ASA FirePOWER (SFR) Module

This chapter describes how to configure the ASA FirePOWER module that runs on the ASA.

The ASA FirePOWER Module

The ASA FirePOWER module supplies next-generation firewall services, including Next-Generation IPS (NGIPS), Application Visibility and Control (AVC), URL filtering, and Advanced Malware Protection (AMP).You can use the module in single or multiple context mode, and in routed or transparent mode.

The module is also known as ASA SFR.

Although the module has a basic command line interface (CLI) for initial configuration and troubleshooting, you configure the security policy on the device using a separate application, FireSIGHT Management Center, which can be hosted on a separate FireSIGHT Management Center appliance or as a virtual appliance running on a VMware server. (FireSIGHT Management Center is also known as Defense Center.)

How the ASA FirePOWER Module Works with the ASA

You can configure your ASA FirePOWER module using one of the following deployment models:

- Inline mode—In an inline deployment, the actual traffic is sent to the ASA FirePOWER module, and the module's policy affects what happens to the traffic. After dropping undesired traffic and taking any other actions applied by policy, the traffic is returned to the ASA for further processing and ultimate transmission.
- Inline tap monitor-only mode (ASA inline)—In an inline tap monitor-only deployment, a copy of the traffic is sent to the ASA FirePOWER module, but it is not returned to the ASA. Inline tap mode lets you see what the ASA FirePOWER module would have done to traffic, and lets you evaluate the content of the traffic, without impacting the network. However, in this mode, the ASA does apply its policies to the traffic, so traffic can be dropped due to access rules, TCP normalization, and so forth.

Be sure to configure consistent policies on the ASA and the ASA FirePOWER. Both policies should reflect the inline or monitor-only mode of the traffic.

The following sections explain these modes in more detail.

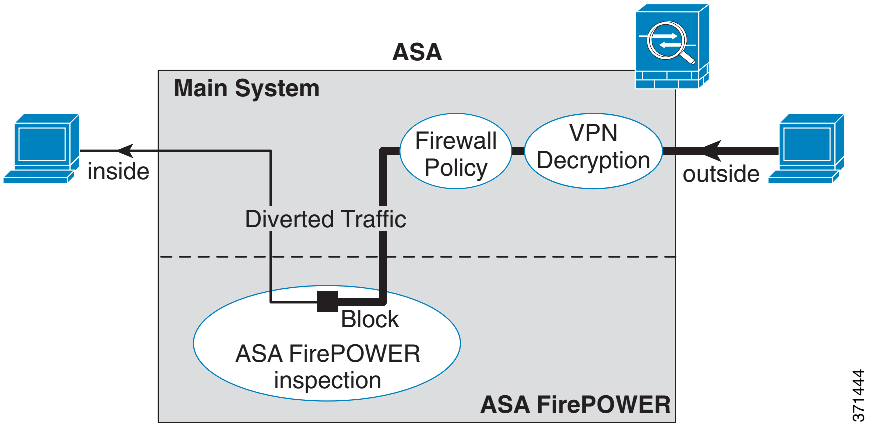
ASA FirePOWER Inline Mode

In inline mode, traffic goes through the firewall checks before being forwarded to the ASA FirePOWER module. When you identify traffic for ASA FirePOWER inspection on the ASA, traffic flows through the ASA and the module as follows:

1. Traffic enters the ASA.
2. Incoming VPN traffic is decrypted.
3. Firewall policies are applied.
4. Traffic is sent to the ASA FirePOWER module.
5. The ASA FirePOWER module applies its security policy to the traffic, and takes appropriate actions.
6. Valid traffic is sent back to the ASA; the ASA FirePOWER module might block some traffic according to its security policy, and that traffic is not passed on.
7. Outgoing VPN traffic is encrypted.
8. Traffic exits the ASA.

The following figure shows the traffic flow when using the ASA FirePOWER module in inline mode. In this example, the module blocks traffic that is not allowed for a certain application. All other traffic is forwarded through the ASA.

Figure 24-1 ASA FirePOWER Module Traffic Flow in the ASA



Note If you have a connection between hosts on two ASA interfaces, and the ASA FirePOWER service policy is only configured for one of the interfaces, then all traffic between these hosts is sent to the ASA FirePOWER module, including traffic originating on the non-ASA FirePOWER interface (because the feature is bidirectional).

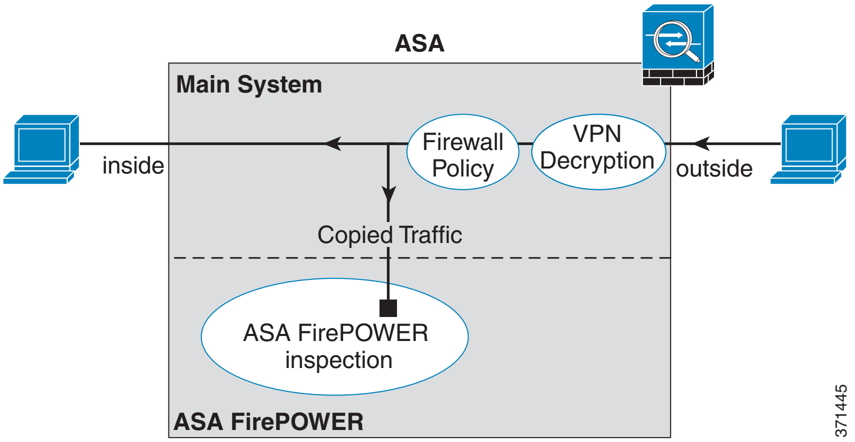
ASA FirePOWER Inline Tap Monitor-Only Mode

This mode sends a duplicate stream of traffic to the ASA FirePOWER module for monitoring purposes only. The module applies the security policy to the traffic and lets you know what it would have done if it were operating in inline mode; for example, traffic might be marked “would have dropped” in events. You can use this information for traffic analysis and to help you decide if inline mode is desirable.

Note You cannot configure both inline tap monitor-only mode and normal inline mode at the same time on the ASA. Only one type of security policy is allowed. In multiple context mode, you cannot configure inline tap monitor-only mode for some contexts, and regular inline mode for others.

The following figure shows the traffic flow when operating in inline tap mode.

Figure 24-2 ASA FirePOWER Inline Tap Monitor-Only Mode



ASA FirePOWER Management Access

There are two separate layers of access for managing an ASA FirePOWER module: initial configuration (and subsequent troubleshooting) and policy management.

- Initial Configuration, page 24-4
- Policy Configuration and Management, page 24-5

Initial Configuration

For initial configuration, you must use the CLI on the ASA FirePOWER module. For information on the default management addresses, see Default Settings, page 24-7.

To access the CLI, you can use the following methods:

- ASA 5585-X:
  - ASA FirePOWER console port—The console port on the module is a separate external console port.
  - ASA FirePOWER Management 1/0 interface using SSH—You can connect to the default IP address or you can use ASDM to change the management IP address and then connect using SSH. The management interface on the module is a separate external Gigabit Ethernet interface.

Note You cannot access the ASA FirePOWER hardware module CLI over the ASA backplane using the **session** command.

- ASA 5512-X through ASA 5555-X:
  - ASA session over the backplane—If you have CLI access to the ASA, then you can session to the module and access the module CLI.
  - ASA FirePOWER Management 0/0 interface using SSH—You can connect to the default IP address or you can use ASDM to change the management IP address and then connect using SSH. These models run the ASA FirePOWER module as a software module. The ASA FirePOWER management interface shares the Management 0/0 interface with the ASA. Separate MAC addresses and IP addresses are supported for the ASA and ASA FirePOWER

module. You must perform configuration of the ASA FirePOWER IP address within the ASA FirePOWER operating system (using the CLI or ASDM). However, physical characteristics (such as enabling the interface) are configured on the ASA. You can remove the ASA interface configuration (specifically the interface name) to dedicate this interface as an ASA FirePOWER-only interface. This interface is management-only.

Policy Configuration and Management

After you perform initial configuration, configure the ASA FirePOWER security policy using FireSIGHT Management Center. Then configure the ASA policy for sending traffic to the ASA FirePOWER module using ASDM or Cisco Security Manager.

Compatibility with ASA Features

The ASA includes many advanced application inspection features, including HTTP inspection. However, the ASA FirePOWER module provides more advanced HTTP inspection than the ASA provides, as well as additional features for other applications, including monitoring and controlling application usage.

To take full advantage of the ASA FirePOWER module features, see the following guidelines for traffic that you send to the ASA FirePOWER module:

- Do not configure ASA inspection on HTTP traffic.
- Do not configure Cloud Web Security (ScanSafe) inspection. If you configure both ASA FirePOWER inspection and Cloud Web Security inspection for the same traffic, the ASA only performs ASA FirePOWER inspection.
- Other application inspections on the ASA are compatible with the ASA FirePOWER module, including the default inspections.
- Do not enable the Mobile User Security (MUS) server; it is not compatible with the ASA FirePOWER module.
- If you enable failover, when the ASA fails over, any existing ASA FirePOWER flows are transferred to the new ASA. The ASA FirePOWER module in the new ASA begins inspecting the traffic from that point forward; old inspection states are not transferred.

Licensing Requirements for the ASA FirePOWER Module

Model	License Requirement
ASAv	Standard or Premium License.
All other models	Base License.

The ASA FirePOWER module and FireSIGHT Management Center require additional licenses. See the Licensing chapter of the *FireSIGHT System User Guide* or the online help in FireSIGHT Management Center for more information.

Guidelines and Limitations

Context Mode Guidelines

Supported in multiple context mode.

Firewall Mode Guidelines

Supported in routed and transparent firewall mode.

Failover Guidelines

Does not support failover directly; when the ASA fails over, any existing ASA FirePOWER flows are transferred to the new ASA. The ASA FirePOWER module in the new ASA begins inspecting the traffic from that point forward; old inspection states are not transferred.

You are responsible for maintaining consistent policies on the ASA FirePOWER modules in the high-availability ASA pair (using FireSIGHT Management Center) to ensure consistent failover behavior.

ASA Clustering Guidelines

Does not support clustering directly, but you can use these modules in a cluster. You are responsible for maintaining consistent policies on the ASA FirePOWER modules in the cluster using FireSIGHT Management Center. Do not use different ASA-interface-based zone definitions for devices in the cluster.

IPv6 Guidelines

Supports IPv6.

Model Guidelines

- Supported on the ASA 5585-X (as a hardware module) and 5512-X through ASA 5555-X (as a software module). See the *Cisco ASA Compatibility Matrix* for more information:

  http://www.cisco.com/en/US/docs/security/asa/compatibility/asamatrx.html
- For the 5512-X through ASA 5555-X, you must install a Cisco solid state drive (SSD). For more information, see the ASA 5500-X hardware guide.

Additional Guidelines and Limitations

- See Compatibility with ASA Features, page 24-5.
- You cannot change the software type installed on the hardware module; if you purchase an ASA FirePOWER module, you cannot later install other software on it.
- You cannot configure both normal inline mode and inline tap monitor-only mode at the same time on the ASA. Only one type of security policy is allowed. In multiple context mode, you cannot configure inline tap monitor-only mode for some contexts, and regular inline mode for others.

Default Settings

The following table lists the default settings for the ASA FirePOWER module.

Table 24-1 ASA FirePOWER Default Network Parameters

Parameters	Default
Management IP address	• System software image: 192.168.45.45/24 • Boot image: – ASA 5585-X: Management 1/0 192.168.8.8/24 – ASA 5512-X through ASA 5555-X: Management 0/0 192.168.1.2/24
Gateway	• System software image: none • Boot image: – ASA 5585-X: 192.168.8.1/24 – ASA 5512-X through ASA 5555-X: 192.168.1.1/24
SSH or session Username	admin
Password	• System software image: **Sourcefire** • Boot image: **Admin123**

Configuring the ASA FirePOWER Module

This section describes how to configure the ASA FirePOWER module.

- Task Flow for the ASA FirePOWER Module, page 24-8
- Connecting the ASA FirePOWER Management Interface, page 24-9
- (ASA 5512-X through 5555-X) Installing or Reimaging the Software Module, page 24-11
- Changing the ASA FirePOWER Management IP Address, page 24-15
- Configuring Basic ASA FirePOWER Settings at the ASA FirePOWER CLI, page 24-16
- Adding ASA FirePOWER to the FireSIGHT Management Center, page 24-17
- Configuring the Security Policy on the ASA FirePOWER Module, page 24-18
- Redirecting Traffic to the ASA FirePOWER Module, page 24-19

Task Flow for the ASA FirePOWER Module

Configuring the ASA FirePOWER module is a process that includes configuration of the ASA FirePOWER security policy on the ASA FirePOWER module and then configuration of the ASA to send traffic to the ASA FirePOWER module. To configure the ASA FirePOWER module, perform the following steps:

Step 1 Cable the ASA FirePOWER management interfaces and optionally, the console interface. See Connecting the ASA FirePOWER Management Interface, page 24-9.

Step 2 (ASA 5512-X through ASA 5555-X) Install the software module. See (ASA 5512-X through 5555-X) Installing or Reimaging the Software Module, page 24-11.

Step 3 (ASA 5585-X) Configure the ASA FirePOWER module management IP address for initial SSH access. See Changing the ASA FirePOWER Management IP Address, page 24-15.

Step 4 On the ASA FirePOWER module, configure basic settings. See Configuring Basic ASA FirePOWER Settings at the ASA FirePOWER CLI, page 24-16.

Step 5 Identify the FireSIGHT Management Center that will manage the device. See Adding ASA FirePOWER to the FireSIGHT Management Center, page 24-17.

Step 6 On the ASA FirePOWER module, configure the security policy using FireSIGHT Management Center. See Configuring the Security Policy on the ASA FirePOWER Module, page 24-18.

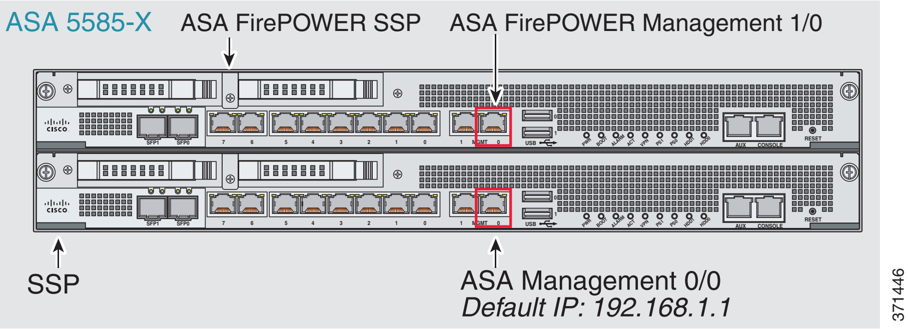
Step 7 On the ASA, identify traffic to divert to the ASA FirePOWER module. See Redirecting Traffic to the ASA FirePOWER Module, page 24-19.

Connecting the ASA FirePOWER Management Interface

In addition to providing management access to the ASA FirePOWER module, the ASA FirePOWER management interface needs access to an HTTP proxy server or a DNS server and the Internet for signature updates and more. This section describes recommended network configurations. Your network may differ.

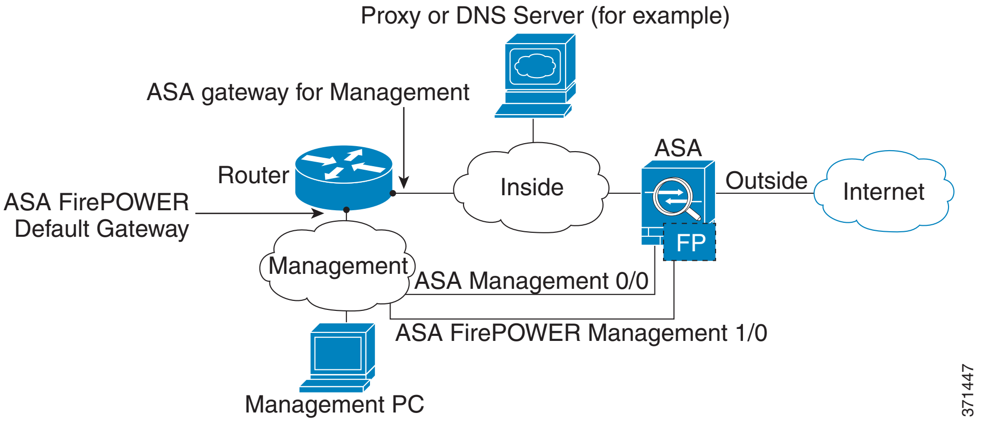
ASA 5585-X (Hardware Module)

The ASA FirePOWER module includes a separate management and console interface from the ASA. For initial setup, you can connect with SSH to the ASA FirePOWER Management 1/0 interface using the default IP address. If you cannot use the default IP address, you can either use the console port or use ASDM to change the management IP address so you can use SSH. (See Changing the ASA FirePOWER Management IP Address, page 24-15.)



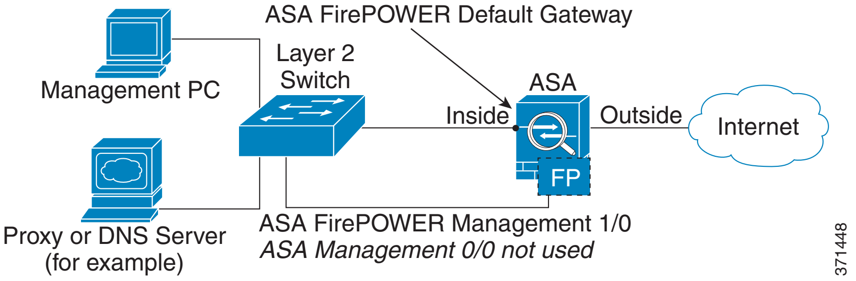
If you have an inside router

If you have an inside router, you can route between the management network, which can include both the ASA Management 0/0 and ASA FirePOWER Management 1/0 interfaces, and the ASA inside network for Internet access. Be sure to also add a route on the ASA to reach the Management network through the inside router.



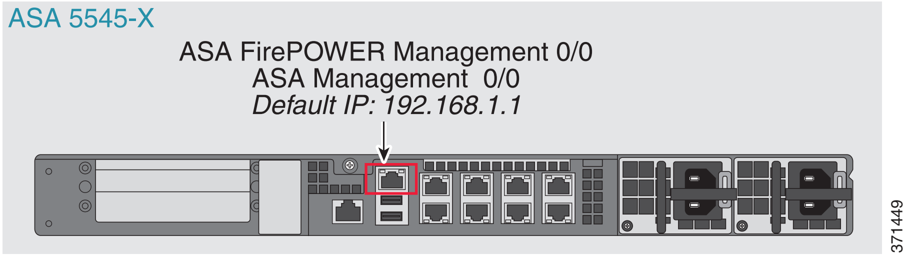
If you do not have an inside router

If you have only one inside network, then you cannot also have a separate management network, which would require an inside router to route between the networks. In this case, you can manage the ASA from the inside interface instead of the Management 0/0 interface. Because the ASA FirePOWER module is a separate device from the ASA, you can configure the ASA FirePOWER Management 1/0 address to be on the same network as the inside interface.


ASA FirePOWER Default Gateway
Management PC
Layer 2 Switch
ASA
Inside
Outside
Internet
FP
Proxy or DNS Server (for example)
ASA FirePOWER Management 1/0
ASA Management 0/0 not used
371448

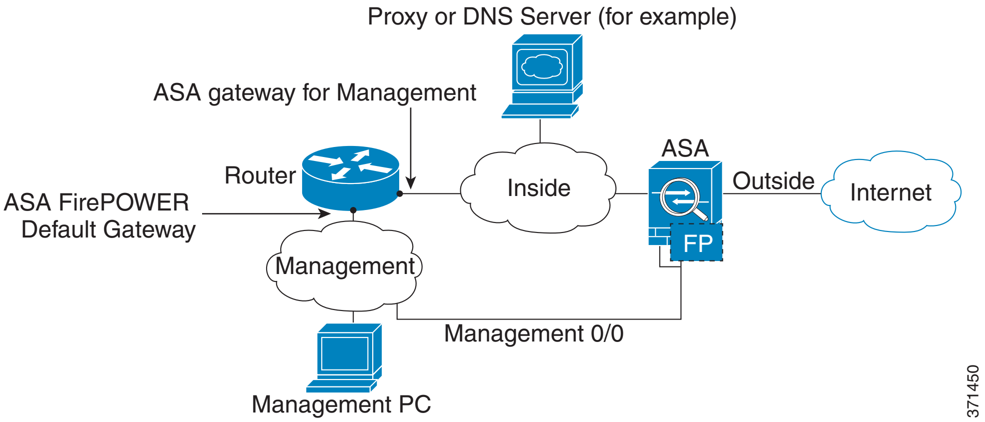
ASA 5512-X through ASA 5555-X (Software Module)

These models run the ASA FirePOWER module as a software module, and the ASA FirePOWER management interface shares the Management 0/0 interface with the ASA. For initial setup, you can connect with SSH to the ASA FirePOWER default IP address. If you cannot use the default IP address, you can either session to the ASA FirePOWER over the backplane or use ASDM to change the management IP address so you can use SSH.



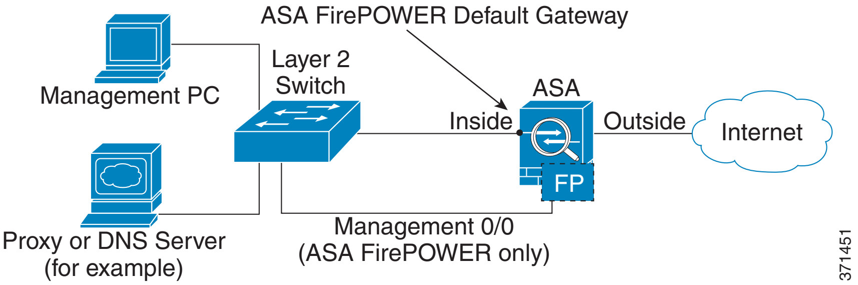
If you have an inside router

If you have an inside router, you can route between the Management 0/0 network, which includes both the ASA and ASA FirePOWER management IP addresses, and the inside network for Internet access. Be sure to also add a route on the ASA to reach the Management network through the inside router.



If you do not have an inside router

If you have only one inside network, then you cannot also have a separate management network. In this case, you can manage the ASA from the inside interface instead of the Management 0/0 interface. If you remove the ASA-configured name from the Management 0/0 interface, you can still configure the ASA FirePOWER IP address for that interface. Because the ASA FirePOWER module is essentially a separate device from the ASA, you *can* configure the ASA FirePOWER management address to be on the same network as the inside interface.



Note You must remove the ASA-configured name for Management 0/0; if it is configured on the ASA, then the ASA FirePOWER address must be on the same network as the ASA, and that excludes any networks already configured on other ASA interfaces. If the name is not configured, then the ASA FirePOWER address can be on any network, for example, the ASA inside network.

(ASA 5512-X through 5555-X) Installing or Reimaging the Software Module

If you purchase the ASA with the ASA FirePOWER module, the module software and required solid state drives (SSDs) come pre-installed and ready to configure. If you want to add the ASA FirePOWER software module to an existing ASA, or need to replace the SSD, you need to install the ASA FirePOWER boot software, partition the SSD, and install the system software according to this procedure.

Reimaging the module is the same procedure, except you should first uninstall the ASA FirePOWER module. You would reimage a system if you replace an SSD.

For information on how to physically install the SSD, see the ASA hardware guide.

Prerequisites

- The free space on flash (disk0) should be at least 3GB plus the size of the boot software.
- In multiple context mode, perform this procedure in the system execution space.
- You must shut down any other software module that you might be running; the device can run a single software module at a time. You must do this from the ASA CLI. For example, the following commands shut down and uninstall the IPS software module, and then reload the ASA; the commands to remove the CX module are the same, except use the **cxsc** keyword instead of **ips**.

  ```
  hostname# sw-module module ips shutdown
  hostname# sw-module module ips uninstall
  hostname# reload
  ```

  Note If you have an active service policy redirecting traffic to an IPS or CX module, you must remove that policy. For example, if the policy is a global one, you would use **no service-policy** *ips_policy* **global**. You can remove the policies using CLI or ASDM.

- When reimaging the module, use the same shutdown and uninstall commands to remove the old image. For example, **sw-module module sfr uninstall**.
- Obtain both the ASA FirePOWER Boot Image and System Software packages from Cisco.com.

Detailed Steps

Step 1 Download the boot image to the device. Do not transfer the system software; it is downloaded later to the SSD. You have the following options:

- ASDM—First, download the boot image to your workstation, or place it on an FTP, TFTP, HTTP, HTTPS, SMB, or SCP server. Then, in ASDM, choose **Tools > File Management**, and then choose the appropriate **File Transfer** command, either **Between Local PC and Flash** or **Between Remote Server and Flash**. Transfer the boot software to disk0 on the ASA.
- ASA CLI—First, place the boot image on a TFTP, FTP, HTTP, or HTTPS server, then use the **copy** command to download it to flash. The following example uses TFTP; replace <TFTP Server> with your server's IP address or host name.

  ```
  ciscoasa# copy tftp://<TFTP SERVER>/asasfr-5500x-boot-5.3.1-58.img
  disk0:/asasfr-5500x-boot-5.3.1-58.img
  ```

Step 2 Download the ASA FirePOWER system software from Cisco.com to an HTTP, HTTPS, or FTP server accessible from the ASA FirePOWER management interface.

Step 3 Set the ASA FirePOWER module boot image location in ASA disk0 by entering the following command:

```
hostname# sw-module module sfr recover configure image disk0:file_path
```

Note If you get a message like "ERROR: Another service (cxsc) is running, only one service is allowed to run at any time," it means that you already have a different software module configured. You must shut it down and remove it to install a new module as described in the prerequisites section above.

Example:

```
hostname# sw-module module sfr recover configure image
disk0:asasfr-5500x-boot-5.3.1-58.img
```

Step 4 Load the ASA FirePOWER boot image by entering the following command:

```
hostname# sw-module module sfr recover boot
```

Step 5 Wait approximately 5-15 minutes for the ASA FirePOWER module to boot up, and then open a console session to the now-running ASA FirePOWER boot image. You might need to press enter after opening the session to get to the login prompt. The default username is **admin** and the default password is **Admin123**.

```
hostname# session sfr console
Opening console session with module sfr.
Connected to module sfr. Escape character sequence is 'CTRL-^X'.

Cisco ASA SFR Boot Image 5.3.1
asasfr login: admin
Password: Admin123
```

Tip If the module boot has not competed, the **session** command will fail with a message about not being able to connect over ttyS1. Wait and try again.

Step 6 Use the **setup** command to configure the system so that you can install the system software package.

```
asasfr-boot> setup


                         Welcome to SFR Setup
                          [hit Ctrl-C to abort]
                        Default values are inside []
```

You are prompted for the following. Note that the management address and gateway, and DNS information, are the key settings to configure.

- Host name—Up to 65 alphanumeric characters, no spaces. Hyphens are allowed.
- Network address—You can set static IPv4 or IPv6 addresses, or use DHCP (for IPv4) or IPv6 stateless autoconfiguration.
- DNS information—You must identify at least one DNS server, and you can also set the domain name and search domain.
- NTP information—You can enable NTP and configure the NTP servers, for setting system time.

Step 7 Install the System Software image using the **system install** command:

system install [**noconfirm**] *url*

Include the **noconfirm** option if you do not want to respond to confirmation messages. Use an HTTP, HTTPS, or FTP URL; if a username and password are required, you will be prompted to supply them.

When installation is complete, the system reboots. Allow 10 or more minutes for application component installation and for the ASA FirePOWER services to start. (The **show module sfr** output should show all processes as Up.)

For example:

```
asasfr-boot> system install http://asasfr-sys-5.3.1-44.pkg
Verifying
Downloading
Extracting
Package Detail
        Description:                    Cisco ASA-FirePOWER 5.3.1-44 System Install
        Requires reboot:                Yes

Do you want to continue with upgrade? [y]: y
Warning: Please do not interrupt the process or turn off the system.
Doing so might leave system in unusable state.

Upgrading
Starting upgrade process ...
Populating new system image

Reboot is required to complete the upgrade. Press 'Enter' to reboot the system.
(press Enter)
Broadcast message from root (ttyS1) (Mon Feb 17 19:28:38 2014):

The system is going down for reboot NOW!
Console session with module sfr terminated.
```

Step 8 Open a session to the ASA FirePOWER module. You will see a different login prompt because you are logging into the fully functional module.

```
asa3# session sfr
Opening command session with module sfr.
Connected to module sfr. Escape character sequence is 'CTRL-^X'.

Sourcefire ASA5555 v5.3.1 (build 44)
Sourcefire3D login:
```

Step 9 Log in with the username **admin** and the password **Sourcefire**.

Step 10 Complete the system configuration as prompted.

You must first read and accept the end user license agreement (EULA). Then change the admin password, then configure the management address and DNS settings, as prompted. You can configure both IPv4 and IPv6 management addresses. For example:

```
System initialization in progress.  Please stand by.
You must change the password for 'admin' to continue.
Enter new password: <new password>
Confirm new password: <repeat 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]: 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]: 10.86.118.3
Enter an IPv4 netmask for the management interface [255.255.255.0]: 255.255.252.0
Enter the IPv4 default gateway for the management interface []: 10.86.116.1
Enter a fully qualified hostname for this system [Sourcefire3D]: asasfr.example.com
Enter a comma-separated list of DNS servers or 'none' []: 10.100.10.15,
10.120.10.14
Enter a comma-separated list of search domains or 'none' [example.net]: example.com
If your networking information has changed, you will need to reconnect.
```

```
For HTTP Proxy configuration, run 'configure network http-proxy'
(Wait for the system to reconfigure itself.)

This sensor must be managed by a Defense Center.  A unique alphanumeric
registration key is always required.  In most cases, to register a sensor
to a Defense Center, you must provide the hostname or the IP address along
with the registration key.
'configure manager add [hostname | ip address ] [registration key ]'

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

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

Step 11 Identify the FireSIGHT Management Center appliance that will manage this device using the **configure manager add** command.

You come up with a registration key, which you will then use in FireSIGHT Management Center when you add the device to its inventory. The following example shows the simple case. When there is a NAT boundary, the command is different; see Adding ASA FirePOWER to the FireSIGHT Management Center, page 24-17.

```
> configure manager add 10.89.133.202 123456
Manager successfully configured.
```

Step 12 Log into the FireSIGHT Management Center using an HTTPS connection in a browser, using the hostname or address entered above. For example, https://DC.example.com.

Use the Device Management (**Devices > Device Management**) page to add the device. For more information, see the online help or the Managing Devices chapter in the *FireSIGHT System User Guide*.

Tip You also configure NTP and time settings through FireSIGHT Management Center. Use the Time Synchronization settings when editing the local policy from the **System > Local > System Policy** page.

Changing the ASA FirePOWER Management IP Address

If you cannot use the default management IP address, then you can set the management IP address from the ASA. After you set the management IP address, you can access the ASA FirePOWER module using SSH to perform additional setup.

If you already configured the management address during initial system setup through the ASA FirePOWER CLI, as described in Configuring Basic ASA FirePOWER Settings at the ASA FirePOWER CLI, page 24-16, then it is not necessary to configure it through the ASA CLI or ASDM.

Note For a software module, you can access the ASA FirePOWER CLI to perform setup by sessioning from the ASA CLI; you can then set the ASA FirePOWER management IP address as part of setup. For a hardware module, you can complete the initial setup through the Console port.

Guidelines

In multiple context mode, perform this procedure in the system execution space.

Detailed Steps

Command	Purpose

`session {1 | sfr} do setup host ip` *`ip_address/mask,gateway_ip`*
Example:
`hostname# session 1 do setup host ip 10.1.1.2/24,10.1.1.1`
	Sets the ASA FirePOWER management IP address, mask, and gateway. Use **1** for a hardware module, **sfr** for a software module.

Configuring Basic ASA FirePOWER Settings at the ASA FirePOWER CLI

You must configure basic network settings and other parameters on the ASA FirePOWER module before you can configure your security policy. This procedure assumes you have the full system software installed (not just the boot image), either after you installed it directly, or because it is already installed on a hardware module.

Tip This procedure also assumes that you are performing an initial configuration. During initial configuration, you are prompted for these settings. If you need to change these settings later, use the various **configure network** commands to change the individual settings. For more information on the **configure network** commands, use the **?** command for help, and see the *FireSIGHT System User Guide*, or the online help in FireSIGHT Management Center.

Detailed Steps

Step 1 Do one of the following:

- (All models) Use SSH to connect to the ASA FirePOWER management IP address.
- (ASA 5512-X through ASA 5555-X) Open a session to the module from the ASA CLI (see the “Getting Started” chapter in the general operations configuration guide to access the ASA CLI). In multiple context mode, session from the system execution space.

```
hostname# session sfr
```

Step 2 Log in with the username **admin** and the password **Sourcefire**.

Step 3 Complete the system configuration as prompted.

You must first read and accept the end user license agreement (EULA). Then change the admin password, then configure the management address and DNS settings, as prompted. You can configure both IPv4 and IPv6 management addresses. The configuration is complete when you see the message that says the sensor must be managed by a FireSIGHT Management Center.

For example:

```
System initialization in progress.  Please stand by.
You must change the password for 'admin' to continue.
Enter new password: <new password>
```

```
Confirm new password: <repeat 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]: 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]: 10.86.118.3
Enter an IPv4 netmask for the management interface [255.255.255.0]: 255.255.252.0
Enter the IPv4 default gateway for the management interface []: 10.86.116.1
Enter a fully qualified hostname for this system [Sourcefire3D]: asasfr.example.com
Enter a comma-separated list of DNS servers or 'none' []: 10.100.10.15,
10.120.10.14
Enter a comma-separated list of search domains or 'none' [example.net]: example.com
If your networking information has changed, you will need to reconnect.
For HTTP Proxy configuration, run 'configure network http-proxy'
(Wait for the system to reconfigure itself.)

This sensor must be managed by a Defense Center.  A unique alphanumeric
registration key is always required.  In most cases, to register a sensor
to a Defense Center, you must provide the hostname or the IP address along
with the registration key.
'configure manager add [hostname | ip address ] [registration key ]'

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

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

Step 4 Now you must identify the FireSIGHT Management Center that will manage this device, as explained in Adding ASA FirePOWER to the FireSIGHT Management Center, page 24-17.

Adding ASA FirePOWER to the FireSIGHT Management Center

You must register the ASA FirePOWER module to a FireSIGHT Management Center, which is the application you use to configure the policies on the module. FireSIGHT Management Center is also known as Defense Center.

To register a device, use the **configure manager add** command. A unique alphanumeric registration key is always required to register a device to a FireSIGHT Management Center. This is a simple key that you specify, and is not the same as a license key.

In most cases, you must provide the FireSIGHT Management Center's hostname or the IP address along with the registration key, for example:

```
configure manager add DC.example.com my_reg_key
```

However, if the device and the FireSIGHT Management Center are separated by a NAT device, enter a unique NAT ID along with the registration key, and specify DONTRESOLVE instead of the hostname, for example:

```
configure manager add DONTRESOLVE my_reg_key my_nat_id
```

Detailed Steps

Step 1 Do one of the following:

- (All models) Use SSH to connect to the ASA FirePOWER management IP address.
- (ASA 5512-X through ASA 5555-X) Open a session to the module from the ASA CLI (see the “Getting Started” chapter in the general operations configuration guide to access the ASA CLI). In multiple context mode, session from the system execution space.

```
hostname# session sfr
```

Step 2 Log in with the username **admin** or another username that has the CLI configuration (Administrator) access level.

Step 3 At the prompt, register the device to a FireSIGHT Management Center using the **configure manager add** command, which has the following syntax:

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

where:

- {*hostname* | *IPv4_address* | *IPv6_address* | **DONTRESOLVE**} specifies either the fully qualified host name or IP address of the FireSIGHT Management Center. If the FireSIGHT Management Center is not directly addressable, use DONTRESOLVE.
- *reg_key* is the unique alphanumeric registration key required to register a device to the FireSIGHT Management Center.
- *nat_id* is an optional alphanumeric string used during the registration process between the FireSIGHT Management Center and the device. It is required if the hostname is set to DONTRESOLVE.

Step 4 Log into the FireSIGHT Management Center using an HTTPS connection in a browser, using the hostname or address entered above. For example, https://DC.example.com.

Use the Device Management (**Devices > Device Management**) page to add the device. For more information, see the online help or the Managing Devices chapter in the *FireSIGHT System User Guide*.

Configuring the Security Policy on the ASA FirePOWER Module

You use FireSIGHT Management Center to configure the security policy on the ASA FirePOWER module. The security policy controls the services provided by the module, such as Next Generation IPS filtering and application filtering. You cannot configure the policy through the ASA FirePOWER CLI, the ASA CLI, or ASDM.

To open FireSIGHT Management Center, use a web browser to open the following URL:

https://*DC_address*

Where *DC_address* is the DNS name or IP address of the manager you defined in Adding ASA FirePOWER to the FireSIGHT Management Center, page 24-17. For example, https://dc.example.com.

For information about how to configure the security policy, see the *FireSIGHT System User Guide* or the online help in FireSIGHT Management Center.

Tip You can also open FireSIGHT Management Center from the ASA FirePOWER Status dashboard in ASDM. Choose **Home > ASA FirePOWER Status**, and click the link at the bottom of the dashboard.

Redirecting Traffic to the ASA FirePOWER Module

Redirect traffic to the ASA FirePOWER module by creating a service policy that identifies specific traffic that you want to send. ASA policies, such as access rules, are applied to the traffic before it is redirected to the module.

You can configure your device in either an inline or inline tap monitor-only deployment.

- In an inline deployment, the actual traffic is sent to the device, and the device's policy affects what happens to the traffic. After dropping undesired traffic and taking any other actions applied by policy, the traffic is returned to the ASA for further processing and ultimate transmission.
- In an inline tap deployment, a copy of the traffic is sent to the device, but it is not returned to the ASA. Inline tap mode lets you see what the device would have done to traffic, and lets you evaluate the content of the traffic, without impacting the network.

Note You cannot configure both monitor-only mode and normal inline mode at the same time on the ASA. Only one type of security policy is allowed. In multiple context mode, you cannot configure monitor-only mode for some contexts, and regular inline mode for others.

Prerequisites

- If you have an active service policy redirecting traffic to an IPS or CX module (that you replaced with the ASA FirePOWER), you must remove that policy before you configure the ASA FirePOWER service policy.
- Be sure to configure consistent policies on the ASA and the ASA FirePOWER. Both policies should reflect the inline or inline tap mode of the traffic.
- In multiple context mode, perform this procedure within each security context.

Detailed Steps

	Command	Purpose

Step 1	**`class-map`** *`name`*
	Example:
	`hostname(config)# class-map sfr_class`
		Creates a class map to identify the traffic for which you want to send to the module.
		If you want to send multiple traffic classes to the module, you can create multiple class maps for use in the security policy.

Step 2	**`match`** *`parameter`*
	Example:
	`hostname(config-cmap)# match access-list sfr_traffic`
		Specifies the traffic in the class map. See Identifying Traffic (Layer 3/4 Class Maps), page 1-12 for more information.

	Command	Purpose

Step 3	**`policy-map`** *`name`*
	Example:
	`hostname(config)# policy-map sfr_policy`
		Adds or edits a policy map that sets the actions to take with the class map traffic.

Step 4	**`class`** *`name`*
	Example:
	`hostname(config-pmap)# class sfr_class`
		Identifies the class map you created at the start of this procedure.

Step 5	**`sfr`** `{`**`fail-close`** `|` **`fail-open`**`} [`**`monitor-only`**`]`
	Example:
	`hostname(config-pmap-c)# sfr fail-close`
		Specifies that the traffic should be sent to the ASA FirePOWER module.
		The **fail-close** keyword sets the ASA to block all traffic if the ASA FirePOWER module is unavailable.
		The **fail-open** keyword sets the ASA to allow all traffic through, uninspected, if the module is unavailable.
		Specify **monitor-only** to send a read-only copy of traffic to the module, i.e. inline tap mode. If you do not include the keyword, the traffic is sent in inline mode.
		See ASA FirePOWER Inline Tap Monitor-Only Mode, page 24-3 for more information.

Step 6	(Optional)
	`class` *`name2`*
	Example:
	`hostname(config-pmap)# class sfr_class2`
		If you created multiple class maps for ASA FirePOWER traffic, you can specify another class for the policy.
		See Feature Matching Within a Service Policy, page 1-3 for detailed information about how the order of classes matters within a policy map. Traffic cannot match more than one class map for the same action type.

Step 7	(Optional)
	`sfr` `{`**`fail-close`** `|` **`fail-open`**`} [`**`monitor-only`**`]`
	Example:
	`hostname(config-pmap-c)# sfr fail-close`
		Specifies that the second class of traffic should be sent to the ASA FirePOWER module.
		Add as many classes as desired by repeating these steps.

Step 8	**`service-policy`** *`policymap_name`* `{`**`global`** `|` **`interface`** *`interface_name`*`}`
	Example:
	`hostname(config)# service-policy sfr_policy interface outside`
		Activates the policy map on one or more interfaces. The **global** keyword applies the policy map to all interfaces, and **interface** applies the policy to one interface. Only one global policy is allowed. You can override the global policy on an interface by applying a service policy to that interface. You can only apply one policy map to each interface.

Managing the ASA FirePOWER Module

This section includes procedures that help you manage the module.

- Resetting the Password, page 24-21
- Reloading or Resetting the Module, page 24-22
- Shutting Down the Module, page 24-22
- (ASA 5512-X through ASA 5555-X) Uninstalling a Software Module Image, page 24-23
- (ASA 5512-X through ASA 5555-X) Sessioning to the Module From the ASA, page 24-24
- Reimaging the 5585-X ASA FirePOWER Hardware Module, page 24-25
- Upgrading the System Software, page 24-27

Resetting the Password

If you forget the password for admin user, another user with CLI Configuration permissions can log in and change the password.

If there are no other users with the required permissions, you can reset the admin password from the ASA using the **session do** command.

Tip The password-reset option on the ASA hw-module and sw-module commands does not work with ASA FirePOWER.

Guidelines

In multiple context mode, perform this procedure in the system execution space.

Detailed Steps

Command	Purpose

For a hardware module (ASA 5585-X):
`session 1 do password-reset`
For a software module (ASA 5512-X through ASA 5555-X):
`session sfr do password-reset`
Example:
`hostname# session sfr do password-reset`
	Resets the module password for the user **admin** to the default, **Sourcefire**.

Reloading or Resetting the Module

To reload or reset the module, enter one of the following commands at the ASA CLI.

Guidelines

In multiple context mode, perform this procedure in the system execution space.

Detailed Steps

Command	Purpose

For a hardware module (ASA 5585-X):
`hw-module module 1 reload`
For a software module (ASA 5512-X through ASA 5555-X):
`sw-module module sfr reload`
Example:
`hostname# hw-module module 1 reload`
	Reloads the module software.

For a hardware module:
`hw-module module 1 reset`
For a software module:
`sw-module module sfr reset`
Example:
`hostname# hw-module module 1 reset`
	Performs a reset, and then reloads the module.

Shutting Down the Module

Shutting down the module software prepares the module to be safely powered off without losing configuration data. To gracefully shut down the module, perform the following steps at the ASA CLI.

Note If you reload the ASA, the module is not automatically shut down, so we recommend shutting down the module before reloading the ASA.

Guidelines

In multiple context mode, perform this procedure in the system execution space.

Detailed Steps

Command	Purpose
For a hardware module (ASA 5585-X): **hw-module module 1 shutdown** For a software module (ASA 5512-X through ASA 5555-X): **sw-module module sfr shutdown** **Example:** `hostname# hw-module module 1 shutdown`	Shuts down the module.

(ASA 5512-X through ASA 5555-X) Uninstalling a Software Module Image

To uninstall a software module image and associated configuration, perform the following steps.

Guidelines

In multiple context mode, perform this procedure in the system execution space.

Detailed Steps

	Command	Purpose

Step 1	**sw-module module sfr uninstall**
	Example:
	`hostname# sw-module module sfr uninstall`
	`Module sfr will be uninstalled. This will`
	`completely remove the`
	`disk image associated with the sw-module`
	`including any configuration`
	`that existed within it.`
	
	`Uninstall module <id>? [confirm]`
		Permanently uninstalls the software module image and associated configuration.

Step 2	**reload** **Example:** `hostname# reload`	Reloads the ASA. You must reload the ASA before you can install a new module type.

(ASA 5512-X through ASA 5555-X) Sessioning to the Module From the ASA

To access the ASA FirePOWER software module CLI from the ASA, you can session from the ASA. You can either session to the module (using Telnet) or create a virtual console session. A console session might be useful if the control plane is down and you cannot establish a Telnet session.

Use the ASA FirePOWER CLI to configure basic network settings and to troubleshoot the module.

Guidelines

- In multiple context mode, perform this procedure in the system execution space.
- You can log in with any username configured on the ASA FirePOWER. Initially, the **admin** username is the only one configured (and it is always available). The initial default username is **Sourcefire** for the full image, and **Admin123** for the boot image.

Detailed Steps

Command	Purpose

Telnet session.
`session sfr`
Example:
`hostname# session sfr`
`Opening command session with module sfr.`
`Connected to module sfr. Escape character sequence is 'CTRL-^X'.`
`asasfr login: admin`
`Password:`
	Accesses the module using Telnet. You are prompted for the username and password.
	When in the ASA FirePOWER CLI, to exit back to the ASA CLI:
	• Enter any command that would log you out of the module, such as **logout** or **exit**.
	• Press **Ctrl-Shift-6, x**.

Console session.
`session sfr console`
Example:
`hostname# session sfr console`
`Opening console session with module sfr.`
`Connected to module sfr. Escape character sequence is 'CTRL-^X'.`
`asasfr login: admin`
`Password:`
	Accesses the module console. You are prompted for the username and password. The only way out of a console session is to press **Ctrl-Shift-6, x**. Logging out of the module leaves you at the module login prompt.
	Note Do not use this command in conjunction with a terminal server where **Ctrl-Shift-6, x** is the escape sequence to return to the terminal server prompt. **Ctrl-Shift-6, x** is also the sequence to escape the ASA FirePOWER console and return to the ASA prompt. Therefore, if you try to exit the ASA FirePOWER console in this situation, you instead exit all the way to the terminal server prompt. If you reconnect the terminal server to the ASA, the ASA FirePOWER console session is still active; you can never exit to the ASA prompt. You must use a direct serial connection to return the console to the ASA prompt.
	Use the **session sfr** command instead.

Reimaging the 5585-X ASA FirePOWER Hardware Module

If you need to reimage the ASA FirePOWER hardware module in an ASA 5585-X appliance for any reason, you need to install both the Boot Image and a System Software package, in that order. You must install both packages to have a functioning system. Under normal circumstances, you do not need to reimage the system to install upgrade packages.

To install the boot image, you need to TFTP boot the image from the Management-0 port on the ASA FirePOWER SSP by logging into the module's Console port. Because the Management-0 port is on an SSP in the first slot, it is also known as Management1/0, but rommon recognizes it as Management-0 or Management0/1.

To accomplish a TFTP boot, you must:

- Place the software image on a TFTP server that can be accessed through the Management1/0 interface on the ASA FirePOWER.
- Connect Management1/0 to the network. You must use this interface to TFTP boot the Boot Image.
- Configure rommon variables. Press Esc to interrupt the auto-boot process so that you can configure rommon variables.

Once the boot image is installed, you install the System Software package. You must place the package on an HTTP, HTTPS, or FTP server that is accessible from the ASA FirePOWER.

The following procedure explains how to install the boot image and then install the System Software package.

Detailed Steps

Step 1 Connect to the Console port. Use the console cable included with the ASA product 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 ASA for more information about the console cable.

Step 2 Enter the **system reboot** command to reload the system.

Step 3 When prompted, break out of the boot by pressing Esc. If you see grub start to boot the system, you have waited too long.

This will place you at the rommon prompt.

Step 4 At the rommon prompt, enter **set** and configure the following parameters:

- ADDRESS—The management IP address of the module.
- SERVER—The IP address of the TFTP server.
- GATEWAY—The gateway address to the TFTP server. If the TFTP server is directly attached to Management1/0, use the IP address of the TFTP server. If the TFTP server and management address are on the same subnet, do not configure the gateway or TFTP boot will fail.
- IMAGE—The Boot Image path and image name on the TFTP server. For example, if you place the file on the TFTP server in /tftpboot/images/filename.img, the IMAGE value is images/filename.img.

For example:

```
ADDRESS=10.5.190.199
SERVER=10.5.11.170
GATEWAY=10.5.1.1
IMAGE=asasfr-boot-5.3.1-26-54.img
```

Step 5 Enter **sync** to save the settings.

Step 6 Enter **tftp** to initiate the download and boot process.

You will see ! marks to indicate progress. When the boot completes after several minutes, you will see a login prompt.

Step 7 Log in as **admin**, with the password **Admin123**.

Step 8 Use the **setup** command to configure the system so that you can install the system software package.

You are prompted for the following. Note that the management address and gateway, and DNS information, are the key settings to configure.

- Host name—Up to 65 alphanumeric characters, no spaces. Hyphens are allowed.
- Network address—You can set static IPv4 or IPv6 addresses, or use DHCP (for IPv4) or IPv6 stateless autoconfiguration.
- DNS information—You must identify at least one DNS server, and you can also set the domain name and search domain.
- NTP information—You can enable NTP and configure the NTP servers, for setting system time.

Step 9 Install the System Software image using the **system install** command:

system install [**noconfirm**] *url*

Include the **noconfirm** option if you do not want to respond to confirmation messages.

When installation is complete, the system reboots. Allow 10 or more minutes for application component installation and for the ASA FirePOWER services to start.

For example:

```
asasfr-boot> system install http://asasfr-sys-5.3.1-54.pkg
```

Step 10 When the boot completes, log in as **admin** with the password **Sourcefire**.

Complete the system configuration as prompted.

You must first read and accept the end user license agreement (EULA). Then change the admin password, then configure the management address and DNS settings, as prompted. You can configure both IPv4 and IPv6 management addresses.

Step 11 Identify the FireSIGHT Management Center appliance that will manage this device using the **configure manager add** command.

You come up with a registration key, which you will then use in FireSIGHT Management Center when you add the device to its inventory. The following example shows the simple case. When there is a NAT boundary, the command is different; see Adding ASA FirePOWER to the FireSIGHT Management Center, page 24-17.

```
> configure manager add 10.89.133.202 123456
Manager successfully configured.
```

Step 12 Log into the FireSIGHT Management Center using an HTTPS connection in a browser, using the hostname or address entered above. For example, https://DC.example.com.

Use the Device Management (**Devices > Device Management**) page to add the device. For more information, see the Managing Devices chapter in the *FireSIGHT System User Guide* or the online help in FireSIGHT Management Center.

Upgrading the System Software

Use FireSIGHT Management Center to apply upgrade images to the ASA FirePOWER module. Before applying an upgrade, ensure that the ASA is running the minimum required release for the new version; you might need to upgrade the ASA prior to upgrading the module.

For more information about applying upgrades, see the *FireSIGHT System User Guide* or the online help in FireSIGHT Management Center.

Monitoring the ASA FirePOWER Module

- Showing Module Status, page 24-27
- Showing Module Statistics, page 24-28
- Monitoring Module Connections, page 24-29
- Capturing Module Traffic, page 24-31

Note For ASA FirePOWER-related syslog messages, see the syslog messages guide. ASA FirePOWER syslog messages start with message number 434001.

Showing Module Status

To check the status of a module, enter one of the following commands:

Command	Purpose
show module	Displays the status.
show module {**1** | **sfr**} **details**	Displays additional status information. Specify **1** for a hardware module and **sfr** for a software module.
show module sfr recover	Displays the location of the boot image used when installing the module.

Examples

The following is sample output from the **show module** command for an ASA 5585-X with an ASA FirePOWER SSP hardware module installed:

```
hostname# show module
Mod  Card Type                                    Model              Serial No.
---- -------------------------------------------- ------------------ -----------
   0 ASA 5585-X Security Services Processor-10 wi ASA5585-SSP-10     JAF1507AMKE
   1 ASA 5585-X FirePOWER Security Services Proce ASA5585-SSP-SFR10  JAF1510BLSA

Mod  MAC Address Range                 Hw Version   Fw Version   Sw Version
---- --------------------------------- ------------ ------------ ---------------
   0 5475.d05b.1100 to 5475.d05b.110b  1.0          2.0(7)0      100.10(0)8
   1 5475.d05b.2450 to 5475.d05b.245b  1.0          2.0(13)0     5.3.1-44

Mod  SSM Application Name           Status           SSM Application Version
---- ------------------------------ ---------------- --------------------------
   1 FirePOWER                      Up               5.3.1-44
```

```
Mod  Status             Data Plane Status     Compatibility
---- ------------------ --------------------- -------------
   0 Up Sys             Not Applicable
   1 Up                 Up
```

The following example shows the details for a software module. Note that DC Addr indicates the address of the FireSIGHT Management Center that manages this device.

```
hostname# show module sfr details
Getting details from the Service Module, please wait...

Card Type:          FirePOWER Services Software Module
Model:              ASA5555
Hardware version:   N/A
Serial Number:      FCH1714J6HP
Firmware version:   N/A
Software version:   5.3.1-100
MAC Address Range:  bc16.6520.1dcb to bc16.6520.1dcb
App. name:          ASA FirePOWER
App. Status:        Up
App. Status Desc:   Normal Operation
App. version:       5.3.1-100
Data Plane Status:  Up
Status:             Up
DC addr:            10.89.133.202
Mgmt IP addr:       10.86.118.7
Mgmt Network mask:  255.255.252.0
Mgmt Gateway:       10.86.116.1
Mgmt web ports:     443
Mgmt TLS enabled:   true
```

The following example shows the location of the ASA FirePOWER boot image that was used with the **sw-module module sfr recover** command when installing the module.

```
hostname# show module sfr recover
Module sfr recover parameters...
Boot Recovery Image: No
Image File Path:     disk0:/asasfr-5500x-boot-5.3.1-44.img
```

Showing Module Statistics

To show module statistics, enter the following command:

Command	Purpose
show service-policy sfr	Displays statistics and status for each service policy that includes the **sfr** command. Use **clear service-policy** to clear the counters.

Examples

The following example shows the ASA FirePOWER service policy and the current statistics as well as the module status:

```
ciscoasa# show service-policy sfr

Global policy:
  Service-policy: global_policy
    Class-map: my-sfr-class
      SFR: card status Up, mode fail-close
        packet input 2626422041, packet output 2626877967, drop 0, reset-drop 0, proxied 0
```

The following example shows a monitor-only policy. In this case, you should see packet input counters increasing, but the packet output counter should stay zero, because no traffic is passing back to the ASA.

```
hostname# show service-policy sfr
Global policy:
  Service-policy: global_policy
    Class-map: bypass
      SFR: card status Up, mode fail-open, monitor-only
        packet input 2626422041, packet output 0, drop 0, reset-drop 0, proxied 0
```

Monitoring Module Connections

To show connections through the ASA FirePOWER module, enter one of the following commands:

Command	Purpose
show asp table classify domain sfr	Shows the NP rules created to send traffic to the ASA FirePOWER module.
show asp drop	Shows dropped packets. The drop types are explained following this table.
show conn	This command already shows if a connection is being forwarded to a module by displaying the 'X - inspected by service module' flag.

Drop Reasons

The show asp drop command can include the following drop reasons related to the ASA FirePOWER module.

Frame Drops:

- sfr-bad-tlv-received—This occurs when ASA receives a packet from FirePOWER without a Policy ID TLV. This TLV must be present in non-control packets if it does not have the Standby/Active bit set in the actions field.
- sfr-request—The frame was requested to be dropped by FirePOWER due a policy on FirePOWER whereby FirePOWER would set the actions to Deny Source, Deny Destination, or Deny Pkt. If the frame should not have been dropped, review the policies on the module that are denying the flow.
- sfr-fail-close—The packet is dropped because the card is not up and the policy configured was 'fail-close' (rather than 'fail-open' which allows packets through even if the card was down). Check card status and attempt to restart services or reboot it.

- sfr-fail—The FirePOWER configuration was removed for an existing flow and we are not able to process it through FirePOWER it will be dropped. This should be very unlikely.
- sfr-malformed-packet—The packet from FirePOWER contains an invalid header. For instance, the header length may not be correct.
- sfr-ha-request—This counter is incremented when the security appliance receives a FirePOWER HA request packet, but could not process it and the packet is dropped.
- sfr-invalid-encap—This counter is incremented when the security appliance receives a FirePOWER packet with invalid message header, and the packet is dropped.
- sfr-bad-handle-received—Received Bad flow handle in a packet from FirePOWER Module, thus dropping flow. This counter is incremented, flow and packet are dropped on ASA as the handle for FirePOWER flow has changed in flow duration.
- sfr-rx-monitor-only—This counter is incremented when the security appliance receives a FirePOWER packet when in monitor-only mode, and the packet is dropped.

Flow Drops:

- sfr-request—The FirePOWER requested to terminate the flow. The actions bit 0 is set.
- reset-by-sfr—The FirePOWER requested to terminate and reset the flow. The actions bit 1 is set.
- sfr-fail-close—The flow was terminated because the card is down and the configured policy was 'fail-close'.

Examples

The following is sample output from the **show asp table classify domain sfr** command:

```
hostname# show asp table classify domain sfr

Input Table
in  id=0x7ffe60139410, priority=73, domain=sfr, deny=false
        hits=0, user_data=0x7ffe5c5932c0, cs_id=0x0, use_real_addr, flags=0x0, protocol=6
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0, tag=0
        dst ip/id=0.0.0.0, mask=0.0.0.0, port=6000, tag=0, dscp=0x0
        input_ifc=outside, output_ifc=any
in  id=0x7ffe60139510, priority=73, domain=sfr, deny=false
        hits=0, user_data=0x7ffe5c5932c0, cs_id=0x0, use_real_addr, flags=0x10000,
protocol=6
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0, tag=0
        dst ip/id=::/0, port=6000, tag=0, dscp=0x0
        input_ifc=outside, output_ifc=any
in  id=0x7ffe60139610, priority=73, domain=sfr, deny=false
        hits=0, user_data=0x7ffe5c5932c0, cs_id=0x0, use_real_addr, flags=0x0, protocol=6
        src ip/id=::/0, port=0, tag=0
        dst ip/id=::/0, port=6000, tag=0
        input_ifc=outside, output_ifc=any
in  id=0x7ffe5c593f20, priority=73, domain=sfr, deny=false
        hits=0, user_data=0x7ffe5c5932c0, cs_id=0x0, use_real_addr, flags=0x20000,
protocol=6
        src ip/id=::/0, port=0, tag=0
        dst ip/id=0.0.0.0, mask=0.0.0.0, port=6000, tag=0
        input_ifc=outside, output_ifc=any

Output Table:
out id=0x7ffe5c594560, priority=73, domain=sfr, deny=false
        hits=0, user_data=0x7ffe5c5932c0, cs_id=0x0, use_real_addr, flags=0x0, protocol=6
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0, tag=0
        dst ip/id=0.0.0.0, mask=0.0.0.0, port=6000, tag=0, dscp=0x0
        input_ifc=any, output_ifc=outside
```

```
out id=0x7ffe5c595b80, priority=73, domain=sfr, deny=false
        hits=0, user_data=0x7ffe5c5932c0, cs_id=0x0, use_real_addr, flags=0x20000,
protocol=6
        src ip/id=::/0, port=0, tag=0
        dst ip/id=0.0.0.0, mask=0.0.0.0, port=6000, tag=0, dscp=0x0
        input_ifc=any, output_ifc=outside
out id=0x7ffe5c595400, priority=73, domain=sfr, deny=false
        hits=0, user_data=0x7ffe5c5932c0, cs_id=0x0, use_real_addr, flags=0x10000,
protocol=6
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0, tag=0
        dst ip/id=::/0, port=6000, tag=0
        input_ifc=any, output_ifc=outside
out id=0x7ffe5c5957c0, priority=73, domain=sfr, deny=false
        hits=0, user_data=0x7ffe5c5932c0, cs_id=0x0, use_real_addr, flags=0x0, protocol=6
        src ip/id=::/0, port=0, tag=0
        dst ip/id=::/0, port=6000, tag=0
        input_ifc=any, output_ifc=outside

L2 - Output Table:

L2 - Input Table:

Last clearing of hits counters: Never
```

Capturing Module Traffic

To configure and view packet captures for the module, enter one of the following commands:

Command	Purpose
capture *name* **interface asa_dataplane**	Captures packets between module and the ASA on the backplane.
copy capture	Copies the capture file to a server.
show capture	Shows the capture at the ASA console.

Note Captured packets contain an additional AFBP header that your PCAP viewer might not understand; be sure to use the appropriate plug-in to view these packets.

Configuration Examples for the ASA FirePOWER Module

The following example diverts all HTTP traffic to the ASA FirePOWER module, and blocks all HTTP traffic if the module fails for any reason:

```
hostname(config)# access-list ASASFR permit tcp any any eq 80
hostname(config)# class-map my-sfr-class
hostname(config-cmap)# match access-list ASASFR
hostname(config-cmap)# policy-map my-sfr-policy
hostname(config-pmap)# class my-sfr-class
hostname(config-pmap-c)# sfr fail-close
hostname(config-pmap-c)# service-policy my-sfr-policy global
```

The following example diverts all IP traffic destined for the 10.1.1.0 network and the 10.2.1.0 network to the ASA FirePOWER module, and allows all traffic through if the module fails for any reason.

```
hostname(config)# access-list my-sfr-acl permit ip any 10.1.1.0 255.255.255.0
hostname(config)# access-list my-sfr-acl2 permit ip any 10.2.1.0 255.255.255.0
hostname(config)# class-map my-sfr-class
hostname(config-cmap)# match access-list my-sfr-acl
hostname(config)# class-map my-sfr-class2
hostname(config-cmap)# match access-list my-sfr-acl2
hostname(config-cmap)# policy-map my-sfr-policy
hostname(config-pmap)# class my-sfr-class
hostname(config-pmap-c)# sfr fail-open
hostname(config-pmap)# class my-sfr-class2
hostname(config-pmap-c)# sfr fail-open
hostname(config-pmap-c)# service-policy my-sfr-policy interface outside
```

Feature History for the ASA FirePOWER Module

The following table lists each feature change and the platform release in which it was implemented. ASDM is backwards-compatible with multiple platform releases, so the specific ASDM release in which support was added is not listed.

Table 24-2 Feature History for the ASA FirePOWER Module

Feature Name	Platform Releases	Feature Information
ASA 5585-X (all models) support for the matching ASA FirePOWER SSP hardware module. ASA 5512-X through ASA 5555-X support for the ASA FirePOWER software module.	ASA 9.2(2) ASA FirePOWER 5.3.1	The ASA FirePOWER module supplies next-generation firewall services, including Next-Generation IPS (NGIPS), Application Visibility and Control (AVC), URL filtering, and Advanced Malware Protection (AMP).You can use the module in single or multiple context mode, and in routed or transparent mode. We introduced or modified the following commands: **capture interface asa_dataplane**, **debug sfr**, **hw-module module 1 reload**, **hw-module module 1 reset**, **hw-module module 1 shutdown**, **session do setup host ip, session do get-config, session do password-reset, session sfr, sfr, show asp table classify domain sfr**, **show capture**, **show conn**, **show module sfr**, **show service-policy, sw-module sfr**.