This chapter describes how to configure the ASA IPS module. The ASA IPS module might be a hardware module or a software module, depending on your ASA model. For a list of supported ASA IPS modules per ASA model, see the *Cisco ASA Compatibility Matrix*: http://www.cisco.com/en/US/docs/security/asa/compatibility/asamatrix.html

- Information About the ASA IPS Module, page 18-1
- Licensing Requirements for the ASA IPS module, page 18-5
- Guidelines and Limitations, page 18-5
- Default Settings, page 18-6
- Configuring the ASA IPS module, page 18-6
- Managing the ASA IPS module, page 18-17
- Monitoring the ASA IPS module, page 18-21
- Configuration Examples for the ASA IPS module, page 18-22
- Feature History for the ASA IPS module, page 18-23

### Information About the ASA IPS Module

The ASA IPS module runs advanced IPS software that provides proactive, full-featured intrusion prevention services to stop malicious traffic, including worms and network viruses, before they can affect your network.

- How the ASA IPS Module Works with the ASA, page 18-2
- Operating Modes, page 18-2
- Using Virtual Sensors, page 18-3
- Information About Management Access, page 18-4
How the ASA IPS Module Works with the ASA

The ASA IPS module runs a separate application from the ASA. The ASA IPS module might include an external management interface so you can connect to the ASA IPS module directly; if it does not have a management interface, you can connect to the ASA IPS module through the ASA interface. The ASA IPS SSP on the ASA 5585-X includes data interfaces; these interfaces provide additional port-density for the ASA. However, the overall through-put of the ASA is not increased.

Traffic goes through the firewall checks before being forwarded to the ASA IPS module. When you identify traffic for IPS inspection on the ASA, traffic flows through the ASA and the ASA IPS module as follows. Note: This example is for “inline mode.” See Operating Modes, page 18-2 for information about “promiscuous mode,” where the ASA only sends a copy of the traffic to the ASA IPS module.

1. Traffic enters the ASA.
2. Incoming VPN traffic is decrypted.
3. Firewall policies are applied.
4. Traffic is sent to the ASA IPS module.
5. The ASA IPS module applies its security policy to the traffic, and takes appropriate actions.
6. Valid traffic is sent back to the ASA; the ASA IPS 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.

Figure 18-1 shows the traffic flow when running the ASA IPS module in inline mode. In this example, the ASA IPS module automatically blocks traffic that it identified as an attack. All other traffic is forwarded through the ASA.

Figure 18-1  ASA IPS module Traffic Flow in the ASA: Inline Mode

---

Operating Modes

You can send traffic to the ASA IPS module using one of the following modes:

- Inline mode—This mode places the ASA IPS module directly in the traffic flow (see Figure 18-1). No traffic that you identified for IPS inspection can continue through the ASA without first passing through, and being inspected by, the ASA IPS module. This mode is the most secure because every
packet that you identify for inspection is analyzed before being allowed through. Also, the ASA IPS module can implement a blocking policy on a packet-by-packet basis. This mode, however, can affect throughput.

- Promiscuous mode—This mode sends a duplicate stream of traffic to the ASA IPS module. This mode is less secure, but has little impact on traffic throughput. Unlike inline mode, in promiscuous mode the ASA IPS module can only block traffic by instructing the ASA to shun the traffic or by resetting a connection on the ASA. Also, while the ASA IPS module is analyzing the traffic, a small amount of traffic might pass through the ASA before the ASA IPS module can shun it. Figure 18-2 shows the ASA IPS module in promiscuous mode. In this example, the ASA IPS module sends a shun message to the ASA for traffic it identified as a threat.

**Figure 18-2  ASA IPS module Traffic Flow in the ASA: Promiscuous Mode**

Using Virtual Sensors

The ASA IPS module running IPS software Version 6.0 and later can run multiple virtual sensors, which means you can configure multiple security policies on the ASA IPS module. You can assign each ASA security context or single mode ASA to one or more virtual sensors, or you can assign multiple security contexts to the same virtual sensor. See the IPS documentation for more information about virtual sensors, including the maximum number of sensors supported.

**Figure 18-3** shows one security context paired with one virtual sensor (in inline mode), while two security contexts share the same virtual sensor.
Information About Management Access

You can manage the IPS application using the following methods:

- **Sessioning to the module from the ASA**—If you have CLI access to the ASA, then you can session to the module and access the module CLI. See Sessioning to the Module from the ASA, page 18-10.

- **Connecting to the IPS management interface using ASDM or SSH**—After you launch ASDM from the ASA, your management station connects to the module management interface to configure the IPS application. For SSH, you can access the module CLI directly on the module management interface. (Telnet access requires additional configuration in the module application). The module management interface can also be used for sending syslog messages or allowing updates for the module application, such as signature database updates.

See the following information about the management interface:

- ASA 5585-X—The IPS management interface is a separate external Gigabit Ethernet interface.
Licensing Requirements for the ASA IPS module

The following table shows the licensing requirements for this feature:

<table>
<thead>
<tr>
<th>Model</th>
<th>License Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA 5512-X, ASA 5515-X, ASA 5525-X, ASA 5545-X, ASA 5555-X</td>
<td>Note The IPS module license lets you run the IPS software module on the ASA. You must also purchase a separate IPS signature subscription; for failover, purchase a subscription for each unit. To obtain IPS signature support, you must purchase the ASA with IPS pre-installed (the part number must include “IPS”). The combined failover cluster license does not let you pair non-IPS and IPS units. For example, if you buy the IPS version of the ASA 5515-X (part number ASA5515-IPS-K9) and try to make a failover pair with a non-IPS version (part number ASA5515-K9), then you will not be able to obtain IPS signature updates for the ASA5515-K9 unit, even though it has an IPS module license inherited from the other unit.</td>
</tr>
<tr>
<td>ASA 5585-X</td>
<td>Base License.</td>
</tr>
<tr>
<td>All other models</td>
<td>No support.</td>
</tr>
</tbody>
</table>

Guidelines and Limitations

This section includes the guidelines and limitations for this feature.

Model Support

- See the Cisco ASA Compatibility Matrix for information about which models support which modules:

Additional Guidelines

- ASDM 7.3(2) and later is not compatible with IPS 7.3(2) or earlier. To manage IPS, connect to its IP address directly in your browser.
- The total throughput for the ASA plus the IPS module is lower than ASA throughput alone.
  - ASA 5512-X through ASA 5555-X—See
Default Settings

Table 18-1 lists the default settings for the ASA IPS module.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management IP address</td>
<td>192.168.1.2/24</td>
</tr>
<tr>
<td>Gateway</td>
<td>192.168.1.1/24 (the default ASA management IP address)</td>
</tr>
<tr>
<td>Username</td>
<td>cisco</td>
</tr>
<tr>
<td>Password</td>
<td>cisco</td>
</tr>
</tbody>
</table>

The default management IP address on the ASA is 192.168.1.1/24.

Configuring the ASA IPS module

This section describes how to configure the ASA IPS module.

- Task Flow for the ASA IPS Module, page 18-6
- Connecting the ASA IPS Management Interface, page 18-7
- Sessioning to the Module from the ASA, page 18-10
- Configuring Basic IPS Module Network Settings, page 18-11
- (ASA 5512-X through ASA 5555-X) Booting the Software Module, page 18-10
- Configuring the Security Policy on the ASA IPS Module, page 18-12
- Assigning Virtual Sensors to a Security Context, page 18-13
- Diverting Traffic to the ASA IPS module, page 18-15

Task Flow for the ASA IPS Module

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

**Step 1** Cable the ASA IPS management interface. See Connecting the ASA IPS Management Interface, page 18-7.
Step 2 Session to the module. Access the IPS CLI over the backplane. See Sessioning to the Module from the ASA, page 18-10.

Step 3 (ASA 5512-X through ASA 5555-X; may be required) Install the software module. See (ASA 5512-X through ASA 5555-X) Booting the Software Module, page 18-10.

Step 4 ASA Configure basic network settings for the IPS module. See Configuring Basic IPS Module Network Settings, page 18-11.

Step 5 On the module, configure the inspection and protection policy, which determines how to inspect traffic and what to do when an intrusion is detected. See Configuring the Security Policy on the ASA IPS Module, page 18-12.

Step 6 (Optional) On the ASA in multiple context mode, specify which IPS virtual sensors are available for each context (if you configured virtual sensors). See Assigning Virtual Sensors to a Security Context, page 18-13.

Step 7 On the ASA, identify traffic to divert to the ASA IPS module. See Diverting Traffic to the ASA IPS module, page 18-15.

Connecting the ASA IPS Management Interface

In addition to providing management access to the IPS module, the IPS management interface needs access to an HTTP proxy server or a DNS server and the Internet so it can download global correlation, signature updates, and license requests. This section describes recommended network configurations. Your network may differ.

- ASA 5585-X (Hardware Module), page 18-7
- ASA 5512-X through ASA 5555-X (Software Module), page 18-8

ASA 5585-X (Hardware Module)

The IPS module includes a separate management interface from the ASA.

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 IPS Management 1/0 interfaces, and the ASA inside network. Be sure to also add a route on the ASA to reach the Management network through the inside router.
Chapter 18   ASA IPS Module

Configuring the ASA IPS module

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 IPS module is a separate device from the ASA, you can configure the IPS Management 1/0 address to be on the same network as the inside interface.

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

These models run the IPS module as a software module, and the IPS management interface shares the Management 0/0 interface with the ASA.
**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 IPS management IP addresses, and the inside network. 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 IPS IP address for that interface. Because the IPS module is essentially a separate device from the ASA, you can configure the IPS 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 IPS 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 IPS address can be on any network, for example, the ASA inside network.

---

**What to Do Next**

### Sessioning to the Module from the ASA

To access the IPS module CLI from the ASA, you can session from the ASA. For software modules, 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.

**Detailed Steps**

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Telnet session.  
For a hardware module (for example, the ASA 5585-X):  
`session 1`  
For a software module (for example, the ASA 5545-X):  
`session ips` | **Accesses the module using Telnet.** You are prompted for the username and password. The default username is `cisco`, and the default password is `cisco`.  
**Note** The first time you log in to the module, you are prompted to change the default password. Passwords must be at least eight characters long and cannot be a word in the dictionary. |
| **Example:**  
hostname# session 1  
Opening command session with slot 1.  
Connected to slot 1. Escape character sequence is ‘CTRL-^X’.  
sensor login: cisco  
Password: cisco | |
| Console session (software module only).  
`session ips console` | **Accesses the module console.** You are prompted for the username and password. The default username is `cisco`, and the default password is `cisco`.  
**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 IPS console and return to the ASA prompt. Therefore, if you try to exit the IPS 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 IPS 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 ips` command instead. |
| **Example:**  
hostname# session ips console  
Establishing console session with slot 1  
Opening console session with module ips.  
Connected to module ips. Escape character sequence is ‘CTRL-SHIFT-6 then x’.  
sensor login: cisco  
Password: cisco | |

### (ASA 5512-X through ASA 5555-X) Booting the Software Module

Your ASA typically ships with IPS module software present on Disk0. If the module is not running, or if you are adding the IPS module to an existing ASA, you must boot the module software. If you are unsure if the module is running, you will not be able to session it.
Chapter 18      ASA IPS Module

Detailed Steps

Step 1  Do one of the following:

- New ASA with IPS pre-installed—To view the IPS module software filename in flash memory, enter:

  `hostname# dir disk0:`

  For example, look for a filename like IPS-SSP_5512-K9-sys-1.1-a-7.1-4-E4.aip. Note the filename; you will need this filename later in the procedure.

- Existing ASA with new IPS installation—Download the IPS software from Cisco.com to a TFTP server. If you have a Cisco.com login, you can obtain the software from the following website:


  Copy the software to the ASA:

  `hostname# copy tftp://server/file_path disk0:/file_path`

  For other download server types, see the general operations configuration guide.

  Note the filename; you will need this filename later in the procedure.

Step 2  To set the IPS module software location in disk0, enter the following command:

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

  For example, using the filename in the example in Step 1, enter:

  `hostname# sw-module module ips recover configure image disk0:IPS-SSP_5512-K9-sys-1.1-a-7.1-4-E4.aip`

Step 3  To install and load the IPS module software, enter the following command:

  `hostname# sw-module module ips recover boot`

Step 4  To check the progress of the image transfer and module restart process, enter the following command:

  `hostname# show module ips details`

  The Status field in the output indicates the operational status of the module. A module operating normally shows a status of “Up.” While the ASA transfers an application image to the module, the Status field in the output reads “Recover.” When the ASA completes the image transfer and restarts the module, the newly transferred image is running.

Configuring Basic IPS Module Network Settings

Session to the module from the ASA and configure basic settings using the `setup` command.

Note  (ASA 5512-X through ASA 5555-X) If you cannot session to the module, then the IPS module is not running. See (ASA 5512-X through ASA 5555-X) Booting the Software Module, page 18-10, and then repeat this procedure after you install the module.
Detailed Steps

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>Session to the IPS module according to Sessioning to the Module from the ASA, page 18-10.</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>setup</td>
</tr>
<tr>
<td>Example: sensor# setup</td>
<td>Runs the setup utility for initial configuration of the ASA IPS module. You are prompted for basic settings. For the default gateway, specify the IP address of the upstream router. See Connecting the ASA IPS Management Interface, page 18-7 to understand the requirements for your network. The default setting of the ASA management IP address will not work.</td>
</tr>
</tbody>
</table>

### Configuring the Security Policy on the ASA IPS Module

This section describes how to configure the ASA IPS module application.

Detailed Steps

**Step 1** Access the ASA IPS module CLI using one of the following methods:
- Session from the ASA to the ASA IPS module. See Sessioning to the Module from the ASA, page 18-10.
- Connect to the IPS management interface using SSH. If you did not change it, the default management IP address is 192.168.1.2. The default username is **cisco**, and the default password is **cisco**. See Information About Management Access, page 18-4 for more information about the management interface.

**Step 2** Configure the IPS security policy according to the IPS documentation.

**Step 3** If you configure virtual sensors, you identify one of the sensors as the default. If the ASA does not specify a virtual sensor name in its configuration, the default sensor is used.

**Step 4** When you are done configuring the ASA IPS module, exit the IPS software by entering the following command:

```
sensor# exit
```

If you sessioned to the ASA IPS module from the ASA, you return to the ASA prompt.

### What to Do Next

- For the ASA in multiple context mode, see Assigning Virtual Sensors to a Security Context, page 18-13.
- For the ASA in single context mode, see Diverting Traffic to the ASA IPS module, page 18-15.
Assigning Virtual Sensors to a Security Context

If the ASA is in multiple context mode, then you can assign one or more IPS virtual sensors to each context. Then, when you configure the context to send traffic to the ASA IPS module, you can specify a sensor that is assigned to the context; you cannot specify a sensor that you did not assign to the context. If you do not assign any sensors to a context, then the default sensor configured on the ASA IPS module is used. You can assign the same sensor to multiple contexts.

**Note**
You do not need to be in multiple context mode to use virtual sensors; you can be in single mode and use different sensors for different traffic flows.

**Prerequisites**

For more information about configuring contexts, see the general operations configuration guide.
## Detailed Steps

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td><strong>context</strong> name</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>hostname(config)# context admin hostname(config-ctx)#</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td><strong>allocate-ips</strong> sensor_name [mapped_name] [default]</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td>hostname(config-ctx)# allocate-ips sensor1 highsec</td>
</tr>
</tbody>
</table>

Identifies the context you want to configure. Enter this command in the system execution space.

Enter this command for each sensor you want to assign to the context. The `sensor_name` argument is the sensor name configured on the ASA IPS module. To view the sensors that are configured on the ASA IPS module, enter `allocate-ips ?`. All available sensors are listed. You can also enter the `show ips` command. In the system execution space, the `show ips` command lists all available sensors; if you enter it in the context, it shows the sensors you already assigned to the context. If you specify a sensor name that does not yet exist on the ASA IPS module, you get an error, but the `allocate-ips` command is entered as is. Until you create a sensor of that name on the ASA IPS module, the context assumes the sensor is down.

Use the `mapped_name` argument as an alias for the sensor name that can be used within the context instead of the actual sensor name. If you do not specify a mapped name, the sensor name is used within the context. For security purposes, you might not want the context administrator to know which sensors are being used by the context. Or you might want to genericize the context configuration. For example, if you want all contexts to use sensors called “sensor1” and “sensor2,” then you can map the “highsec” and “lowsec” sensors to sensor1 and sensor2 in context A, but map the “medsec” and “lowsec” sensors to sensor1 and sensor2 in context B.

The `default` keyword sets one sensor per context as the default sensor; if the context configuration does not specify a sensor name, the context uses this default sensor. You can only configure one default sensor per context. If you want to change the default sensor, enter the `no allocate-ips sensor_name` command to remove the current default sensor before you allocate a new default sensor. If you do not specify a sensor as the default, and the context configuration does not include a sensor name, then traffic uses the default sensor as specified on the ASA IPS module.

Changes to the context so you can configure the IPS security policy as described in **Diverting Traffic to the ASA IPS module, page 18-15**.
Examples

The following example assigns sensor1 and sensor2 to context A, and sensor1 and sensor3 to context B. Both contexts map the sensor names to “ips1” and “ips2.” In context A, sensor1 is set as the default sensor, but in context B, no default is set so the default that is configured on the ASA IPS module is used.

```
hostname(config-ctx)# context A
hostname(config-ctx)# allocate-interface gigabitethernet0/0.100 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/0.102 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/0.110-gigabitethernet0/0.115 int3-int8
hostname(config-ctx)# allocate-ips sensor1 ips1 default
hostname(config-ctx)# allocate-ips sensor2 ips2
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/test.cfg
hostname(config-ctx)# member gold

hostname(config-ctx)# context sample
hostname(config-ctx)# allocate-interface gigabitethernet0/1.200 int1
hostname(config-ctx)# allocate-interface gigabitethernet0/1.212 int2
hostname(config-ctx)# allocate-interface gigabitethernet0/1.230-gigabitethernet0/1.235 int3-int8
hostname(config-ctx)# allocate-ips sensor1 ips1
hostname(config-ctx)# allocate-ips sensor3 ips2
hostname(config-ctx)# config-url ftp://user1:passw0rd@10.1.1.1/configlets/sample.cfg
hostname(config-ctx)# member silver

hostname(config-ctx)# changeto context A
...```

What to Do Next

Change to each context to configure the IPS security policy as described in Diverting Traffic to the ASA IPS module, page 18-15.

Diverting Traffic to the ASA IPS module

This section identifies traffic to divert from the ASA to the ASA IPS module.

Prerequisites

In multiple context mode, perform these steps in each context execution space. To change to a context, enter the `changeto context context_name` command.
## Configuring the ASA IPS module

### Detailed Steps

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong> class-map name</td>
<td>Creates a class map to identify the traffic for which you want to send to the ASA IPS module.</td>
</tr>
<tr>
<td><strong>Example:</strong> hostname(config)# class-map ips_class</td>
<td>Establishes the traffic to which the ASA IPS module will be applied.</td>
</tr>
<tr>
<td><strong>Step 2</strong> match parameter</td>
<td>Specifies the traffic in the class map. See Identify Traffic (Layer 3/4 Class Maps), page 1-13 for more information.</td>
</tr>
<tr>
<td><strong>Example:</strong> hostname(config-cmap)# match access-list ips_traffic</td>
<td>Establishes the traffic that will trigger the ASA IPS module.</td>
</tr>
<tr>
<td><strong>Step 3</strong> policy-map name</td>
<td>Adds or edits a policy map that sets the actions to take with the class map traffic.</td>
</tr>
<tr>
<td><strong>Example:</strong> hostname(config)# policy-map ips_policy</td>
<td>Establishes the policy that determines the action to be taken with the traffic.</td>
</tr>
<tr>
<td><strong>Step 4</strong> class name</td>
<td>Identifies the class map you created in Step 1.</td>
</tr>
<tr>
<td><strong>Example:</strong> hostname(config-pmap)# class ips_class</td>
<td>Establishes the traffic that will be monitored by the ASA IPS module.</td>
</tr>
<tr>
<td><strong>Step 5</strong> ips inline</td>
<td>promiscuous</td>
</tr>
</tbody>
</table>
### Command Purpose

**Step 6**

(Optional)

`class name2`

If you created multiple class maps for IPS traffic, you can specify another class for the policy.

See Feature Matching Within a Service Policy, page 1-5 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; so if you want network A to go to sensorA, but want all other traffic to go to sensorB, then you need to enter the `class` command for network A before you enter the `class` command for all traffic; otherwise all traffic (including network A) will match the first `class` command, and will be sent to sensorB.

**Example:**

`hostname(config-pmap)# class ips_class2`

**Step 7**

(Optional)

`ips {inline | promiscuous} {fail-close | fail-open} {sensor {sensor_name | mapped_name}}`

Specifies that the second class of traffic should be sent to the ASA IPS module.

Add as many classes as desired by repeating these steps.

**Example:**

`hostname(config-pmap-c)# ips promiscuous fail-close`

**Step 8**

`service-policy policymap_name {global | interface interface_name}`

Activates the policy map on one or more interfaces. `global` 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.

**Example:**

`hostname(config)# service-policy tcp_bypass_policy outside`

---

## Managing the ASA IPS module

This section includes procedures that help you recover or troubleshoot the module.

- Installing and Booting an Image on the Module, page 18-17
- Shutting Down the Module, page 18-19
- Uninstalling a Software Module Image, page 18-20
- Resetting the Password, page 18-20
- Reloading or Resetting the Module, page 18-21

### Installing and Booting an Image on the Module

If the module suffers a failure, and the module application image cannot run, you can reinstall a new image on the module from a TFTP server (for a hardware module), or from the local disk (software module).

**Note**

Do not use the `upgrade` command within the module software to install the image.
Prerequisites

- Hardware module—Be sure the TFTP server that you specify can transfer files up to 60 MB in size.

  **Note** This process can take approximately 15 minutes to complete, depending on your network and the size of the image.

- Software module—Copy the image to the ASA internal flash (disk0) before completing this procedure.

  **Note** Before you download the IPS software to disk0, make sure at least 50% of the flash memory is free. When you install IPS, IPS reserves 50% of the internal flash memory for its file system.

Detailed Steps

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| **Step 1** | For a hardware module (for example, the ASA 5585-X):
  hw-module module 1 recover configure
  For a software module (for example, the ASA 5545-X):
  sw-module module ips recover configure image disk0:file_path |
| | Specifies the location of the new image.
  For a hardware module—This command prompts you for the URL for the TFTP server, the management interface IP address and netmask, and gateway address. These network parameters are configured in ROMMON; the network parameters you configured in the module application configuration are not available to ROMMON, so you must set them separately here.
  For a software module—Specify the location of the image on the local disk.
  You can view the recovery configuration using the show module {1 | ips} recover command.
  In multiple context mode, enter this command in the system execution space. |
## Shutting Down the Module

Shutting down the module software prepares the module to be safely powered off without losing configuration data. **Note:** If you reload the ASA, the module is not automatically shut down, so we recommend shutting down the module before reloading the ASA. To gracefully shut down the module, perform the following steps at the ASA CLI.

### Detailed Steps

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
</tr>
<tr>
<td>For a hardware module:</td>
<td>Installs and boots the IPS module software.</td>
</tr>
<tr>
<td><code>hw-module module 1 recover boot</code></td>
<td></td>
</tr>
<tr>
<td>For a software module:</td>
<td></td>
</tr>
<tr>
<td><code>sw-module module ips recover boot</code></td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>hostname# hw-module module 1 recover boot</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>Checks the progress of the image transfer and module restart process.</td>
</tr>
<tr>
<td>For a hardware module:</td>
<td>The Status field in the output indicates the operational status of the module. A module operating normally shows a status of “Up.” While the ASA transfers an application image to the module, the Status field in the output reads “Recover.” When the ASA completes the image transfer and restarts the module, the newly transferred image is running.</td>
</tr>
<tr>
<td><code>show module 1 details</code></td>
<td></td>
</tr>
<tr>
<td>For a software module:</td>
<td></td>
</tr>
<tr>
<td><code>show module ips details</code></td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>hostname# show module 1 details</code></td>
<td></td>
</tr>
</tbody>
</table>
Uninstalling a Software Module Image

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

**Detailed Steps**

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
</tr>
<tr>
<td>sw-module module ips uninstall</td>
<td>Permanently uninstalls the software module image and associated configuration.</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td>hostname# sw-module module ips uninstall</td>
<td>Module ips will be uninstalled. This will completely remove the disk image associated with the sw-module including any configuration that existed within it.</td>
</tr>
<tr>
<td></td>
<td>Uninstall module &lt;id&gt;? [confirm]</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
</tr>
<tr>
<td>reload</td>
<td>Reloads the ASA. You must reload the ASA before you can install a new module type.</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td>hostname# reload</td>
<td></td>
</tr>
</tbody>
</table>

Resetting the Password

You can reset the module password to the default. For the user **cisco**, the default password is **cisco**. After resetting the password, you should change it to a unique value using the module application.

Resetting the module password causes the module to reboot. Services are not available while the module is rebooting.

To reset the module password to the default of **cisco**, perform the following steps.

**Detailed Steps**

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>For a hardware module (for example, the ASA 5585-X): hw-module module 1 password-reset</td>
<td>Resets the module password to <strong>cisco</strong> for user <strong>cisco</strong>.</td>
</tr>
<tr>
<td>For a software module (for example, the ASA 5545-X): sw-module module ips password-reset</td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td>hostname# hw-module module 1 password-reset</td>
<td></td>
</tr>
</tbody>
</table>
Reloading or Resetting the Module

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

Detailed Steps

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>For a hardware module (for example, the ASA 5585-X): <code>hw-module module 1 reload</code></td>
<td>Reloads the module software.</td>
</tr>
<tr>
<td>For a software module (for example, the ASA 5545-X): <code>sw-module module ips reload</code></td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong> <code>hostname# hw-module module 1 reload</code></td>
<td></td>
</tr>
<tr>
<td>For a hardware module: <code>hw-module module 1 reset</code></td>
<td>Performs a reset, and then reloads the module.</td>
</tr>
<tr>
<td>For a software module: <code>sw-module module ips reset</code></td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong> <code>hostname# hw-module module 1 reset</code></td>
<td></td>
</tr>
</tbody>
</table>

Monitoring the ASA IPS module

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

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show module</code></td>
<td>Displays the status.</td>
</tr>
<tr>
<td>`show module {1</td>
<td>ips} details`</td>
</tr>
<tr>
<td>`show module {1</td>
<td>ips} recover`</td>
</tr>
</tbody>
</table>

Examples

The following is sample output from the `show module details` command, which provides additional information for an ASA with an SSC installed:

`hostname# show module 1 details`
Getting details from the Service Module, please wait...
ASA 5500 Series Security Services Card-5
Hardware version: 0.1
Serial Number: JAB11370240
Firmware version: 1.0(14)3
Software version: 6.2(1)E2
MAC Address Range: 001d.45c2.e832 to 001d.45c2.e832
App. Name: IPS
App. Status: Up
App. Status Desc: Not Applicable
Data plane Status: Up
Status: Up
Mgmt IP Addr: 209.165.201.29
Mgmt Network Mask: 255.255.224.0
Mgmt Gateway: 209.165.201.30
Mgmt Access List: 209.165.201.31/32
209.165.202.158/32
209.165.200.254/24
Mgmt Vlan: 20

The following is sample output from the `show module ips` command for an ASA 5525-X with an IPS SSP software module installed:

```
hostname# show module ips
Mod Card Type                                    Model Serial No.
--- -------------------------------------------- -----------------------------
ips IPS 5525 Intrusion Protection System         IPS5525 FCH1504V03P

Mod MAC Address Range                 Hw Version   Fw Version   Sw Version
--- --------------------------------- ------------ ---------------------------
ips 503d.e59c.6f89 to 503d.e59c.6f89  N/A          N/A 7.1(1.160)E4

Mod SSM Application Name           Status           SSM Application Version
--- ------------------------------ ------------------------------------------
ips IPS                            Up               7.1(1.160)E4

Mod Status             Data Plane Status     Compatibility
--- ------------------ --------------------- -------------
ips Up                 Up

Mod License Name      License Status  Time Remaining
--- ----------------- --------------- -----------------
ips IPS Module        Enabled         7 days
```

**Configuration Examples for the ASA IPS module**

The following example diverts all IP traffic to the ASA IPS module in promiscuous mode, and blocks all IP traffic if the ASA IPS module card fails for any reason:

```
hostname(config)# access-list IPS permit ip any any
hostname(config)# class-map my-ips-class
hostname(config-cmap)# match access-list IPS
hostname(config-cmap)# policy-map my-ips-policy
hostname(config-pmap)# class my-ips-class
hostname(config-pmap-c)# ips promiscuous fail-close
hostname(config-pmap-c)# service-policy my-ips-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 AIP SSM in inline mode, and allows all traffic through if the AIP SSM fails for any reason. For the my-ips-class traffic, sensor1 is used; for the my-ips-class2 traffic, sensor2 is used.

```
hostname(config)# access-list my-ips-acl permit ip any 10.1.1.0 255.255.255.0
hostname(config)# access-list my-ips-acl2 permit ip any 10.2.1.0 255.255.255.0
```
Feature History for the ASA IPS module

Table 18-2 lists each feature change and the platform release in which it was implemented.

<table>
<thead>
<tr>
<th>Feature Name</th>
<th>Platform Releases</th>
<th>Feature Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIP SSM</td>
<td>7.0(1)</td>
<td>We introduced support for the AIP SSM for the ASA 5510, 5520, and 5540.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The following command was introduced: <code>ips</code>.</td>
</tr>
<tr>
<td>Virtual sensors (ASA 5510 and higher)</td>
<td>8.0(2)</td>
<td>Virtual sensor support was introduced. Virtual sensors let you configure multiple security policies on the ASA IPS module. The following command was introduced: <code>allocate-ips</code>.</td>
</tr>
<tr>
<td>AIP SSC for the ASA 5505</td>
<td>8.2(1)</td>
<td>We introduced support for the AIP SSC for the ASA 5505. The following commands were introduced: <code>allow-ssc-mgmt</code>, <code>hw-module module ip</code>, and <code>hw-module module allow-ip</code>.</td>
</tr>
<tr>
<td>Support for the ASA IPS SSP-10, -20, -40, and -60 for the ASA 5585-X</td>
<td>8.2(5)/8.4(2)</td>
<td>We introduced support for the ASA IPS SSP-10, -20, -40, and -60 for the ASA 5585-X. You can only install the ASA IPS SSP with a matching-level SSP; for example, SSP-10 and ASA IPS SSP-10. The ASA 5585-X is not supported in Version 8.3.</td>
</tr>
</tbody>
</table>
Support for Dual SSPs for SSP-40 and SSP-60

For SSP-40 and SSP-60, you can use two SSPs of the same level in the same chassis. Mixed-level SSPs are not supported (for example, an SSP-40 with an SSP-60 is not supported). Each SSP acts as an independent device, with separate configurations and management. You can use the two SSPs as a failover pair if desired.

Note When using two SSPs in the chassis, VPN is not supported; note, however, that VPN has not been disabled.

We modified the following commands: show module, show inventory, show environment.

Support for the ASA IPS SSP for the ASA 5512-X through ASA 5555-X

We introduced support for the ASA IPS SSP software module for the ASA 5512-X, ASA 5515-X, ASA 5525-X, ASA 5545-X, and ASA 5555-X.

We introduced or modified the following commands: session, show module, sw-module.

<table>
<thead>
<tr>
<th>Feature Name</th>
<th>Platform Releases</th>
<th>Feature Information</th>
</tr>
</thead>
</table>
| Support for Dual SSPs for SSP-40 and SSP-60 | 8.4(2) | For SSP-40 and SSP-60, you can use two SSPs of the same level in the same chassis. Mixed-level SSPs are not supported (for example, an SSP-40 with an SSP-60 is not supported). Each SSP acts as an independent device, with separate configurations and management. You can use the two SSPs as a failover pair if desired. 

Note When using two SSPs in the chassis, VPN is not supported; note, however, that VPN has not been disabled. 

We modified the following commands: show module, show inventory, show environment. |
| Support for the ASA IPS SSP for the ASA 5512-X through ASA 5555-X | 8.6(1) | We introduced support for the ASA IPS SSP software module for the ASA 5512-X, ASA 5515-X, ASA 5525-X, ASA 5545-X, and ASA 5555-X. 

We introduced or modified the following commands: session, show module, sw-module |