physical Interface' configuration window with the 'IPv4' tab selected. The 'IP Type' dropdown is set to 'Use Static IP'. The 'IP Address' field contains '192.168.1.1/24'. Below the field, there is a small text example: 'eg. 192.0.2.1/255.255.255.128 or 192.0.2.1/25'. The window has tabs for 'General', 'IPv4', 'IPv6', 'Advanced', 'Hardware Configuration', and 'FMC Access'. A help icon is visible in the top right corner.

- **IPv6**—Check the **Autoconfiguration** check box for stateless auto configuration and also for IPv6 DHCP or static configuration to enable the interface.

f) Click **OK**.

**Step 4** Click the **Edit** (✎) for the interface that you want to use for *outside*.  
The **General** tab appears.

### Edit Physical Interface ?

General
IPv4
IPv6
Advanced
Hardware Configuration
FMC Access

Name:

Enabled  
 Management Only

Description:

Mode:

Security Zone:

Interface ID:

MTU:  
  
(64 - 9000)

Priority:  
  
(0 - 65535)

Propagate Security Group Tag:

- a) Enter a **Name** up to 48 characters in length.  
 For example, name the interface **outside**.
- b) Check the **Enabled** check box.
- c) Leave the **Mode** set to **None**.
- d) From the **Security Zone** drop-down list, choose an existing outside security zone or add a new one by clicking **New**.  
 For example, add a zone called **outside\_zone**.
- e) Click the **IPv4** and/or **IPv6** tab.
  - **IPv4**—Choose **Use DHCP**, and configure the following optional parameters:
    - **Obtain default route using DHCP**—Obtains the default route from the DHCP server.
    - **DHCP route metric**—Assigns an administrative distance to the learned route, between 1 and 255. The default administrative distance for the learned routes is 1.



**Edit Physical Interface**

General | **IPv4** | IPv6 | Advanced | Hardware Configuration | FMC Access

IP Type:

Obtain default route using DHCP:

DHCP route metric:  
  
(1 - 255)

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

f) Click **OK**.

**Step 5** Click **Save**.

## Configure the DHCP Server



**Note** Skip this procedure if you are deploying to a public cloud environment such as AWS, Azure, GCP, OCI.

Enable the DHCP server if you want clients to use DHCP to obtain IP addresses from the threat defense virtual.

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

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

**Step 3** On the **Server** page, click **Add**, and configure the following options:

**Add Server**

Interface\*

Address Pool\*  
  
(2.2.2.10-2.2.2.20)

Enable DHCP Server

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

**Step 4** Click **OK**.

**Step 5** Click **Save**.

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## Add the Default Route

The default route normally points to the upstream router reachable from the outside interface. If you use DHCP for the outside interface, your device might have already received a default route. If you need to manually add the route, complete this procedure. If you received a default route from the DHCP server, it will show in the **IPv4 Routes** or **IPv6 Routes** table on the **Devices > Device Management > Routing > Static Route** page.

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

**Step 2** Choose **Routing > Static Route**, click **Add Route**, and set the following:

**Add Static Route Configuration**

Type:  IPv4  IPv6

Interface\*  
 Outside

(Interface starting with this icon signifies it is available for route leak)

Available Network + Selected Network

Search   any-ipv4

- any-ipv4
- any-IPv4-10.0.0.1
- IPv4-Benchmark-Tests
- IPv4-Link-Local
- IPv4-Multicast
- IPv4-Private-10.0.0.0-8

Ensure that egress virtualrouter has route to that destination

Gateway  
 any-IPv4-10.0.0.1 +

Metric:  
  
 (1 - 254)

Tunneled:  (Used only for default Route)

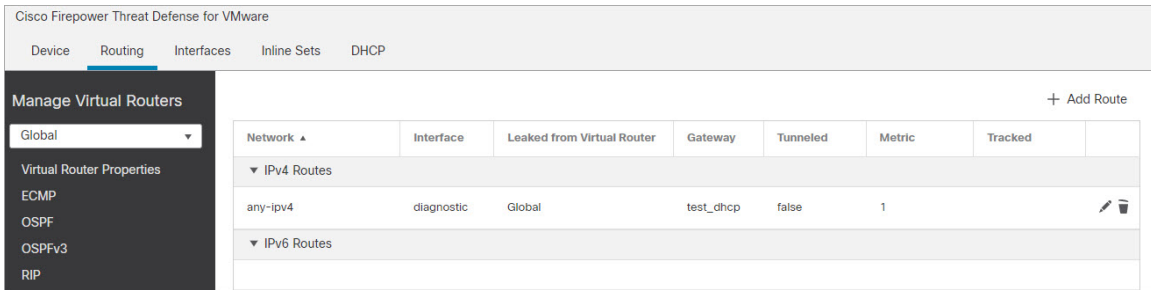
Route Tracking:  
 +

- **Type**—Click the **IPv4** or **IPv6** radio button depending on the type of static route that you are adding.
- **Interface**—Choose the egress interface; typically the outside interface.
- **Available Network**—Choose **any-ipv4** for an IPv4 default route, or **any-ipv6** for an IPv6 default route.
- **Gateway** or **IPv6 Gateway**—Enter or choose the gateway router that is the next hop for this route. You can provide an IP address or a Networks/Hosts object.
- **Metric**—Enter the number of hops to the destination network. Valid values range from 1 to 255; the default value is 1.

**Step 3** Click **OK**.

The route is added to the static route table.

Configure NAT



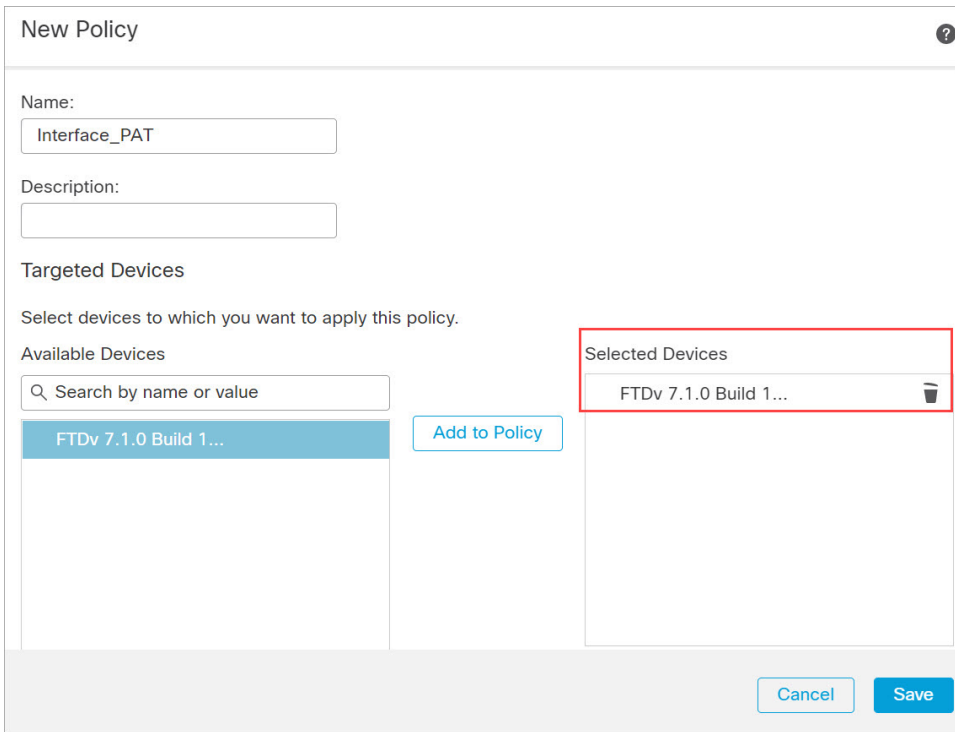
**Step 4** Click **Save**.

## Configure NAT

A typical NAT rule converts internal addresses to a port on the outside interface IP address. This type of NAT rule is called *interface Port Address Translation (PAT)*.

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

**Step 2** Name the policy, select the device(s) that you want to use the policy, and click **Save**.



The policy is added the management center. You still have to add rules to the policy.

**Step 3** Click **Add Rule**.

The **Add NAT Rule** dialog box appears.

**Step 4** Configure the basic rule options:

The screenshot shows the 'Add NAT Rule' dialog box with the following configuration:

- NAT Rule:** Auto NAT Rule
- Type:** Dynamic
- Enable:**
- Tabs:** Interface Objects, Translation (selected), PAT Pool, Advanced

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

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

The screenshot shows the 'Add NAT Rule' dialog box with the 'Interface Objects' tab selected. The configuration is as follows:

- NAT Rule:** Auto NAT Rule
- Type:** Dynamic
- Enable:**
- Tabs:** Interface Objects (selected), Translation, PAT Pool, Advanced
- Available Interface Objects:** Search by name, outside-zone (highlighted)
- Source Interface Objects (0):** any
- Destination Interface Objects (1):** outside-zone
- Buttons:** Add to Source, Add to Destination, Cancel, OK

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

### Add NAT Rule ?

NAT Rule: Auto NAT Rule

Type: Dynamic

Enable

Interface Objects   Translation   PAT Pool   Advanced

<p>Original Packet</p> <p>Original Source:* <span style="border: 1px solid red; padding: 2px;">any-IPv4-10.0.0.1</span> +</p> <p>Original Port: <span style="border: 1px solid #ccc; padding: 2px;">TCP</span></p> <p><span style="border: 1px solid #ccc; display: inline-block; width: 100px; height: 15px;"></span></p>	<p>Translated Packet</p> <p>Translated Source: <span style="border: 1px solid red; padding: 2px;">Destination Interface IP</span></p> <p><small>The values selected for Destination Interface Objects in 'Interface Objects' tab will be used</small></p> <p>Translated Port: <span style="border: 1px solid #ccc; display: inline-block; width: 100px; height: 15px;"></span></p>
--	--

Cancel OK

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

### New Network Object ?

Name: all-ipv4

Description:

Network

Host  
  Range  
  Network  
  FQDN

0.0.0.0/0

Allow Overrides

Cancel Save

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

Similarly, you can create the NAT policy with a default host network [::/0] for all IPv6 traffic.

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

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

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

Firepower Management Center  
Devices / NGFW NAT Policy Editor

Overview Analysis Policies **Devices** Objects AMP Intelligence Deploy

Interface\_PAT You have unsaved changes Show Warnings Save Cancel

Enter Description Policy Assignments (1)

Rules

Filter by Device Filter Rules Add Rule

	#	Direction	Type	Source Interface Objects	Destination Interface Objects	Original Packet			Translated Packet			Options
						Original Sources	Original Destinations	Original Services	Translated Sources	Translated Destinations	Translated Services	
NAT Rules Before												
Auto NAT Rules												
	#...		D...	any	outside-z	any-IPv4-10.0.0.0/24			Interface		Dns:fa	
NAT Rules After												

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

## Configure Access Control

If you created a basic **Block all traffic** access control policy when you registered the threat defense virtual with the management center, then you need to add rules to the policy to allow traffic through the device. The following procedure adds a rule to allow traffic from the inside zone to the outside zone. If you have other zones, be sure to add rules allowing traffic to the appropriate networks.

See the [Firepower Management Center Configuration Guide](#) configuration guide to configure more advanced security settings and rules.

**Step 1** Choose **Policy > Access Policy > Access Policy**, and click the **Edit** (✎) for the access control policy assigned to the threat defense.

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

**Deploy the Configuration**

The screenshot shows the 'Add Rule' configuration interface. The rule name is 'inside\_to\_outside', it is checked as 'Enabled', and the insert point is 'into Mandatory'. The action is set to 'Allow' and the time range is 'None'. Below the main configuration, there are three panels: 'Available Zones' with a search bar and a list containing 'inside-zone' and 'outside-zone'; 'Source Zones (1)' containing 'inside-zone'; and 'Destination Zones (1)' containing 'outside-zone'. Buttons for 'Add to Source' and 'Add to Destination' are visible between the panels.

- **Name**—Name this rule, for example, **inside\_to\_outside**.
- **Source Zones**—Select the inside zone from **Available Zones**, and click **Add to Source**.
- **Destination Zones**—Select the outside zone from **Available Zones**, and click **Add to Destination**.

Leave the other settings as is.

**Step 3** Click **Add**.

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

The screenshot shows the 'Initial AC Policy' configuration page. The 'Rules' tab is selected, displaying a table of rules. The table has columns for Name, Source Zones, Dest Zones, Source Netw..., Dest Netw..., VLAN Tags, Users, Appl..., Source Ports, Dest Ports, URLs, Source Dyna... Attri..., Desti... Dyna... Attri..., Act..., and icons. One rule is listed: 'inside\_to\_outside' with source zones 'inside-to' and destination zones 'outside-to'. Below the table, there is a 'Default Action' dropdown set to 'Access Control:Block all traffic'.

#	Name	Source Zones	Dest Zones	Source Netw...	Dest Netw...	VLAN Tags	Users	Appl...	Source Ports	Dest Ports	URLs	Source Dyna... Attri...	Desti... Dyna... Attri...	Act...	Icons
1	inside_to_outside	inside-to	outside-to	Any	Any	Any	Any	Any	Any	Any	Any	Any	Any	Allow	Icons

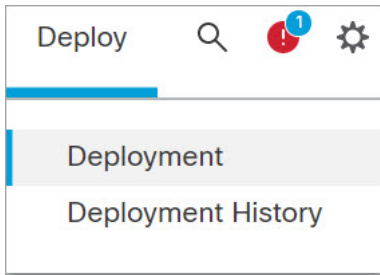
**Step 4** Click **Save**.

## Deploy the Configuration

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

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

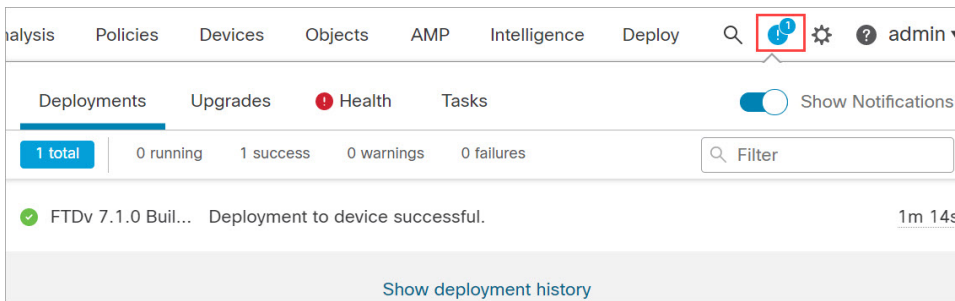




**Step 2** Select the device in the **Deploy Policies** dialog box, then click **Deploy**.

Device	Modified by	Inspect Interrupti...	Type	Group	Last Deploy Time	Preview	Status
<input checked="" type="checkbox"/> FTDv 7.1.0 Build 16- Beta1	admin, System, masad...		FTD		Aug 4, 2021 9:28 AM		Ready for Deployment

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



## Access the Secure Firewall Threat Defense CLI

You can use the threat defense virtual CLI to change management interface parameters and for troubleshooting purposes. You can access the CLI using SSH to the Management interface, or by connecting from the VMware console.

**Step 1** (Option 1) SSH directly to the threat defense virtual management interface IP address.

You set the management IP address when you deployed the virtual machine. Log into the threat defense virtual with the **admin** account and the password you set during initial deployment.

**Step 2** (Option 2) Open the VMware console and log in with the default username **admin** account and the password you set during initial deployment.

