



# Troubleshooting

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This appendix contains troubleshooting tips and procedures for sensors and software. It contains the following sections:

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## Cisco Bug Search

The Bug Search Tool (BST), the online successor to Bug Toolkit, is designed to improve your effectiveness in network risk management and device troubleshooting.

BST allows partners and customers to search for software bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. The service has provision to filter bugs based on credentials to provide external and internal bug views for the search input.

Check out Bug Search Tools & Resources on Cisco.com. For more details on the tool overview and functionalities, check out the help page, located at <http://www.cisco.com/web/applicat/cbsshelp/help.html>

## Preventive Maintenance

This section describes how to perform preventive maintenance for your sensor, and contains the following topics:

- [Understanding Preventive Maintenance, page C-2](#)
- [Creating and Using a Backup Configuration File, page C-2](#)
- [Backing Up and Restoring the Configuration File Using a Remote Server, page C-3](#)
- [Creating the Service Account, page C-5](#)

## Understanding Preventive Maintenance

The following actions will help you maintain your sensor:

- Back up a good configuration. If your current configuration becomes unusable, you can replace it with the backup version.
- Save your backup configuration to a remote system.
- Always back up your configuration before you do a manual upgrade. If you have auto upgrades configured, make sure you do periodic backups.
- Create a service account. A service account is needed for special debug situations directed by TAC.



### Caution

You should carefully consider whether you want to create a service account. The service account provides shell access to the system, which makes the system vulnerable. Analyze your situation to decide if you want a service account existing on the system.

### For More Information

- For the procedure for backing up a configuration file, see [Creating and Using a Backup Configuration File, page C-2](#).
- For the procedure for using a remote server to copy and restore the a configuration file, see [Backing Up and Restoring the Configuration File Using a Remote Server, page C-3](#).
- For more information about the service account, see [Creating the Service Account, page C-5](#).

## Creating and Using a Backup Configuration File

To protect your configuration, you can back up the current configuration and then display it to confirm that is the configuration you want to save. If you need to restore this configuration, you can merge the backup configuration file with the current configuration or overwrite the current configuration file with the backup configuration file.

To back up your current configuration, follow these steps:

- 
- Step 1** Log in to the CLI using an account with administrator privileges.
- Step 2** Save the current configuration. The current configuration is saved in a backup file.
- ```
sensor# copy current-config backup-config
```
- Step 3** Display the backup configuration file. The backup configuration file is displayed.
- ```
sensor# more backup-config
```
- Step 4** You can either merge the backup configuration with the current configuration, or you can overwrite the current configuration:
- Merge the backup configuration into the current configuration.
- ```
sensor# copy backup-config current-config
```
- Overwrite the current configuration with the backup configuration.
- ```
sensor# copy /erase backup-config current-config
```
- 

## Backing Up and Restoring the Configuration File Using a Remote Server



### Note

We recommend copying the current configuration file to a remote server before upgrading.

Use the **copy [/erase] source\_url destination\_url keyword** command to copy the configuration file to a remote server. You can then restore the current configuration from the remote server. You are prompted to back up the current configuration first. The following options apply:

- **/erase**—Erases the destination file before copying.  
This keyword only applies to the current-config; the backup-config is always overwritten. If this keyword is specified for destination current-config, the source configuration is applied to the system default configuration. If it is not specified for the destination current-config, the source configuration is merged with the current-config.
- **source\_url**—The location of the source file to be copied. It can be a URL or keyword.
- **destination\_url**—The location of the destination file to be copied. It can be a URL or a keyword.
- **current-config**—The current running configuration. The configuration becomes persistent as the commands are entered.
- **backup-config**—The storage location for the configuration backup.

The exact format of the source and destination URLs varies according to the file. Here are the valid types:

- **ftp**—Source or destination URL for an FTP network server. The syntax for this prefix is:  
ftp://[[username@]location][[/relativeDirectory]/filename  
ftp://[[username@]location][[/absoluteDirectory]/filename
- **scp**—Source or destination URL for the SCP network server. The syntax for this prefix is:  
scp://[[username@]location][[/relativeDirectory]/filename

scp://[username@]location[/absoluteDirectory]/filename



**Note** If you use FTP or SCP protocol, you are prompted for a password. If you use SCP protocol, you must also add the remote host to the SSH known hosts list.

- http:—Source URL for the web server. The syntax for this prefix is:

http://[username@]location[/directory]/filename



**Note** The directory specification should be an absolute path to the desired file

- https:—Source URL for the web server. The syntax for this prefix is:

https://[username@]location[/directory]/filename



**Note** The directory specification should be an absolute path to the desired file. The remote host must be a TLS trusted host.



**Note** HTTP and HTTPS prompt for a password if a username is required to access the website. If you use HTTPS protocol, the remote host must be a TLS trusted host.



#### Caution

Copying a configuration file from another sensor may result in errors if the sensing interfaces and virtual sensors are not configured the same.

### Backing Up the Current Configuration to a Remote Server

To back up your current configuration to a remote server, follow these steps:

**Step 1** Log in to the CLI using an account with administrator privileges.

**Step 2** Back up the current configuration to the remote server.

```
sensor# copy current-config scp://user@192.0.2.0//configuration/cfg current-config
```

```
Password: *****
```

```
Warning: Copying over the current configuration may leave the box in an unstable state.
```

```
Would you like to copy current-config to backup-config before proceeding? [yes]:
```

**Step 3** Enter **yes** to copy the current configuration to a backup configuration.

```
cfg          100% | ***** | 36124          00:00
```

### Restoring the Current Configuration From a Backup File

To restore your current configuration from a backup file, follow these steps:

**Step 1** Log in to the CLI using an account with administrator privileges.

**Step 2** Back up the current configuration to the remote server.

```
sensor# copy scp://user@192.0.2.0//configuration/cfg current-config
```

Password: \*\*\*\*\*

Warning: Copying over the current configuration may leave the box in an unstable state.  
Would you like to copy current-config to backup-config before proceeding? [yes]:

**Step 3** Enter **yes** to copy the current configuration to a backup configuration.

```
cfg          100% |*****| 36124          00:00
```

Warning: Replacing existing network-settings may leave the box in an unstable state.  
Would you like to replace existing network settings  
(host-ipaddress/netmask/gateway/access-list) on sensor before proceeding? [no]:  
sensor#

**Step 4** Enter **no** to retain the currently configured hostname, IP address, subnet mask, management interface, and access list. We recommend you retain this information to preserve access to your sensor after the rest of the configuration has been restored.

#### For More Information

For a list of supported HTTP/HTTPS servers, see [Supported FTP and HTTP/HTTPS Servers, page 22-2](#).

## Creating the Service Account

You can create a service account for the TAC to use during troubleshooting. Although more than one user can have access to the sensor, only one user can have service privileges on a sensor. The service account is for support purposes only.

The root user password is synchronized to the service account password when the service account is created. To gain root access you must log in with the service account and switch to user root with the **su - root** command.



#### Caution

Do not make modifications to the sensor through the service account except under the direction of the TAC. If you use the service account to configure the sensor, your configuration is not supported by the TAC. Adding services to the operating system through the service account affects proper performance and functioning of the other IPS services. The TAC does not support a sensor on which additional services have been added.



#### Caution

You should carefully consider whether you want to create a service account. The service account provides shell access to the system, which makes the system vulnerable. However, you can use the service account to create a password if the administrator password is lost. Analyze your situation to decide if you want a service account existing on the system.



#### Note

For IPS 5.0 and later, you can no longer remove the **cisco** account. You can disable it using the **no password cisco** command, but you cannot remove it. To use the **no password cisco** command, there must be another administrator account on the sensor. Removing the **cisco** account through the service account is not supported. If you remove the **cisco** account through the service account, the sensor most likely will not boot up, so to recover the sensor you must reinstall the sensor system image.

To create the service account, follow these steps:

- 
- Step 1** Log in to the CLI using an account with administrator privileges.
- Step 2** Enter configuration mode.
- ```
sensor# configure terminal
```
- Step 3** Specify the parameters for the service account. The username follows the pattern `^[A-Za-z0-9()+:;_/-]+$`, which means the username must start with a letter or number, and can include any letter A to Z (capital or small), any number 0 to 9, - and \_, and can contain 1 to 64 characters.
- ```
sensor(config)# user username privilege service
```
- Step 4** Specify a password when prompted. A valid password is 8 to 32 characters long. All characters except space are allowed. If a service account already exists for this sensor, the following error is displayed and no service account is created.
- ```
Error: Only one service account may exist
```
- Step 5** Exit configuration mode.
- ```
sensor(config)# exit
sensor#
```

When you use the service account to log in to the CLI, you receive this warning.

```
***** WARNING *****
UNAUTHORIZED ACCESS TO THIS NETWORK DEVICE IS PROHIBITED. This account is intended to be
used for support and troubleshooting purposes only. Unauthorized modifications are not
supported and will require this device to be reimaged to guarantee proper operation.
*****
```

---

## Disaster Recovery

Follow these recommendations so that you are ready in case of a disaster:

- If you are using the CLI, IDM, or IME for configuration, copy the current configuration from the sensor to an FTP or SCP server any time a change has been made.
- You should note the specific software version for that configuration. You can apply the copied configuration only to a sensor of the same version.
- You also need the list of user IDs that have been used on that sensor. The list of user IDs and passwords are not saved in the configuration.

When a disaster happens and you need to recover the sensor, try the following:

1. Reimage the sensor.
2. Log in to the sensor with the default user ID and password—**cisco**.



**Note** You are prompted to change the **cisco** password.

---

3. Initialize the sensor.
4. Upgrade the sensor to the IPS software version it had when the configuration was last saved and copied.

**Warning**

**Trying to copy the saved configuration without getting the sensor back to the same IPS software version it had before the disaster can cause configuration errors.**

5. Copy the last saved configuration to the sensor.
6. Update clients to use the new key and certificate of the sensor. Reimaging changes the sensor SSH keys and HTTPS certificate, so you must add the hosts back to the SSN known hosts list.
7. Create previous users.

**For More Information**

- For the procedure for backing up a configuration file, see [Creating and Using a Backup Configuration File, page C-2](#).
- For the procedure for obtaining a list of the current users on the sensor, see [Adding, Editing, Deleting Users, and Creating Accounts, page 4-22](#).
- For the procedures to reimage a sensor, see [Chapter 22, “Upgrading, Downgrading, and Installing System Images.”](#)
- For the procedure for using the **setup** command to initialize the sensor, see [Chapter 19, “Initializing the Sensor.”](#)
- For more information on obtaining IPS software and how to install it, see [Obtaining Cisco IPS Software, page 21-1](#).
- For the procedure for using a remote server to copy and restore the a configuration file, see [Backing Up and Restoring the Configuration File Using a Remote Server, page C-3](#).
- For the procedure for adding hosts to the SSH known hosts list, see [Defining Known Host RSA Keys, page 12-7](#).
- For the procedure for adding users, see [Adding, Editing, Deleting Users, and Creating Accounts, page 4-22](#).

## Recovering the Password

For most IPS platforms, you can now recover the password on the sensor rather than using the service account or reimaging the sensor. This section describes how to recover the password for the various IPS platforms. It contains the following topics:

- [Understanding Password Recovery, page C-8](#)
- [Recovering the Appliance Password, page C-8](#)
- [Recovering the ASA 5500 AIP SSM Password, page C-10](#)
- [Recovering the ASA 5500-X IPS SSP Password, page C-12](#)
- [Recovering the ASA 5585-X IPS SSP Password, page C-14](#)
- [Disabling Password Recovery, page C-15](#)
- [Verifying the State of Password Recovery, page C-16](#)
- [Troubleshooting Password Recovery, page C-17](#)

## Understanding Password Recovery


**Note**

Administrators may need to disable the password recovery feature for security reasons.

Password recovery implementations vary according to IPS platform requirements. Password recovery is implemented only for the cisco administrative account and is enabled by default. The IPS administrator can then recover user passwords for other accounts using the CLI. The cisco user password reverts to **cisco** and must be changed after the next login. 4200

[Table C-1](#) lists the password recovery methods according to platform.

**Table C-1 Password Recovery Methods According to Platform**

Platform	Description	Recovery Method
4200 series sensors 4300 series sensors 4500 series sensors	Standalone IPS appliances	GRUB prompt or ROMMON
ASA 5500 AIP SSM ASA 5500-X IPS SSP ASA 5585-X IPS SSP	ASA 5500 series adaptive security appliance IPS modules	Adaptive security appliance CLI command

## Recovering the Appliance Password

This section describes the two ways to recover the password for appliances. It contains the following topics:

- [Using the GRUB Menu, page C-8](#)
- [Using ROMMON, page C-9](#)

### Using the GRUB Menu


**Note**

You must have a terminal server or direct serial connection to the appliance to use the GRUB menu to recover the password.

For the IPS 4270-20, IPS 4355, IPS 4360, IPS 4510, and IPS 4520 appliances, the password recovery is found in the GRUB menu, which appears during bootup. When the GRUB menu appears, press any key to pause the boot process.

To recover the password on appliances, follow these steps:

**Step 1** Reboot the appliance to see the GRUB menu.

```
GNU GRUB version 0.94 (632K lower / 523264K upper memory)
-----
0: Cisco IPS
1: Cisco IPS Recovery
2: Cisco IPS Clear Password (cisco)
-----
```



Use the ^ and v keys to select which entry is highlighted.  
Press enter to boot the selected OS, 'e' to edit the  
Commands before booting, or 'c' for a command-line.

Highlighted entry is 0:

**Step 2** Press any key to pause the boot process.

**Step 3** Choose 2: **Cisco IPS Clear Password (cisco)**. The password is reset to **cisco**. Log in to the CLI with username **cisco** and password **cisco**. You can then change the password.

## Using ROMMON

For the IPS 4240, IPS 4255, IPS 4345, IPS 4360, IPS 4510, and IPS 4520, you can use the ROMMON to recover the password. To access the ROMMON CLI, reboot the sensor from a terminal server or direct connection and interrupt the boot process.



### Note

After recovering the password, you must reset the confreg to **0**, otherwise, when you try to upgrade the sensor, the upgrade fails because when the sensor reboots, it goes to password recovery (**confreg 0x7**) rather than to the upgrade option.

To recover the password using the ROMMON CLI, follow these steps:

**Step 1** Reboot the appliance.

**Step 2** To interrupt the boot process, press **ESC** or **Control-R** (terminal server) or send a **BREAK** command (direct connection). The boot code either pauses for 10 seconds or displays something similar to one of the following:

- Evaluating boot options
- Use **BREAK** or **ESC** to interrupt boot

**Step 3** Enter the following commands to reset the password:

```
confreg 0x7
boot
```

Sample ROMMON session:

```
Booting system, please wait...
CISCO SYSTEMS
Embedded BIOS Version 1.0(11)2 01/25/06 13:21:26.17
...
Evaluating BIOS Options...
Launch BIOS Extension to setup ROMMON
Cisco Systems ROMMON Version (1.0(11)2) #0: Thu Jan 26 10:43:08 PST 2006
Platform IPS-4360-K9
Use BREAK or ESC to interrupt boot.
Use SPACE to begin boot immediately.
Boot interrupted.
Management0/0
Link is UP
MAC Address:000b.fcfa.d155
Use ? for help.
rommon #0> confreg 0x7
Update Config Register (0x7) in NVRAM...
rommon #1> boot
```

- Step 4** Enter the following command to reset the confreg value to 0:

```
confreg 0
```

## Recovering the ASA 5500 AIP SSM Password



### Note

To reset the password, you must have ASA 7.2.2 or later.

You can reset the password to the default (**cisco**) for the ASA 5500 AIP SSM using the CLI or the ASDM. Resetting the password causes it to reboot. IPS services are not available during a reboot.

Use the **hw-module module slot\_number password-reset** command to reset the password to the default **cisco**. If the module in the specified slot has an IPS version that does not support password recovery, the following error message is displayed:

```
ERROR: the module in slot <n> does not support password recovery.
```

### Resetting the Password Using the CLI

To reset the password on the ASA 5500 AIP SSM, follow these steps:

- Step 1** Log into the adaptive security appliance and enter the following command to verify the module slot number:

```
asa# show module
```

Mod	Card	Type	Model	Serial No.
0	ASA 5510	Adaptive Security Appliance	ASA5510	JMX1135L097
1	ASA 5500	Series Security Services Module-40	ASA-SSM-40	JAF1214AMRL

  

Mod	MAC Address	Range	Hw Version	Fw Version	Sw Version
0	001b.d5e8.e0c8	to 001b.d5e8.e0cc	2.0	1.0(11)2	8.4(3)
1	001e.f737.205f	to 001e.f737.205f	1.0	1.0(14)5	7.1(7)E4

  

Mod	SSM Application Name	Status	SSM Application Version
1	IPS	Up	7.1(7)E4

  

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

- Step 2** Reset the password for module 1.

```
asa# hw-module module 1 password-reset
Reset the password on module in slot 1? [confirm]
```

- Step 3** Press **Enter** to confirm.

```
Password-Reset issued for slot 1.
```

- Step 4** Verify the status of the module. Once the status reads Up, you can session to the ASA 5500 AIP SSM.

```
asa# show module 1
```

Mod	Card Type	Model	Serial No.
1	ASA 5500 Series Security Services Module-40	ASA-SSM-40	JAF1214AMRL

  

Mod	MAC Address Range	Hw Version	Fw Version	Sw Version
1	001e.f737.205f to 001e.f737.205f	1.0	1.0(14)5	7.1(7)E4

  

Mod	SSM Application Name	Status	SSM Application Version
1	IPS	Up	7.1(7)E4

  

Mod	Status	Data Plane Status	Compatibility
1	Up	Up	

**Step 5** Session to the ASA 5500 AIP SSM.

```
asa# session 1
Opening command session with slot 1.
Connected to slot 1. Escape character sequence is 'CTRL-^X'.
```

**Step 6** Enter the default username (**cisco**) and password (**cisco**) at the login prompt.

```
login: cisco
Password: cisco
```

```
You are required to change your password immediately (password aged)
Changing password for cisco.
(current) password: cisco
```

**Step 7** Enter your new password twice.

```
New password: new password
Retype new password: new password
```

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A summary of U.S. laws governing Cisco cryptographic products may be found at:  
<http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to [export@cisco.com](mailto:export@cisco.com).

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There is no license key installed on this IPS platform. The system will continue to operate with the currently installed signature set. A valid license must be obtained in order to apply signature updates. Please go to <http://www.cisco.com/go/license> to obtain a new license or install a license.

```
aip_ssm#
```

**Using the ASDM**

To reset the password in the ASDM, follow these steps:

- Step 1** From the ASDM menu bar, choose **Tools > IPS Password Reset**.



**Note** This option does not appear in the menu if there is no IPS present.

- Step 2** In the IPS Password Reset confirmation dialog box, click **OK** to reset the password to the default (**cisco**). A dialog box displays the success or failure of the password reset. If the reset fails, make sure you have the correct ASA and IPS software versions.

- Step 3** Click **Close** to close the dialog box. The sensor reboots.

## Recovering the ASA 5500-X IPS SSP Password

You can reset the password to the default (**cisco**) for the ASA 5500-X IPS SSP using the CLI or the ASDM. Resetting the password causes it to reboot. IPS services are not available during a reboot.



**Note** To reset the password, you must have ASA 8.6.1 or later.

Use the **sw-module module ips password-reset** command to reset the password to the default **cisco**. If the module in the specified slot has an IPS version that does not support password recovery, the following error message is displayed:

```
ERROR: the module in slot <n> does not support password recovery.
```

To reset the password on the ASA 5500-X IPS SSP, follow these steps:

- Step 1** Log into the adaptive security appliance and enter the following command:

```
asa# sw-module module ips password-reset
Reset the password on module ips? [confirm]
```

- Step 2** Press **Enter** to confirm.

```
Password-Reset issued for module ips.
```

- Step 3** Verify the status of the module. Once the status reads **Up**, you can session to the ASA 5500-X IPS SSP.

```
asa# show module ips
```

Mod	Card	Type	Model	Serial No.
ips	ASA 5555-X	IPS Security Services Processor	ASA5555-IPS	FCH151070GR

  

Mod	MAC Address	Range	Hw Version	Fw Version	Sw Version
ips	503d.e59c.7c4c	to 503d.e59c.7c4c	N/A	N/A	7.1(4)E4

  

Mod	SSM Application Name	Status	SSM Application Version
ips	IPS	Up	7.1(4)E4

  

Mod	Status	Data Plane Status	Compatibility
ips	Up	Up	Compatible

```

-----
ips Up                               Up

Mod License Name   License Status   Time Remaining
-----
ips IPS Module     Enabled          210 days

```

#### Step 4 Session to the ASA 5500-X IPS SSP.

```

asa# session ips
Opening command session with module ips.
Connected to module ips. Escape character sequence is 'CTRL-^X'.

```

#### Step 5 Enter the default username (**cisco**) and password (**cisco**) at the login prompt.

```

login: cisco
Password: cisco

You are required to change your password immediately (password aged)
Changing password for cisco.
(current) password: cisco

```

#### Step 6 Enter your new password twice.

```

New password: new password
Retype new password: new password

***NOTICE***
This product contains cryptographic features and is subject to United States and local
country laws governing import, export, transfer and use. Delivery of Cisco cryptographic
products does not imply third-party authority to import, export, distribute or use
encryption. Importers, exporters, distributors and users are responsible for compliance
with U.S. and local country laws. By using this product you agree to comply with
applicable laws and regulations. If you are unable to comply with U.S. and local laws,
return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to export@cisco.com.

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There is no license key installed on this IPS platform. The system will continue to
operate with the currently installed signature set. A valid license must be obtained in
order to apply signature updates. Please go to http://www.cisco.com/go/license to obtain a
new license or install a license.

asa-ssp#

```

### Using the ASDM

To reset the password in the ASDM, follow these steps:

#### Step 1 From the ASDM menu bar, choose **Tools > IPS Password Reset**.



**Note** This option does not appear in the menu if there is no IPS present.

#### Step 2 In the IPS Password Reset confirmation dialog box, click **OK** to reset the password to the default (**cisco**). A dialog box displays the success or failure of the password reset. If the reset fails, make sure you have the correct ASA and IPS software versions.

**Step 3** Click **Close** to close the dialog box. The sensor reboots.

## Recovering the ASA 5585-X IPS SSP Password



### Note

To reset the password, you must have ASA 8.2.(4.4) or later or ASA 8.4.2 or later. The ASA 5585-X IPS SSP is not supported in ASA 8.3(x).

You can reset the password to the default (**cisco**) for the ASA 5585-X IPS SSP using the CLI or the ASDM. Resetting the password causes it to reboot. IPS services are not available during a reboot.

Use the **hw-module module slot\_number password-reset** command to reset the password to the default **cisco**. If the module in the specified slot has an IPS version that does not support password recovery, the following error message is displayed:

ERROR: the module in slot <n> does not support password recovery.

To reset the password on the ASA 5585-X IPS SSP, follow these steps:

**Step 1** Log into the adaptive security appliance and enter the following command:

```
asa# hw-module module 1 password-reset
Reset the password on module in slot 1? [confirm]
```

**Step 2** Press **Enter** to confirm.

Password-Reset issued for slot 1.

**Step 3** Verify the status of the module. Once the status reads **Up**, you can session to the ASA 5585-X IPS SSP.

```
asa# show module 1
```

Mod Card Type	Model	Serial No.
1 ASA 5585-X IPS Security Services Processor-4	ASA5585-SSP-IPS40	JAF1436ABSG

  

Mod MAC Address Range	Hw Version	Fw Version	Sw Version
1 5475.d029.8c74 to 5475.d029.8c7f	0.1	2.0(12)3	7.1(4)E4

  

Mod SSM Application Name	Status	SSM Application Version
1 IPS	Up	7.1(4)E4

  

Mod Status	Data Plane Status	Compatibility
1 Up	Up	

**Step 4** Session to the ASA 5585-X IPS SSP.

```
asa# session 1
Opening command session with slot 1.
Connected to slot 1. Escape character sequence is 'CTRL-^X'.
```

**Step 5** Enter the default username (**cisco**) and password (**cisco**) at the login prompt.

```
login: cisco
Password: cisco
```

```
You are required to change your password immediately (password aged)
Changing password for cisco.
(current) password: cisco
```

**Step 6** Enter your new password twice.

```
New password: new password
Retype new password: new password
```

\*\*\*NOTICE\*\*\*

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:  
<http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to [export@cisco.com](mailto:export@cisco.com).

\*\*\*LICENSE NOTICE\*\*\*

There is no license key installed on this IPS platform. The system will continue to operate with the currently installed signature set. A valid license must be obtained in order to apply signature updates. Please go to <http://www.cisco.com/go/license> to obtain a new license or install a license.  
 ips\_ssp#

### Using the ASDM

To reset the password in the ASDM, follow these steps:

**Step 1** From the ASDM menu bar, choose **Tools > IPS Password Reset**.



**Note** This option does not appear in the menu if there is no IPS present.

**Step 2** In the IPS Password Reset confirmation dialog box, click **OK** to reset the password to the default (**cisco**). A dialog box displays the success or failure of the password reset. If the reset fails, make sure you have the correct ASA and IPS software versions.

**Step 3** Click **Close** to close the dialog box. The sensor reboots.

## Disabling Password Recovery



**Caution**

If you try to recover the password on a sensor on which password recovery is disabled, the process proceeds with no errors or warnings; however, the password is not reset. If you cannot log in to the sensor because you have forgotten the password, and password recovery is set to disabled, you must reimage your sensor.

Password recovery is enabled by default. You can disable password recovery through the CLI or IDM.

#### Disabling Password Recovery Using the CLI

To disable password recovery in the CLI, follow these steps:

---

**Step 1** Log in to the CLI using an account with administrator privileges.

**Step 2** Enter global configuration mode.

```
sensor# configure terminal
```

**Step 3** Enter host mode.

```
sensor(config)# service host
```

**Step 4** Disable password recovery.

```
sensor(config-hos)# password-recovery disallowed
```

---

#### Disabling Password Recovery Using the IDM

To disable password recovery in the IDM, follow these steps:

---

**Step 1** Log in to the IDM using an account with administrator privileges.

**Step 2** Choose **Configuration > Sensor Setup > Network**.

**Step 3** To disable password recovery, uncheck the **Allow Password Recovery** check box.

---

## Verifying the State of Password Recovery

Use the **show settings | include password** command to verify whether password recovery is enabled.

To verify whether password recovery is enabled, follow these steps:

---

**Step 1** Log in to the CLI.

**Step 2** Enter service host submode.

```
sensor# configure terminal
sensor (config)# service host
sensor (config-hos)#
```

**Step 3** Verify the state of password recovery by using the **include** keyword to show settings in a filtered output.

```
sensor(config-hos)# show settings | include password
password-recovery: allowed <defaulted>
sensor(config-hos)#
```

---



## Troubleshooting Password Recovery

When you troubleshoot password recovery, pay attention to the following:

- You cannot determine whether password recovery has been disabled in the sensor configuration from the ROMMON prompt, GRUB menu, switch CLI, or router CLI. If you attempt password recovery, it always appears to succeed. If it has been disabled, the password is not reset to **cisco**. The only option is to reimage the sensor.
- You can disable password recovery in the host configuration. For the platforms that use external mechanisms, such as ROMMON, although you can run commands to clear the password, if password recovery is disabled in the IPS, the IPS detects that password recovery is not allowed and rejects the external request.
- To check the state of password recovery, use the **show settings | include password** command.

## Time Sources and the Sensor

This section describes how to maintain accurate time on the sensor, and contains the following topics:

- [Time Sources and the Sensor, page C-17](#)
- [Synchronizing IPS Module Clocks with Parent Device Clocks, page C-18](#)
- [Verifying the Sensor is Synchronized with the NTP Server, page C-18](#)
- [Correcting Time on the Sensor, page C-19](#)

## Time Sources and the Sensor



### Note

We recommend that you use an NTP server to regulate time on your sensor. You can use authenticated or unauthenticated NTP. For authenticated NTP, you must obtain the NTP server IP address, NTP server key ID, and the key value from the NTP server. You can set up NTP during initialization or you can configure NTP through the CLI, IDM, IME, or ASDM.

The sensor requires a reliable time source. All events (alerts) must have the correct UTC and local time stamp, otherwise, you cannot correctly analyze the logs after an attack. When you initialize the sensor, you set up the time zones and summertime settings. This section provides a summary of the various ways to set the time on sensors.

### The IPS Standalone Appliances

- Use the **clock set** command to set the time. This is the default.
- Configure the appliance to get its time from an NTP time synchronization source.



### Note

The currently supported Cisco IPS appliances are the IPS 4240, IPS 4255, and IPS 4260 [IPS 7.0(x) and later and IPS 7.1(5) and later], IPS 4270-20 [IPS 7.1(3) and later], IPS 4345 and IPS 4360 [IPS 7.1(3) and later], and IPS 4510 and IPS 4520 [IPS 7.1(4) and later].

**The ASA IPS Modules**

- The ASA 5500 AIP SSM, ASA 5500-X IPS SSP, and ASA 5585-X IPS SSP automatically synchronize their clocks with the clock in the adaptive security appliance in which they are installed. This is the default.
- Configure them to get their time from an NTP time synchronization source, such as a Cisco router other than the parent router.

**For More Information**

For the procedure for configuring NTP, see [Configuring NTP Using the CLI, page 4-12](#).

## Synchronizing IPS Module Clocks with Parent Device Clocks

The ASA IPS modules (ASA 5500 AIP SSM, ASA 5500-X IPS SSP, and ASA 5585-X IPS SSP) synchronize their clocks to the parent chassis clock (switch, router, or adaptive security appliance) each time the IPS boots up and any time the parent chassis clock is set. The IPS clock and parent chassis clock tend to drift apart over time. The difference can be as much as several seconds per day. To avoid this problem, make sure that both the IPS clock and the parent clock are synchronized to an external NTP server. If only the IPS clock or only the parent chassis clock is synchronized to an NTP server, the time drift occurs.

## Verifying the Sensor is Synchronized with the NTP Server

In IPS, you cannot apply an incorrect NTP configuration, such as an invalid NTP key value or ID, to the sensor. If you try to apply an incorrect configuration, you receive an error message. To verify the NTP configuration, use the **show statistics host** command to gather sensor statistics. The NTP statistics section provides NTP statistics including feedback on sensor synchronization with the NTP server.

To verify the NTP configuration, follow these steps:

---

**Step 1** Log in to the sensor.

**Step 2** Generate the host statistics.

```
sensor# show statistics host
...
NTP Statistics
      remote      refid      st t when poll reach  delay  offset  jitter
11.22.33.44    CHU_AUDIO(1)    8 u   36   64    1   0.536   0.069   0.001
LOCAL(0)      73.78.73.84     5 l   35   64    1   0.000   0.000   0.001
ind assID status  conf reach auth condition last_event cnt
  1 10372 f014   yes  yes  ok    reject  reachable  1
  2 10373 9014   yes  yes  none  reject  reachable  1
status = Not Synchronized
```

**Step 3** Generate the hosts statistics again after a few minutes.

```
sensor# show statistics host
...
NTP Statistics
      remote      refid      st t when poll reach  delay  offset  jitter
*11.22.33.44    CHU_AUDIO(1)    8 u   22   64   377   0.518  37.975  33.465
LOCAL(0)      73.78.73.84     5 l   22   64   377   0.000   0.000   0.001
ind assID status  conf reach auth condition last_event cnt
  1 10372 f624   yes  yes  ok    sys.peer reachable  2
  2 10373 9024   yes  yes  none  reject  reachable  2
```

```
status = Synchronized
```

- Step 4** If the status continues to read `Not Synchronized`, check with the NTP server administrator to make sure the NTP server is configured correctly.
- 

## Correcting Time on the Sensor

If you set the time incorrectly, your stored events will have the incorrect time because they are stamped with the time the event was created. The Event Store time stamp is always based on UTC time. If during the original sensor setup, you set the time incorrectly by specifying 8:00 p.m. rather than 8:00 a.m., when you do correct the error, the corrected time will be set backwards. New events might have times older than old events.

For example, if during the initial setup, you configure the sensor as central time with daylight saving time enabled and the local time is 8:04 p.m., the time is displayed as 20:04:37 CDT and has an offset from UTC of -5 hours (01:04:37 UTC, the next day). A week later at 9:00 a.m., you discover the error: the clock shows 21:00:23 CDT. You then change the time to 9:00 a.m. and now the clock shows 09:01:33 CDT. Because the offset from UTC has not changed, it requires that the UTC time now be 14:01:33 UTC, which creates the time stamp problem.

To ensure the integrity of the time stamp on the event records, you must clear the event archive of the older events by using the **clear events** command.

**Note**

You cannot remove individual events.

---

**For More Information**

For the procedure for clearing events, see [Clearing Events, page C-104](#).

## Advantages and Restrictions of Virtualization

To avoid configuration problems on your sensor, make sure you understand the advantages and restrictions of virtualization on your sensor.

Virtualization has the following advantages:

- You can apply different configurations to different sets of traffic.
- You can monitor two networks with overlapping IP spaces with one sensor.
- You can monitor both inside and outside of a firewall or NAT device.

Virtualization has the following restrictions:

- You must assign both sides of asymmetric traffic to the same virtual sensor.
- Using VACL capture or SPAN (promiscuous monitoring) is inconsistent with regard to VLAN tagging, which causes problems with VLAN groups.
  - When using Cisco IOS software, a VACL capture port or a SPAN target does not always receive tagged packets even if it is configured for trunking.
  - When using the MSFC, fast path switching of learned routes changes the behavior of VACL captures and SPAN.

- Persistent store is limited.

Virtualization has the following traffic capture requirements:

- The virtual sensor must receive traffic that has 802.1q headers (other than traffic on the native VLAN of the capture port).
- The sensor must see both directions of traffic in the same VLAN group in the same virtual sensor for any given sensor.

The following sensors support virtualization:

- ASA 5500 AIP SSM
- ASA 5500-X IPS SSP
- ASA 5585-X IPS SSP
- IPS 4240
- IPS 4255
- IPS 4260
- IPS 4270-20
- IPS 4345
- IPS 4360
- IPS 4510
- IPS 4520

## Supported MIBs

To avoid problems with configuring SNMP, be aware of the MIBs that are supported on the sensor.

The following private MIBs are supported on the sensor:

- CISCO-CIDS-MIB
- CISCO-ENHANCED-MEMPOOL-MIB
- CISCO-ENTITY-ALARM-MIB

You can obtain these private Cisco MIBs under the heading SNMP v2 MIBs at this URL:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

**Note**

MIB II is available on the sensor, but we do not support it. We know that some elements are not correct (for example, the packet counts from the IF MIB on the sensing interfaces). While you can use elements from MIB II, we do not guarantee that they all provide correct information. We fully support the other listed MIBs and their output is correct.

**Note**

CISCO-PROCESS-MIB is available on the sensor, but we do not support it. We know that some elements are not available. While you can use elements from CISCO-PROCESS-MIB, we do not guarantee that they all provide correct information. We fully support the other listed MIBs and their output is correct.

# When to Disable Anomaly Detection

If you have anomaly detection enabled and you have your sensor configured to see only one direction of traffic, you should disable anomaly detection. Otherwise, you will receive many alerts, because anomaly detection sees asymmetric traffic as having incomplete connections, that is, like worm scanners, and fires alerts.

To disable anomaly detection, follow these steps:

- 
- Step 1** Log in to the CLI using an account with administrator privileges.
- Step 2** Enter analysis engine submode.
- ```
sensor# configure terminal  
sensor(config)# service analysis-engine  
sensor(config-ana)#
```
- Step 3** Enter the virtual sensor name that contains the anomaly detection policy you want to disable.
- ```
sensor(config-ana)# virtual-sensor vs0  
sensor(config-ana-vir)#
```
- Step 4** Disable anomaly detection operational mode.
- ```
sensor(config-ana-vir)# anomaly-detection  
sensor(config-ana-vir-ano)# operational-mode inactive  
sensor(config-ana-vir-ano)#
```
- Step 5** Exit analysis engine submode.
- ```
sensor(config-ana-vir-ano)# exit  
sensor(config-ana-vir)# exit  
sensor(config-ana-)# exit  
Apply Changes:[yes]:
```
- Step 6** Press **Enter** to apply your changes or enter **no** to discard them.
- 

## For More Information

For more information about Worms, see [Worms](#), page 10-2.

# The Analysis Engine is Not Responding

**Error Message** Output from show statistics analysis-engine  
 Error: getAnalysisEngineStatistics : ct-sensorApp.424 not responding, please check system processes - The connect to the specified Io::ClientPipe failed.

**Error Message** Output from show statistics anomaly-detection  
 Error: getAnomalyDetectionStatistics : ct-sensorApp.424 not responding, please check system processes - The connect to the specified Io::ClientPipe failed.

**Error Message** Output from show statistics denied-attackers  
 Error: getDeniedAttackersStatistics : ct-sensorApp.424 not responding, please check system processes - The connect to the specified Io::ClientPipe failed.

**Possible Cause** These error messages appear when you run the **show tech support** command and the Analysis Engine is not running.

**Recommended Action** Verify the Analysis Engine is running and monitor it to see if the issue is resolved.

To verify the Analysis Engine is running and to monitor the issue, follow these steps:

- 
- Step 1** Log in to the sensor.
- Step 2** Verify that the Analysis Engine is not running, Check to see if the Analysis Engine reads Not Running.
- ```
sensor# show version
```
- ```
-----
MainApp N-2007_JUN_19_16_45 (Release) 2007-06-19T17:10:20-0500 Running
AnalysisEngine N-2007_JUN_19_16_45 (Release) 2007-06-19T17:10:20-0500 Not Running
CLI N-2007_JUN_19_16_45 (Release) 2007-06-19T17:10:20-0500
```
- Step 3** Enter **show tech-support** and save the output.
- Step 4** Reboot the sensor.
- Step 5** Enter **show version** after the sensor has stabilized to see if the issue is resolved.
- Step 6** If the Analysis Engine still reads Not Running, contact TAC with the original **show tech support** command output.
-

# Troubleshooting RADIUS Authentication

**Symptom** Attempt limit configured on the IPS sensor may not be enforced for a RADIUS user.

**Conditions** Applicable for RADIUS users only. The RADIUS user must have logged in to the sensor at least once after RADIUS authentication is enabled or after the sensor is reset or rebooted.

**Workaround** Log in to the sensor with the correct credentials and from that time on the attempt limit is enforced for that RADIUS user.

## For More Information

For detailed information on RADIUS authentication, see [Configuring Authentication and Users](#), page 4-16.

# Troubleshooting Global Correlation

Make sure you observe the following when configuring global correlation:

- Because global correlation updates occur through the sensor management interface, firewalls must allow port 443/80 traffic.
- You must have an HTTP proxy server or a DNS server configured to allow global correlation features to function.
- If you have an HTTP proxy server configured, the proxy must allow port 443/80 traffic from IPS systems.
- You must have a valid IPS license to allow global correlation features to function.
- Global correlation features only contain external IP addresses, so if you position a sensor in an internal lab, you may never receive global correlation information.
- Make sure your sensor supports the global correlation features.
- Make sure your IPS version supports the global correlation features.



## Note

The global correlation features are supported in IPS 7.0 and later.

## For More Information

For more information on global correlation features and how to configure them, see [Chapter 11](#), “Configuring Global Correlation.”

# Troubleshooting External Product Interfaces

This section lists issues that can occur with external product interfaces and provides troubleshooting tips. It contains the following topics:

- [External Product Interfaces Issues](#), page C-24
- [External Product Interfaces Troubleshooting Tips](#), page C-24

## External Product Interfaces Issues

When the external product interface receives host posture and quarantine events, the following issues can arise:

- The sensor can store only a certain number of host records:
  - If the number of records exceeds 10,000, subsequent records are dropped.
  - If the 10,000 limit is reached and then it drops to below 9900, new records are no longer dropped.
- Hosts can change an IP address or appear to use another host IP address, for example, because of DHCP lease expiration or movement in a wireless network. In the case of an IP address conflict, the sensor presumes the most recent host posture event to be the most accurate.
- A network can include overlapping IP address ranges in different VLANs, but host postures do not include VLAN ID information. You can configure the sensor to ignore specified address ranges.
- A host can be unreachable from the CSA MC because it is behind a firewall. You can exclude unreachable hosts.
- The CSA MC event server allows up to ten open subscriptions by default. You can change this value. You must have an administrative account and password to open subscriptions.
- CSA data is not virtualized; it is treated globally by the sensor.
- Host posture OS and IP addresses are integrated into passive OS fingerprinting storage. You can view them as imported OS profiles.
- You cannot see the quarantined hosts.
- The sensor must recognize each CSA MC host X.509 certificate. You must add them as a trusted host.
- You can configure a maximum of two external product devices.

### For More Information

- For more information on external product interfaces, see [Chapter 16, “Configuring External Product Interfaces.”](#)
- For more information on working with OS maps and identifications, see [Adding, Editing, Deleting, and Moving Configured OS Maps, page 9-28](#) and [Configuring OS Identifications, page 18-15](#).
- For the procedure for adding trusted hosts, see [Adding Trusted Hosts, page 12-14](#).

## External Product Interfaces Troubleshooting Tips

To troubleshoot external product interfaces, check the following:

- Make sure the interface is active by checking the output from the **show statistics external-product-interface** command in the CLI, or choose **Monitoring > Sensor Monitoring > Support Information > Statistics** in the IDM and check the Interface state line in the response.
- Make sure you have added the CSA MC IP address to the trusted hosts. If you forgot to add it, add it, wait a few minutes and then check again.
- Confirm subscription login information by opening and closing a subscription on the CSA MC using the browser.
- Check the Event Store for the CSA MC subscription errors.



**For More Information**

- For the procedure for adding trusted hosts, see [Adding Trusted Hosts, page 12-14](#).
- For the procedure for displaying events, see [Displaying Events, page C-101](#).

# Troubleshooting the Appliance

**Tip**

Before troubleshooting the appliance, check the Caveats section of the Readme for the software version you have installed on your sensor to see if you are dealing with a known issue.

This section contains information to troubleshoot the appliance, and contains the following topics:

- [The Appliance and Jumbo Packet Frame Size, page C-25](#)
- [Troubleshooting Loose Connections, page C-25](#)
- [The Analysis Engine is Busy, page C-26](#)
- [Communication Problems, page C-26](#)
- [The SensorApp and Alerting, page C-31](#)
- [Blocking, page C-38](#)
- [Logging, page C-47](#)
- [TCP Reset Not Occurring for a Signature, page C-53](#)
- [Software Upgrades, page C-54](#)

## The Appliance and Jumbo Packet Frame Size

For IPS standalone appliances with 1 G and 10 G fixed or add-on interfaces, the maximum jumbo frame size is 9216 bytes.

**Note**

A jumbo frame is an Ethernet packet that is larger than the standard maximum of 1518 bytes (including Layer 2 header and FCS).

## Troubleshooting Loose Connections

Perform the following actions to troubleshoot loose connections on sensors:

- Make sure all power cords are securely connected.
- Make sure all cables are properly aligned and securely connected for all external and internal components.
- Remove and check all data and power cables for damage. Make sure no cables have bent pins or damaged connectors.
- Make sure each device is properly seated.
- If a device has latches, make sure they are completely closed and locked.

- Check any interlock or interconnect indicators that indicate a component is not connected properly.
- If problems continue, remove and reinstall each device, checking the connectors and sockets for bent pins or other damage.

## The Analysis Engine is Busy

After you reimage a sensor, the Analysis Engine is busy rebuilding Regex tables and does not respond to new configurations. You can check whether the Analysis Engine is busy by using the **show statistics virtual-sensor** command. You receive the following error message if the Analysis Engine is busy:

```
sensor# show statistics virtual-sensor
Error: getVirtualSensorStatistics : Analysis Engine is busy rebuilding regex tables. This
may take a while.
sensor#
```

When the Analysis Engine is busy rebuilding Regex tables, you receive an error message if you try to update a configuration, for example, enabling or retiring a signature:

```
sensor# configure terminal
sensor(config)# service sig sig0
sensor(config-sig)# sig 2000 0
sensor(config-sig-sig)# status enabled
sensor(config-sig-sig)# status
sensor(config-sig-sig-sta)# enabled true
sensor(config-sig-sig-sta)# retired false
sensor(config-sig-sig-sta)# exit
sensor(config-sig-sig)# exit
sensor(config-sig)# exit
Apply Changes?[yes]:
Error: editConfigDeltaSignatureDefinition : Analysis Engine is busy rebuilding regex
tables. This may take a while.
The configuration changes failed validation, no changes were applied.
Would you like to return to edit mode to correct the errors? [yes]: no
No changes were made to the configuration.
sensor(config)#
```

If you try to get the virtual sensor statistics immediately after you boot a sensor, you receive an error message. Although the sensor has rebuilt the cache files, the virtual sensor is not finished initializing.

```
sensor# show statistics virtual-sensor
Error: getVirtualSensorStatistics : Analysis Engine is busy.
sensor#
```

When you receive the errors that the Analysis Engine is busy, wait a while before trying to make configuration changes. Use the **show statistics virtual-sensor** command to find out when the Analysis Engine is available again.

## Communication Problems

This section helps you troubleshoot communication problems with the 4200 and 4300 series sensor. It contains the following topics:

- [Cannot Access the Sensor CLI Through Telnet or SSH, page C-27](#)
- [Correcting a Misconfigured Access List, page C-29](#)
- [Duplicate IP Address Shuts Interface Down, page C-29](#)

## Cannot Access the Sensor CLI Through Telnet or SSH

If you cannot access the sensor CLI through Telnet (if you already have it enabled) or SSH, follow these steps:

- Step 1** Log in to the sensor CLI through a console, terminal, or module session.
- Step 2** Make sure that the sensor management interface is enabled. The management interface is the interface in the list with the status line `Media Type = TX`. If the Link Status is `Down`, go to Step 3. If the Link Status is `Up`, go to Step 5.

```
sensor# show interfaces
Interface Statistics
  Total Packets Received = 0
  Total Bytes Received = 0
  Missed Packet Percentage = 0
  Current Bypass Mode = Auto_off
MAC statistics from interface GigabitEthernet0/1
  Media Type = backplane
  Missed Packet Percentage = 0
  Inline Mode = Unpaired
  Pair Status = N/A
  Link Status = Up
  Link Speed = Auto_1000
  Link Duplex = Auto_Full
  Total Packets Received = 0
  Total Bytes Received = 0
  Total Multicast Packets Received = 0
  Total Broadcast Packets Received = 0
  Total Jumbo Packets Received = 0
  Total Undersize Packets Received = 0
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total Packets Transmitted = 0
  Total Bytes Transmitted = 0
  Total Multicast Packets Transmitted = 0
  Total Broadcast Packets Transmitted = 0
  Total Jumbo Packets Transmitted = 0
  Total Undersize Packets Transmitted = 0
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0
MAC statistics from interface GigabitEthernet0/0
  Media Type = TX
  Link Status = Up
  Link Speed = Auto_100
  Link Duplex = Auto_Full
  Total Packets Received = 944333
  Total Bytes Received = 83118358
  Total Multicast Packets Received = 0
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total Packets Transmitted = 397633
  Total Bytes Transmitted = 435730956
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0
sensor#
```

- Step 3** Make sure the sensor IP address is unique. If the management interface detects that another device on the network has the same IP address, it does not come up.

```
sensor# setup
--- System Configuration Dialog ---
```

At any point you may enter a question mark '?' for help.  
User ctrl-c to abort configuration dialog at any prompt.  
Default settings are in square brackets '[]'.

Current Configuration:

```
service host
network-settings
host-ip 192.168.1.2/24,192.168.1.1
host-name sensor
telnet-option enabled
access-list 0.0.0.0/0
ftp-timeout 300
no login-banner-text
exit
--MORE--
```

- Step 4** Make sure the management port is connected to an active network connection. If the management port is not connected to an active network connection, the management interface does not come up.
- Step 5** Make sure the IP address of the workstation that is trying to connect to the sensor is permitted in the sensor access list. If the workstation network address is permitted in the sensor access list, go to Step 6.

```
sensor# setup
--- System Configuration Dialog ---
```

At any point you may enter a question mark '?' for help.  
User ctrl-c to abort configuration dialog at any prompt.  
Default settings are in square brackets '[]'.

Current Configuration:

```
service host
network-settings
host-ip 192.168.1.2/24,192.168.1.1
host-name sensor
telnet-option enabled
access-list 0.0.0.0/0
ftp-timeout 300
no login-banner-text
exit
--MORE--
```

- Step 6** Add a permit entry for the workstation network address, save the configuration, and try to connect again.
- Step 7** Make sure the network configuration allows the workstation to connect to the sensor. If the sensor is protected behind a firewall and the workstation is in front of the firewall, make sure the firewall is configured to allow the workstation to access the sensor. Or if the workstation is behind a firewall that is performing network address translation on the workstation IP address, and the sensor is in front of the firewall, make sure that the sensor access list contains a permit entry for the workstation translated address.

**For More Information**

- For the procedures for changing the IP address, changing the access list, and enabling and disabling Telnet, see [Configuring Network Settings, page 4-1](#).
- For the various ways to open a CLI session directly on the sensor, see [Chapter 20, “Logging In to the Sensor.”](#)

**Correcting a Misconfigured Access List**

To correct a misconfigured access list, follow these steps:

---

**Step 1** Log in to the CLI.

**Step 2** View your configuration to see the access list.

```
sensor# show configuration | include access-list
access-list 10.0.0.0/8
access-list 64.0.0.0/8
sensor#
```

**Step 3** Verify that the client IP address is listed in the allowed networks. If it is not, add it.

```
sensor# configure terminal
sensor(config)# service host
sensor(config-hos)# network-settings
sensor(config-hos-net)# access-list 171.69.70.0/24
```

**Step 4** Verify the settings.

```
sensor(config-hos-net)# show settings
network-settings
-----
host-ip: 192.168.1.2/24,192.168.1.1 default: 10.1.9.201/24,10.1.9.1
host-name: sensor-238 default: sensor
telnet-option: enabled default: disabled
access-list (min: 0, max: 512, current: 3)
-----
network-address: 10.0.0.0/8
-----
network-address: 64.0.0.0/8
-----
network-address: 171.69.70.0/24
-----
ftp-timeout: 300 seconds <defaulted>
login-banner-text: <defaulted>
-----
sensor(config-hos-net)#
```

---

**Duplicate IP Address Shuts Interface Down**

If you have two newly imaged sensors with the same IP address that come up on the same network at the same time, the interface shuts down. Linux prevents the command and control interface from activating if it detects an address conflict with another host.

To verify that the sensor in question does not have an IP address conflict with another host on the network, follow these steps:

**Step 1** Log in to the CLI.

**Step 2** Determine whether the interface is up. If the output says the command and control interface link status is down, there is a hardware issue or an IP address conflict.

```
sensor# show interfaces
Interface Statistics
  Total Packets Received = 0
  Total Bytes Received = 0
  Missed Packet Percentage = 0
  Current Bypass Mode = Auto_off
MAC statistics from interface GigabitEthernet0/1
  Media Type = backplane
  Missed Packet Percentage = 0
  Inline Mode = Unpaired
  Pair Status = N/A
  Link Status = Up
  Link Speed = Auto_1000
  Link Duplex = Auto_Full
  Total Packets Received = 0
  Total Bytes Received = 0
  Total Multicast Packets Received = 0
  Total Broadcast Packets Received = 0
  Total Jumbo Packets Received = 0
  Total Undersize Packets Received = 0
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total Packets Transmitted = 0
  Total Bytes Transmitted = 0
  Total Multicast Packets Transmitted = 0
  Total Broadcast Packets Transmitted = 0
  Total Jumbo Packets Transmitted = 0
  Total Undersize Packets Transmitted = 0
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0
MAC statistics from interface GigabitEthernet0/0
  Media Type = TX
  Link Status = Up
  Link Speed = Auto_100
  Link Duplex = Auto_Full
  Total Packets Received = 1822323
  Total Bytes Received = 131098876
  Total Multicast Packets Received = 20
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total Packets Transmitted = 219260
  Total Bytes Transmitted = 103668610
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0
sensor#
```

**Step 3** Make sure the sensor cabling is correct.

**Step 4** Make sure the IP address is correct.

**For More Information**

- To make sure the sensor cabling is correct, refer to the chapter for your sensor in *Installing Cisco Intrusion Prevention System Appliances and Modules 7.1*.
- For the procedure for making sure the IP address is correct, see *Configuring Network Settings*, page 4-1.

## The SensorApp and Alerting

This section helps you troubleshoot issues with the SensorApp and alerting. It contains the following topics:

- [The SensorApp is Not Running](#), page C-31
- [Physical Connectivity, SPAN, or VACL Port Issue](#), page C-33
- [Unable to See Alerts](#), page C-34
- [Sensor Not Seeing Packets](#), page C-36
- [Cleaning Up a Corrupted SensorApp Configuration](#), page C-37

## The SensorApp is Not Running

The sensing process, SensorApp, should always be running. If it is not, you do not receive any alerts. The SensorApp is part of the Analysis Engine, so you must make sure the Analysis Engine is running.

To make sure the Analysis Engine is running, follow these steps:

- 
- Step 1** Log in to the CLI.
- Step 2** Determine the status of the Analysis Engine service and whether you have the latest software updates.

```

sensor# show version
Application Partition:

Cisco Intrusion Prevention System, Version 7.1(3)E4

Host:
  Realm Keys          key1.0
Signature Definition:
  Signature Update    S605.0          2011-10-25
OS Version:          2.6.29.1
Platform:             ASA5585-SSP-IPS10
Serial Number:        123456789AB
No license present
Sensor up-time is 13 days.
Using 4395M out of 5839M bytes of available memory (75% usage)
system is using 26.2M out of 160.0M bytes of available disk space (16% usage)
application-data is using 69.7M out of 171.6M bytes of available disk space (43%
usage)
boot is using 57.3M out of 70.5M bytes of available disk space (86% usage)
application-log is using 494.0M out of 513.0M bytes of available disk space (96%
usage)

MainApp              S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600   Running
AnalysisEngine        S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600   Running

```

```
CollaborationApp S-2011_NOV_16_00_20_7_1_3_46 (Release) 2011-11-16T00:23:0
6-0600 Running
CLI S-2011_NOV_16_00_20_7_1_3_46 (Release) 2011-11-16T00:23:0
6-0600
```

Upgrade History:

```
IPS-K9-7.1-3-E4 00:30:07 UTC Wed Nov 16 2011
```

Recovery Partition Version 1.1 - 7.1(3)E4

Host Certificate Valid from: 16-Nov-2011 to 16-Nov-2013  
sensor#

**Step 3** If the Analysis Engine is not running, look for any errors connected to it.

```
sensor# show events error fatal past 13:00:00 | include AnalysisEngine
evError: eventId=1077219258696330005 severity=warning

originator:
hostId: sensor
appName: sensorApp
appInstanceId: 1045
time: 2004/02/19 19:34:20 2004/02/19 19:34:20 UTC
errorMessage: name=errUnclassified Generating new Analysis Engine configuration file.
```



**Note** The date and time of the last restart is listed. In this example, the last restart was on 2-19-2004 at 7:34.

- Step 4** If you do not have the latest software updates, download them from Cisco.com. Read the Readme that accompanies the software upgrade for any known DDTs for the SensorApp or the Analysis Engine.
- Step 5** If the Analysis Engine is still not running, enter **show tech-support** and save the output.
- Step 6** Reboot the sensor.
- Step 7** Enter **show version** after the sensor has stabilized to see if the issue is resolved.
- Step 8** If the Analysis Engine still reads `Not Running`, contact the TAC with the original **show tech support** command output.

#### For More Information

- For more information on IPS system architecture, see [Appendix A, “System Architecture.”](#)
- For the procedure for obtaining the latest Cisco IPS software, see [Obtaining Cisco IPS Software, page 21-1.](#)



## Physical Connectivity, SPAN, or VACL Port Issue

If the sensor is not connected properly, you do not receive any alerts.

To make sure the sensor is connected properly, follow these steps:

- 
- Step 1** Log in to the CLI.
- Step 2** Make sure the interfaces are up and that the packet count is increasing.

```

sensor# show interfaces
Interface Statistics
  Total Packets Received = 0
  Total Bytes Received = 0
  Missed Packet Percentage = 0
  Current Bypass Mode = Auto_off
MAC statistics from interface GigabitEthernet0/1
  Media Type = backplane
  Missed Packet Percentage = 0
  Inline Mode = Unpaired
  Pair Status = N/A
  Link Status = Up
  Link Speed = Auto_1000
  Link Duplex = Auto_Full
  Total Packets Received = 0
  Total Bytes Received = 0
  Total Multicast Packets Received = 0
  Total Broadcast Packets Received = 0
  Total Jumbo Packets Received = 0
  Total Undersize Packets Received = 0
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total Packets Transmitted = 0
  Total Bytes Transmitted = 0
  Total Multicast Packets Transmitted = 0
  Total Broadcast Packets Transmitted = 0
  Total Jumbo Packets Transmitted = 0
  Total Undersize Packets Transmitted = 0
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0
MAC statistics from interface GigabitEthernet0/0
  Media Type = TX
  Link Status = Up
  Link Speed = Auto_100
  Link Duplex = Auto_Full
  Total Packets Received = 1830137
  Total Bytes Received = 131624465
  Total Multicast Packets Received = 20
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total Packets Transmitted = 220052
  Total Bytes Transmitted = 103796666
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0
sensor#

```

- Step 3** If the Link Status is down, make sure the sensing port is connected properly:
- Make sure the sensing port is connected properly on the appliance.
- Step 4** Verify the interface configuration:
- Make sure you have the interfaces configured properly.

- Verify the SPAN and VACL capture port configuration on the Cisco switch.  
Refer to your switch documentation for the procedure.

**Step 5** Verify again that the interfaces are up and that the packet count is increasing.

```
sensor# show interfaces
```

#### For More Information

- For the procedure for properly installing the sensing interface on your sensor, refer to the chapter on your appliance in *Installing Cisco Intrusion Prevention System Appliances and Modules 7.1*.
- For the procedures for configuring interfaces on your sensor, see [Chapter 5, “Configuring Interfaces.”](#)

## Unable to See Alerts

If you are not seeing alerts, try the following:

- Make sure the signature is enabled
- Make sure the signature is not retired
- Make sure that you have Produce Alert configured as an action



#### Note

If you choose Produce Alert, but come back later and add another event action and do not add Produce Alert to the new configuration, alerts are not sent to the Event Store. Every time you configure a signature, the new configuration overwrites the old one, so make sure you have configured all the event actions you want for each signature.

- Make sure the sensor is seeing packets
- Make sure that alerts are being generated
- Make sure the sensing interface is in a virtual sensor

To make sure you can see alerts, follow these steps:

**Step 1** Log in to the CLI.

**Step 2** Make sure the signature is enabled.

```
sensor# configure terminal
sensor(config)# service signature-definition sig0
sensor(config-sig)# signatures 1300 0
sensor(config-sig-sig)# status
sensor(config-sig-sig-sta)# show settings
status
-----
enabled: true <defaulted>
retired: false <defaulted>
-----
sensor(config-sig-sig-sta)#
```

**Step 3** Make sure you have Produce Alert configured.

```
sensor# configure terminal
sensor(config)# service signature-definition sig0
sensor(config-sig)# signatures 1300 0
```

```

sensor(config-sig-sig)# engine ?
normalizer      Signature engine
sensor(config-sig-sig)# engine normalizer
sensor(config-sig-sig-nor)# event-action produce-alert
sensor(config-sig-sig-nor)# show settings
normalizer
-----
event-action: produce-alert default: produce-alert|deny-connection-inline
edit-default-sigs-only
-----
sensor#

```

#### Step 4 Make sure the sensor is seeing packets.

```

sensor# show interfaces FastEthernet0/1
MAC statistics from interface FastEthernet0/1
Media Type = backplane
Missed Packet Percentage = 0
Inline Mode = Unpaired
Pair Status = N/A
Link Status = Up
Link Speed = Auto_100
Link Duplex = Auto_Full
Total Packets Received = 267581
Total Bytes Received = 24886471
Total Multicast Packets Received = 0
Total Broadcast Packets Received = 0
Total Jumbo Packets Received = 0
Total Undersize Packets Received = 0
Total Receive Errors = 0
Total Receive FIFO Overruns = 0
Total Packets Transmitted = 57301
Total Bytes Transmitted = 3441000
Total Multicast Packets Transmitted = 0
Total Broadcast Packets Transmitted = 0
Total Jumbo Packets Transmitted = 0
Total Undersize Packets Transmitted = 0
Total Transmit Errors = 1
Total Transmit FIFO Overruns = 0
sensor#

```

#### Step 5 Check for alerts.

```

sensor# show statistics virtual-sensor
SigEvent Preliminary Stage Statistics
Number of Alerts received = 0
Number of Alerts Consumed by AlertInterval = 0
Number of Alerts Consumed by Event Count = 0
Number of FireOnce First Alerts = 0
Number of FireOnce Intermediate Alerts = 0
Number of Summary First Alerts = 0
Number of Summary Intermediate Alerts = 0
Number of Regular Summary Final Alerts = 0
Number of Global Summary Final Alerts = 0
Number of Alerts Output for further processing = 0alertDetails: Traffic Source: int0 ;

```

## Sensor Not Seeing Packets

If the sensor is not seeing any packets on the network, you could have the interfaces set up incorrectly.

If the sensor is not seeing packets, follow these steps:

**Step 1** Log in to the CLI.

**Step 2** Make sure the interfaces are up and receiving packets.

```
sensor# show interfaces GigabitEthernet0/1
MAC statistics from interface GigabitEthernet0/1
  Media Type = backplane
  Missed Packet Percentage = 0
  Inline Mode = Unpaired
  Pair Status = N/A
  Link Status = Down
  Link Speed = Auto_1000
  Link Duplex = Auto_Full
  Total Packets Received = 0
  Total Bytes Received = 0
  Total Multicast Packets Received = 0
  Total Broadcast Packets Received = 0
  Total Jumbo Packets Received = 0
  Total Undersize Packets Received = 0
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total Packets Transmitted = 0
  Total Bytes Transmitted = 0
  Total Multicast Packets Transmitted = 0
  Total Broadcast Packets Transmitted = 0
  Total Jumbo Packets Transmitted = 0
  Total Undersize Packets Transmitted = 0
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0
sensor#
```

**Step 3** If the interfaces are not up, do the following:

- Check the cabling.
- Enable the interface.

```
sensor# configure terminal
sensor(config)# service interface
sensor(config-int)# physical-interfaces GigabitEthernet0/1
sensor(config-int-phy)# admin-state enabled
sensor(config-int-phy)# show settings
<protected entry>
name: GigabitEthernet0/1
-----
media-type: tx <protected>
description: <defaulted>
admin-state: enabled default: disabled
duplex: auto <defaulted>
speed: auto <defaulted>
alt-tcp-reset-interface
-----
none
-----
-----
sensor(config-int-phy)#
```

**Step 4** Check to see that the interface is up and receiving packets.

```
sensor# show interfaces
MAC statistics from interface GigabitEthernet0/1
  Media Type = TX
  Missed Packet Percentage = 0
  Inline Mode = Unpaired
  Pair Status = N/A
  Link Status = Up
  Link Speed = Auto_100
  Link Duplex = Auto_Full
  Total Packets Received = 3
  Total Bytes Received = 900
  Total Multicast Packets Received = 3
  Total Broadcast Packets Received = 0
  Total Jumbo Packets Received = 0
  Total Undersize Packets Received = 0
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total Packets Transmitted = 0
  Total Bytes Transmitted = 0
  Total Multicast Packets Transmitted = 0
  Total Broadcast Packets Transmitted = 0
  Total Jumbo Packets Transmitted = 0
  Total Undersize Packets Transmitted = 0
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0 ...
```

---

#### For More Information

For the procedure for installing the sensor properly, refer to your sensor chapter in *Installing Cisco Intrusion Prevention System Appliances and Modules 7.1*.

## Cleaning Up a Corrupted SensorApp Configuration

If the SensorApp configuration has become corrupted and the SensorApp cannot run, you must delete it entirely and restart the SensorApp.

To delete the SensorApp configuration, follow these steps:

- 
- Step 1** Log in to the service account.
  - Step 2** Su to root.
  - Step 3** Stop the IPS applications.  
`/etc/init.d/cids stop`
  - Step 4** Replace the virtual sensor file.  
`cp /usr/cids/idsRoot/etc/defVirtualSensorConfig.xml  
/usr/cids/idsRoot/etc/VS-Config/virtualSensor.xml`
  - Step 5** Remove the cache files.  
`rm /usr/cids/idsRoot/var/virtualSensor/*.pmz`
  - Step 6** Exit the service account.
  - Step 7** Log in to the sensor CLI.

**Step 8** Start the IPS services.

```
sensor# cids start
```

**Step 9** Log in to an account with administrator privileges.

**Step 10** Reboot the sensor.

```
sensor# reset
Warning: Executing this command will stop all applications and reboot the node.
Continue with reset? [yes]:yes
Request Succeeded.
sensor#
```

---

### For More Information

For more information on IPS system architecture, see [Appendix A, “System Architecture.”](#)

## Blocking

This section provides troubleshooting help for blocking and the ARC service. It contains the following topics.

- [Troubleshooting Blocking, page C-38](#)
- [Verifying the ARC is Running, page C-39](#)
- [Verifying ARC Connections are Active, page C-40](#)
- [Device Access Issues, page C-42](#)
- [Verifying the Interfaces and Directions on the Network Device, page C-43](#)
- [Enabling SSH Connections to the Network Device, page C-44](#)
- [Blocking Not Occurring for a Signature, page C-44](#)
- [Verifying the Master Blocking Sensor Configuration, page C-45](#)

## Troubleshooting Blocking

After you have configured the ARC, you can verify if it is running properly by using the **show version** command. To verify that the ARC is connecting to the network devices, use the **show statistics network-access** command.



### Note

The ARC was formerly known as Network Access Controller. Although the name has been changed since IPS 5.1, it still appears in IDM, IME, and the CLI as Network Access Controller, **nac**, and **network-access**.

To troubleshoot the ARC, follow these steps:

1. Verify that the ARC is running.
2. Verify that the ARC is connecting to the network devices.
3. Verify that the Event Action is set to Block Host for specific signatures.
4. Verify that the master blocking sensor is properly configured.

**For More Information**

- For the procedure to verify that the ARC is running, see [Verifying the ARC is Running, page C-39](#).
- For the procedure to verify that the ARC is connecting, see [Verifying ARC Connections are Active, page C-40](#).
- For the procedure to verify that the Event Action is set to Block Host, see [Blocking Not Occurring for a Signature, page C-44](#).
- For the procedure to verify that the master blocking sensor is properly configured, see [Verifying the Master Blocking Sensor Configuration, page C-45](#).
- For a discussion of ARC architecture, see [Attack Response Controller, page A-12](#).

**Verifying the ARC is Running**

To verify that the ARC is running, use the **show version** command. If the MainApp is not running, the ARC cannot run. The ARC is part of the MainApp.

To verify that the ARC is running, follow these steps:

---

**Step 1** Log in to the CLI.

**Step 2** Verify that the MainApp is running.

```

sensor# show version
Application Partition:

Cisco Intrusion Prevention System, Version 7.1(3)E4

Host:
  Realm Keys          key1.0
Signature Definition:
  Signature Update    S605.0          2011-10-25
OS Version:          2.6.29.1
Platform:             ASA5585-SSP-IPS10
Serial Number:        123456789AB
No license present
Sensor up-time is 13 days.
Using 4395M out of 5839M bytes of available memory (75% usage)
system is using 26.2M out of 160.0M bytes of available disk space (16% usage)
application-data is using 69.7M out of 171.6M bytes of available disk space (43%
usage)
boot is using 57.3M out of 70.5M bytes of available disk space (86% usage)
application-log is using 494.0M out of 513.0M bytes of available disk space (96%
usage)

MainApp              S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600   Running
AnalysisEngine       S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600   Running
CollaborationApp     S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600   Running
CLI                  S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600

Upgrade History:

  IPS-K9-7.1-3-E4    00:30:07 UTC Wed Nov 16 2011

Recovery Partition Version 1.1 - 7.1(3)E4

```

```
Host Certificate Valid from: 16-Nov-2011 to 16-Nov-2013
```

```
sensor#
```

- Step 3** If the MainApp displays Not Running, the ARC has failed. Contact the TAC.

### For More Information

For more information on IPS system architecture, see [Appendix A, “System Architecture.”](#)

## Verifying ARC Connections are Active

If the State is not Active in the ARC statistics, there is a problem.

To verify that the State is Active in the statistics, follow these steps:

- Step 1** Log in to the CLI.

- Step 2** Verify that the ARC is connecting. Check the State section of the output to verify that all devices are connecting.

```
sensor# show statistics network-access
Current Configuration
  LogAllBlockEventsAndSensors = true
  EnableNvramWrite = false
  EnableAclLogging = false
  AllowSensorBlock = false
  BlockMaxEntries = 250
  MaxDeviceInterfaces = 250
  NetDevice
    Type = Cisco
    IP = 10.89.147.54
    NATAddr = 0.0.0.0
    Communications = telnet
    BlockInterface
      InterfaceName = fa0/0
      InterfaceDirection = in
  State
    BlockEnable = true
    NetDevice
      IP = 10.89.147.54
      AclSupport = uses Named ACLs
      Version = 12.2
      State = Active
sensor#
```

- Step 3** If the ARC is not connecting, look for recurring errors.

```
sensor# show events error hh:mm:ss month day year | include : nac
```

Example

```
sensor# show events error 00:00:00 Apr 01 2011 | include : nac
```

- Step 4** Make sure you have the latest software updates.

```
sensor# show version
Application Partition:
```

```
Cisco Intrusion Prevention System, Version 7.1(3)E4
```



```

Host:
  Realm Keys          key1.0
Signature Definition:
  Signature Update    S605.0          2011-10-25
OS Version:          2.6.29.1
Platform:            ASA5585-SSP-IPS10
Serial Number:       123456789AB
No license present
Sensor up-time is 13 days.
Using 4395M out of 5839M bytes of available memory (75% usage)
system is using 26.2M out of 160.0M bytes of available disk space (16% usage)
application-data is using 69.7M out of 171.6M bytes of available disk space (43%
usage)
boot is using 57.3M out of 70.5M bytes of available disk space (86% usage)
application-log is using 494.0M out of 513.0M bytes of available disk space (96%
usage)

MainApp              S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600   Running
AnalysisEngine       S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600   Running
CollaborationApp     S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600   Running
CLI                 S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600

Upgrade History:

  IPS-K9-7.1-3-E4    00:30:07 UTC Wed Nov 16 2011

Recovery Partition Version 1.1 - 7.1(3)E4

Host Certificate Valid from: 16-Nov-2011 to 16-Nov-2013

sensor#

```

**Note**

If you do not have the latest software updates, download them from Cisco.com. Read the Readme that accompanies the software upgrade for any known DDTs for the ARC.

- Step 5** Make sure the configuration settings for each device are correct (the username, password, and IP address).
- Step 6** Make sure the interface and directions for each network device are correct.
- Step 7** If the network device is using SSH-3DES, make sure that you have enabled SSH connections to the device.
- Step 8** Verify that each interface and direction on each controlled device is correct.

**For More Information**

- For the procedure for obtaining the latest Cisco IPS software, see [Obtaining Cisco IPS Software, page 21-1](#).
- For more information about configuring devices, see [Device Access Issues, page C-42](#).

- For the procedure for verifying the interfaces and directions for each network device, see [Verifying the Interfaces and Directions on the Network Device](#), page C-43.
- For the procedure for enabling SSH, see [Enabling SSH Connections to the Network Device](#), page C-44.

## Device Access Issues

The ARC may not be able to access the devices it is managing. Make sure the you have the correct IP address and username and password for the managed devices and the correct interface and direction configured.



### Note

SSH devices must support SSH 1.5. The sensor does not support SSH 2.0.

To troubleshoot device access issues, follow these steps:

**Step 1** Log in to the CLI.

**Step 2** Verify the IP address for the managed devices.

```
sensor# configure terminal
sensor (config)# service network-access
sensor(config-net)# show settings
general
-----
log-all-block-events-and-errors: true <defaulted>
enable-nvram-write: false <defaulted>
enable-acl-logging: false <defaulted>
allow-sensor-block: false <defaulted>
block-enable: true <defaulted>
block-max-entries: 250 <defaulted>
max-interfaces: 250 <defaulted>
master-blocking-sensors (min: 0, max: 100, current: 0)
-----
never-block-hosts (min: 0, max: 250, current: 0)
-----
never-block-networks (min: 0, max: 250, current: 0)
-----
block-hosts (min: 0, max: 250, current: 0)
-----
block-networks (min: 0, max: 250, current: 0)
-----
user-profiles (min: 0, max: 250, current: 1)
-----
profile-name: r7200
-----
enable-password: <hidden>
password: <hidden>
username: netrangr default:
-----
cat6k-devices (min: 0, max: 250, current: 0)
-----
```

```

-----
router-devices (min: 0, max: 250, current: 1)
-----
    ip-address: 10.89.147.54
    -----
    communication: telnet default: ssh-3des
    nat-address: 0.0.0.0 <defaulted>
    profile-name: r7200
    block-interfaces (min: 0, max: 100, current: 1)
    -----
        interface-name: fa0/0
        direction: in
        -----
        pre-acl-name: <defaulted>
        post-acl-name: <defaulted>
        -----
    -----
firewall-devices (min: 0, max: 250, current: 0)
-----
sensor(config-net)#

```

- Step 3** Manually connect to the device to make sure you have used the correct username, password, and enable password, and to ensure that the device is reachable from the sensor:
- Log in to the service account.
  - Telnet or SSH to the network device to verify the configuration.
  - Make sure you can reach the device.
  - Verify the username and password.
- Step 4** Verify that each interface and direction on each network device is correct.

#### For More Information

For the procedure for verifying the interfaces and directions for each network device, see [Verifying the Interfaces and Directions on the Network Device](#), page C-43.

## Verifying the Interfaces and Directions on the Network Device

To verify that each interface and direction on each controlled device is correct, you can send a manual block to a bogus host and then check to see if deny entries exist for the blocked addresses in the ACL of the router.



#### Note

To perform a manual block, choose **Monitoring > Sensor Monitoring > Time-Based Actions > Host Blocks**.

To initiate a manual block to a bogus host, follow these steps:

- Step 1** Enter ARC general submenu.
- ```

sensor# configure terminal
sensor(config)# service network-access
sensor(config-net)# general

```

**Step 2** Start the manual block of the bogus host IP address.

```
sensor(config-net-gen)# block-hosts 10.16.0.0
```

**Step 3** Exit general submode.

```
sensor(config-net-gen)# exit  
sensor(config-net)# exit  
Apply Changes:? [yes]:
```

**Step 4** Press **Enter** to apply the changes or type **no** to discard them.

**Step 5** Telnet to the router and verify that a deny entry for the blocked address exists in the router ACL. Refer to the router documentation for the procedure.

**Step 6** Remove the manual block by repeating Steps 1 through 4 except in Step 2 place **no** in front of the command.

```
sensor(config-net-gen)# no block-hosts 10.16.0.0
```

---

## Enabling SSH Connections to the Network Device

If you are using SSH-3DES as the communication protocol for the network device, you must make sure you have enabled it on the device.

To enable SSH-3DES connections to the network device, follow these steps:

---

**Step 1** Log in to the CLI.

**Step 2** Enter configuration mode.

```
sensor# configure terminal
```

**Step 3** Enable SSH-3DES.

```
sensor(config)# ssh-3des host blocking_device_ip_address
```

**Step 4** Type **yes** when prompted to accept the device.

---

## Blocking Not Occurring for a Signature

If blocking is not occurring for a specific signature, check that the event action is set to block the host.

To make sure blocking is occurring for a specific signature, follow these steps:

---

**Step 1** Log in to the CLI.

**Step 2** Enter signature definition submode.

```
sensor# configure terminal  
sensor(config)# service signature-definition sig0  
sensor(config-sig)#
```

**Step 3** Make sure the event action is set to block the host.



**Note** If you want to receive alerts, you must always add **produce-alert** any time you configure the event actions.

```

sensor(config-sig)# signatures 1300 0
sensor(config-sig-sig)# engine normalizer
sensor(config-sig-sig-nor)# event-action produce-alert|request-block-host
sensor(config-sig-sig-nor)# show settings
normalizer
-----
event-action: produce-alert|request-block-host default: produce-alert|deny
-connection-inline
edit-default-sigs-only
-----
default-signatures-only
-----
specify-service-ports
-----
no
-----
specify-tcp-max-mss
-----
no
-----
specify-tcp-min-mss
-----
no
-----
--MORE--

```

**Step 4** Exit signature definition submode.

```

sensor(config-sig-sig-nor)# exit
sensor(config-sig-sig)# exit
sensor(config-sig)# exit
Apply Changes:[yes]:

```

**Step 5** Press **Enter** to apply the changes or type **no** to discard them.

## Verifying the Master Blocking Sensor Configuration

To verify that a master blocking sensor is set up properly or to troubleshoot a master blocking sensor that is not set up properly, you can use the **show statistics network-access** command. Make sure that the forwarding sensor is set up as TLS trusted host if the remote master blocking sensor is using TLS for web access.

To verify a master blocking sensor configuration, follow these steps:

**Step 1** Log in to the CLI.

**Step 2** View the ARC statistics and verify that the master blocking sensor entries are in the statistics.

```
sensor# show statistics network-access
Current Configuration
  AllowSensorShun = false
  ShunMaxEntries = 250
  MasterBlockingSensor
    SensorIp = 10.89.149.46
    SensorPort = 443
    UseTls = 1
State
  ShunEnable = true
  ShunnedAddr
    Host
      IP = 122.122.122.44
      ShunMinutes = 60
      MinutesRemaining = 59
```

**Step 3** If the master blocking sensor does not show up in the statistics, you need to add it.

**Step 4** Initiate a manual block to a bogus host IP address to make sure the master blocking sensor is initiating blocks.

```
sensor# configure terminal
sensor(config)# service network-access
sensor(config-net)# general
sensor(config-net-gen)# block-hosts 10.16.0.0
```

**Step 5** Exit network access general submode.

```
sensor(config-net-gen)# exit
sensor(config-net)# exit
Apply Changes:? [yes]:
```

**Step 6** Press **Enter** to apply the changes or type **no** to discard them.

**Step 7** Verify that the block shows up in the ARC statistics.

```
sensor# show statistics network-access
Current Configuration
  AllowSensorShun = false
  ShunMaxEntries = 100
State
  ShunEnable = true
  ShunnedAddr
    Host
      IP = 10.16.0.0
      ShunMinutes =
```

**Step 8** Log in to the CLI of the master blocking sensor host, and using the **show statistics network-access** command, verify that the block also shows up in the master blocking sensor ARC statistics.

```
sensor# show statistics network-access
Current Configuration
  AllowSensorShun = false
  ShunMaxEntries = 250
  MasterBlockingSensor
    SensorIp = 10.89.149.46
    SensorPort = 443
    UseTls = 1
State
```

```
ShunEnable = true
ShunnedAddr
  Host
    IP = 10.16.0.0
    ShunMinutes = 60
    MinutesRemaining = 59
```

- Step 9** If the remote master blocking sensor is using TLS for web access, make sure the forwarding sensor is configured as a TLS host.

```
sensor# configure terminal
sensor(config)# tls trust ip master_blocking_sensor_ip_address
```

### For More Information

For the procedure to configure the sensor to be a master blocking sensor, see [Configuring the Master Blocking Sensor, page 13-23](#).

## Logging

This section describes debug logging, and contains the following topics:

- [Understanding Debug Logging, page C-47](#)
- [Enabling Debug Logging, page C-47](#)
- [Zone Names, page C-51](#)
- [Directing cidLog Messages to SysLog, page C-52](#)

## Understanding Debug Logging

TAC may suggest that you turn on debug logging for troubleshooting purposes. Logger controls what log messages are generated by each application by controlling the logging severity for different logging zones. By default, debug logging is not turned on.

If you enable individual zone control, each zone uses the level of logging that it is configured for. Otherwise, the same logging level is used for all zones.

## Enabling Debug Logging



### Caution

Enabling debug logging seriously affects performance and should only be done when instructed by the TAC.

To enable debug logging, follow these steps:

- 
- Step 1** Log in to the service account.
- Step 2** Edit the log.conf file to increase the size of the log to accommodate the additional log statements.
- ```
vi /usr/cids/idsRoot/etc/log.conf
```
- Step 3** Change fileMaxSizeInK=500 to fileMaxSizeInK=5000.

- Step 4** Locate the zone and CID section of the file and set the severity to debug.

```
severity=debug
```

- Step 5** Save the file, exit the vi editor, and exit the service account.

- Step 6** Log in to the CLI as administrator.

- Step 7** Enter master control submenu.

```
sensor# configure terminal
sensor(config)# service logger
sensor(config-log)# master-control
```

- Step 8** Enable debug logging for all zones.

```
sensor(config-log-mas)# enable-debug true
sensor(config-log-mas)# show settings
master-control
-----
enable-debug: true default: false
individual-zone-control: false <defaulted>
-----
sensor(config-log-mas)#
```

- Step 9** Turn on individual zone control.

```
sensor(config-log-mas)# individual-zone-control true
sensor(config-log-mas)# show settings
master-control
-----
enable-debug: true default: false
individual-zone-control: true default: false
-----
sensor(config-log-mas)#
```

- Step 10** Exit master zone control.

```
sensor(config-log-mas)# exit
```

- Step 11** View the zone names.

```
sensor(config-log)# show settings
master-control
-----
enable-debug: false <defaulted>
individual-zone-control: true default: false
-----
zone-control (min: 0, max: 999999999, current: 14)
-----
<protected entry>
zone-name: AuthenticationApp
severity: warning <defaulted>
<protected entry>
zone-name: Cid
severity: debug <defaulted>
<protected entry>
zone-name: Cli
severity: warning <defaulted>
<protected entry>
zone-name: IdapiCtlTrans
severity: warning <defaulted>
<protected entry>
zone-name: IdsEventStore
severity: warning <defaulted>
<protected entry>
```



```

zone-name: MpInstaller
severity: warning <defaulted>
<protected entry>
zone-name: cmgr
severity: warning <defaulted>
<protected entry>
zone-name: cplane
severity: warning <defaulted>
<protected entry>
zone-name: csi
severity: warning <defaulted>
<protected entry>
zone-name: ctlTransSource
severity: warning <defaulted>
<protected entry>
zone-name: intfc
severity: warning <defaulted>
<protected entry>
zone-name: nac
severity: warning <defaulted>
<protected entry>
zone-name: sensorApp
severity: warning <defaulted>
<protected entry>
zone-name: tls
severity: warning <defaulted>

```

```
-----
sensor(config-log)#
```

**Step 12** Change the severity level (debug, timing, warning, or error) for a particular zone.

```

sensor(config-log)# zone-control IdsEventStore severity error
sensor(config-log)# show settings
master-control

```

```

-----
enable-debug: true default: false
individual-zone-control: true default: false

```

```

-----
zone-control (min: 0, max: 999999999, current: 14)

```

```

-----
<protected entry>
zone-name: AuthenticationApp
severity: warning <defaulted>
<protected entry>
zone-name: Cid
severity: debug <defaulted>
<protected entry>
zone-name: Cli
severity: warning <defaulted>
<protected entry>
zone-name: IdapiCtlTrans
severity: warning <defaulted>
<protected entry>
zone-name: IdsEventStore
severity: error default: warning
<protected entry>
zone-name: MpInstaller
severity: warning <defaulted>
<protected entry>
zone-name: cmgr
severity: warning <defaulted>
<protected entry>
zone-name: cplane
severity: warning <defaulted>

```

```

<protected entry>
zone-name: csi
severity: warning <defaulted>
<protected entry>
zone-name: ctlTransSource
severity: warning <defaulted>
<protected entry>
zone-name: intf
severity: warning <defaulted>
<protected entry>
zone-name: nac
severity: warning <defaulted>
<protected entry>
zone-name: sensorApp
severity: warning <defaulted>
<protected entry>
zone-name: tls
severity: warning <defaulted>
-----
sensor(config-log)#

```

**Step 13** Turn on debugging for a particular zone.

```

sensor(config-log)# zone-control nac severity debug
sensor(config-log)# show settings
master-control
-----
enable-debug: true default: false
individual-zone-control: true default: false
-----
zone-control (min: 0, max: 999999999, current: 14)
-----
<protected entry>
zone-name: AuthenticationApp
severity: warning <defaulted>
<protected entry>
zone-name: Cid
severity: debug <defaulted>
<protected entry>
zone-name: Cli
severity: warning <defaulted>
<protected entry>
zone-name: IdapiCtlTrans
severity: warning <defaulted>
<protected entry>
zone-name: IdsEventStore
severity: error default: warning
<protected entry>
zone-name: MpInstaller
severity: warning <defaulted>
<protected entry>
zone-name: cmgr
severity: warning <defaulted>
<protected entry>
zone-name: cplane
severity: warning <defaulted>
<protected entry>
zone-name: csi
severity: warning <defaulted>
<protected entry>
zone-name: ctlTransSource
severity: warning <defaulted>
<protected entry>
zone-name: intf

```

```

severity: warning <defaulted>
<protected entry>
zone-name: nac
severity: debug default: warning
<protected entry>
zone-name: sensorApp
severity: warning <defaulted>
<protected entry>
zone-name: tls
severity: warning <defaulted>
-----
sensor(config-log)#

```

**Step 14** Exit the logger submode.

```

sensor(config-log)# exit
Apply Changes:[yes]:

```

**Step 15** Press **Enter** to apply changes or type **no** to discard them:

### For More Information

For a list of what each zone name refers to, see [Zone Names, page C-51](#).

## Zone Names

[Table C-2](#) lists the debug logger zone names:

**Table C-2**      *Debug Logger Zone Names*

Zone Name	Description
AD	Anomaly Detection zone
AuthenticationApp	Authentication zone
Cid	General logging zone
Cli	CLI zone
IdapiCtlTrans	All control transactions zone
IdsEventStore	Event Store zone
MpInstaller	IDS-2 master partition installer zone
cmgr	Card Manager service zone <sup>1</sup>
cplane	Control Plane zone <sup>2</sup>
csi	CIDS Servlet Interface <sup>3</sup>
ctlTransSource	Outbound control transactions zone
intfc	Interface zone
nac	ARC zone
rep	Reputation zone
sched	Automatic update scheduler zone
sensorApp	AnalysisEngine zone
tls	SSL and TLS zone

1. The Card Manager service is used on the ASA 5500 AIP SSM to exchange control and state information between modules in the chassis.
2. The Control Plane is the transport communications layer used by Card Manager on the ASA 5500 AIP SSM.
3. The CIDS servlet interface is the interface layer between the CIDS web server and the servlets.

### For More Information

To learn more about the IPS Logger service, see [Logger, page A-19](#).

## Directing cidLog Messages to SysLog

It might be useful to direct cidLog messages to syslog.

To direct cidLog messages to syslog, follow these steps:

**Step 1** Go to the `idsRoot/etc/log.conf` file.

**Step 2** Make the following changes:

- a. Set `[logApp] enabled=false`

Comment out the `enabled=true` because `enabled=false` is the default.

- b. Set `[drain/main] type=syslog`

The following example shows the logging configuration file:

```
timemode=local
;timemode=utc

[logApp]
;enabled=true
;----- FIFO parameters -----
fifoName=logAppFifo
fifoSizeInK=240
;----- logApp zone and drain parameters -----
zoneAndDrainName=logApp
fileName=main.log
fileMaxSizeInK=500

[zone/Cid]
severity=warning
drain=main

[zone/IdsEventStore]
severity=debug
drain=main

[drain/main]
type=syslog
```

The syslog output is sent to the syslog facility `local6` with the following correspondence to syslog message priorities:

```
LOG_DEBUG,          //   debug
LOG_INFO,           //   timing
LOG_WARNING,        //   warning
LOG_ERR,            //   error
LOG_CRIT            //   fatal
```

**Note**

Make sure that your `/etc/syslog.conf` has that facility enabled at the proper priority.

**Caution**

The syslog is much slower than logApp (about 50 messages per second as opposed to 1000 or so). We recommend that you enable debug severity on one zone at a time.

## TCP Reset Not Occurring for a Signature

**Note**

There is only one sensing interface on the ASA IPS modules (ASA 5500 AIP SSM, ASA 5500-X IPS SSP, and ASA 5585-X IPS SSP), so you cannot designate an alternate TCP reset interface.

If you do not have the event action set to reset, the TCP reset does not occur for a specific signature.

**Note**

TCP Resets are not supported over MPLS links or the following tunnels: GRE, IPv4 in IPv4, IPv6 in IPv4, or IPv4 in IPv6.

To troubleshoot a reset not occurring for a specific signature, follow these steps:

**Step 1** Log in to the CLI.

**Step 2** Make sure the event action is set to TCP reset.

```

sensor# configure terminal
sensor(config)# service signature-definition sig0
sensor(config-sig)# signatures 1000 0
sensor(config-sig-sig)# engine atomic-ip
sensor(config-sig-sig-ato)# event-action reset-tcp-connection|produc-alert
sensor(config-sig-sig-ato)# show settings
atomic-ip
-----
event-action: produce-alert|reset-tcp-connection default: produce-alert
fragment-status: any <defaulted>
specify-l4-protocol
-----
no
-----
specify-ip-payload-length
-----
no
-----
specify-ip-header-length
-----
no
-----
specify-ip-tos
-----

```

--MORE--

**Step 3** Exit signature definition submode.

```
sensor(config-sig-sig-ato)# exit
sensor(config-sig-sig)# exit
sensor(config-sig)# exit
Apply Changes?[yes]:
```

**Step 4** Press **Enter** to apply the changes or type **no** to discard them.

**Step 5** Make sure the correct alarms are being generated.

```
sensor# show events alert
evAlert: eventId=1047575239898467370 severity=medium
originator:
hostId: sj_4250_40
appName: sensorApp
appInstanceId: 1004
signature: sigId=20000 sigName=STRING.TCP subSigId=0 version=Unknown
addr: locality=OUT 172.16.171.19
port: 32771
victim:
addr: locality=OUT 172.16.171.13 port: 23
actions:
tcpResetSent: true
```

**Step 6** Make sure the switch is allowing incoming TCP reset packet from the sensor. Refer to your switch documentation for more information.

**Step 7** Make sure the resets are being sent.

```
root# ./tcpdump -i eth0 src host 172.16.171.19
tcpdump: WARNING: eth0: no IPv4 address assigned
tcpdump: listening on eth0
13:58:03.823929 172.16.171.19.32770 > 172.16.171.13.telnet: R 79:79(0) ack 62 win 0
13:58:03.823930 172.16.171.19.32770 > 172.16.171.13.telnet: R 80:80(0) ack 62 win 0
13:58:03.823930 172.16.171.19.32770 > 172.16.171.13.telnet: R 80:80(0) ack 62 win 0
13:58:03.823930 172.16.171.19.32770 > 172.16.171.13.telnet: R 80:80(0) ack 62 win 0
```

## Software Upgrades

This section helps in troubleshooting software upgrades. It contains the following topics:

- [Upgrading to the Latest Version, page C-54](#)
- [Which Updates to Apply and Their Prerequisites, page C-55](#)
- [Issues With Automatic Update, page C-55](#)
- [Updating a Sensor with the Update Stored on the Sensor, page C-56](#)

### Upgrading to the Latest Version

When you upgrade an IPS sensor, you may receive an error that the Analysis Engine is not running:

```
sensor# upgrade scp://user@10.1.1.1/updates/IPS-K9-7.1-2-E4.pkg
Password: *****
Warning: Executing this command will apply a major version upgrade to the application
partition. The system may be rebooted to complete the upgrade.
```

```
Continue with upgrade?: yes
Error: AnalysisEngine is not running. Please reset box and attempt upgrade again.
```

If you receive this error, you must get the Analysis Engine running before trying to upgrade again. This error is often caused by a defect in the currently running version. Try rebooting the sensor, and after reboot, run the **setup** command and remove the interfaces from the virtual sensor vs0. When it is not monitoring traffic, Analysis Engine usually stays up and running. You can upgrade at this time. After the upgrade, add the interfaces back to the virtual sensor vs0 using the **setup** command.

Or you can use the system image file to reimage the sensor directly to the version you want. You can reimage a sensor and avoid the error because the reimage process does not check to see if the Analysis Engine is running.

**Caution**


---

Reimaging using the system image file restores all configuration defaults.

---

**For More Information**

- For more information on running the **setup** command, see [Chapter 19, “Initializing the Sensor.”](#)
- For more information on reimaging your sensor, see [Chapter 22, “Upgrading, Downgrading, and Installing System Images.”](#)

## Which Updates to Apply and Their Prerequisites

You must have the correct service pack and minor and major version of the software. If you are having trouble with applying new software, make sure that you are applying the proper updates with the proper prerequisites:

- Signature updates require the minimum version and engine version listed in the filename.
- Engine updates require the major or minor version in the engine update filename. Service packs require the correct minor version.
- Minor versions require the correct major version.
- Major versions require the previous major version.

**For More Information**

To understand how to interpret the IPS software filenames, see [IPS Software Versioning, page 21-2](#).

## Issues With Automatic Update

**Caution**


---

In IPS 7.1(5)E4 and later the default value of the Cisco server IP address has been changed from 198.133.219.25 to 72.163.4.161 in the Auto Update URL configuration. If you have automatic update configured on your sensor, you may need to update firewall rules to allow the sensor to connect to this new IP address.

---

The following list provides suggestions for troubleshooting automatic updates:

- Run TCPDUMP:
  - Create a service account. **Su** to root and run TCPDUMP on the command and control interface to capture packets between the sensor and the FTP server.
  - Use the **upgrade** command to manually upgrade the sensor.

- Look at the TCPDUMP output for errors coming back from the FTP server.
- Make sure the sensor is in the correct directory. The directory must be specified correctly. This has caused issues with Windows FTP servers. Sometimes an extra “/” or even two “/” are needed in front of the directory name. To verify this, use the same FTP commands you see in the TCPDUMP output through your own FTP connection.
- You must use the Windows FTP server setup option to emulate UNIX file structure and not MS-DOS file structure.
- If you are using SCP, make sure you have added the SSH host key to the known hosts list.
- If you get an unauthorized error message while configuring an automatic update, make sure you have the correct ports open on any firewalls between the sensor and Cisco.com. For example, you need port 443 for the initial automatic update connection to www.cisco.com, and you need port 80 to download the chosen package from a Cisco file server. The IP address may change for the Cisco file server, but you can find it in the lastDownloadAttempt section in the output of the **show statistics host** command.

Try the manual **upgrade** command before attempting the automatic update. If it works with the **upgrade** command and does not work with the automatic update, try the following:

- Determine which IPS software version your sensor has.
- Make sure the passwords are configured for automatic update. Make sure they match the same passwords used for manual update.
- Make sure that the filenames in the FTP server are exactly what you see on Downloads on Cisco.com. This includes capitalization. Some Windows FTP servers allow access to the file with the incorrect capitalization but the sensor ultimately rejects the file because the name has changed.
- If necessary, run TCPDUMP on automatic update. You can compare the successful manual update with the unsuccessful automatic update and troubleshoot from there.

#### For More Information

- For the procedure for creating the service account, see [Creating the Service Account, page C-5](#).
- For the procedure for reimaging your sensor, see [Chapter 22, “Upgrading, Downgrading, and Installing System Images.”](#)
- For the procedure for adding hosts to the SSH known hosts list, see [Defining Known Host RSA Keys, page 12-7](#).
- For the procedure for determining the software version, see [Displaying Version Information, page C-85](#).

## Updating a Sensor with the Update Stored on the Sensor

You can store the update package in the /var directory on the sensor and update the sensor from there if you need to.

To update the sensor with an update stored on the sensor, follow these steps:

- 
- Step 1** Log in to the service account.
  - Step 2** Obtain the update package file from Cisco.com.
  - Step 3** FTP or SCP the update file to the sensor /usr/cids/idsRoot/var directory.
  - Step 4** Set the file permissions:.

```
chmod 644 ips_package_file_name
```



- Step 5** Exit the service account.
- Step 6** Log in to the sensor using an account with administrator privileges.
- Step 7** Store the sensor host key.

```
sensor# configure terminal
sensor(config)# service ssh
sensor(config-ssh)# rsa1-keys sensor_ip_address
```

- Step 8** Upgrade the sensor.

```
sensor(config)# upgrade scp://service@sensor_ip_address/upgrade/ips_package_file_name
Enter password: *****
Re-enter password: *****
```

---

#### For More Information

For the procedure for obtaining Cisco IPS software, see [Obtaining Cisco IPS Software, page 21-1](#).

## Troubleshooting the IDM



#### Tip

Before troubleshooting the IDM, check the Caveats section of the Readme for the software version you have installed on your sensor to see if you are dealing with a known issue.



#### Note

These procedures also apply to the IPS section of the ASDM.



#### Note

After you upgrade any IPS software on your sensor, you must restart the IDM to see the latest software features.

This section contains troubleshooting procedures for the IDM. It contains the following topics:

- [Cannot Launch the IDM - Loading Java Applet Failed, page C-58](#)
- [Cannot Launch the IDM-the Analysis Engine Busy, page C-58](#)
- [The IDM, Remote Manager, or Sensing Interfaces Cannot Access Sensor, page C-59](#)
- [Signatures Not Producing Alerts, page C-60](#)

## Cannot Launch the IDM - Loading Java Applet Failed

**Symptom** The browser displays `Loading Cisco IDM. Please wait ...` At the bottom left corner of the window, `Loading Java Applet Failed` is displayed.

**Possible Cause** This condition can occur if multiple Java Plug-ins are installed on the machine on which you are launching the IDM.

**Recommended Action** Clear the Java cache and remove temp files and clear history in the browser you are using. The result is that neither of these plug-ins will be used by default and each applet should use the correct plug-in.

To clear the cache, follow these steps:

- 
- Step 1** Close all browser windows.
  - Step 2** If you have Java Plug-in 1.3.x installed:
    - a. Click **Start > Settings > Control Panel > Java Plug-in 1.3.x**.
    - b. Click the **Advanced** tab.
    - c. Under Java Runtime Environment, select **JRE 1.3.x** from the drop-down menu.
    - d. Click the **Cache** tab.
    - e. Click **Clear**.
  - Step 3** If you have Java Plug-in 1.4.x installed:
    - a. Click **Start > Settings > Control Panel > Java Plug-in 1.4.x**.
    - b. Click the **Advanced** tab.
    - c. Under Java Runtime Environment, select **JRE 1.3.x** from the drop-down menu.
    - d. Click the **Cache** tab.
    - e. Click the **Browser** tab.
    - f. Deselect all browser check boxes.
    - g. Click **Clear Cache**.
  - Step 4** Delete the temp files and clear the history in the browser.
- 

## Cannot Launch the IDM-the Analysis Engine Busy

**Error Message** `Error connecting to sensor. Failed to load sensor-errNotAvailable-Analysis Engine is busy. Exiting IDM.`

**Possible Cause** This condition can occur if the Analysis Engine in the sensor is busy getting ready to perform a task and so does not respond to the IDM.

**Recommended Action** Wait for a while and try again to connect.

## The IDM, Remote Manager, or Sensing Interfaces Cannot Access Sensor

If the IDM, a remote manager, or sensing interfaces cannot access the sensor, but you can access the sensor CLI using SSH or Telnet (if enabled), follow these steps:

- Step 1** Make sure the network configuration allows access to the web server port that is configured on the sensor:

```
sensor# setup
```

```
--- System Configuration Dialog ---
```

```
At any point you may enter a question mark '?' for help.  
User ctrl-c to abort configuration dialog at any prompt.  
Default settings are in square brackets '[]'.
```

```
Current Configuration:
```

```
service host  
network-settings  
host-ip 192.168.1.2/24,192.168.1.1  
host-name sensor  
telnet-option enabled  
access-list 0.0.0.0/0  
ftp-timeout 300  
no login-banner-text  
exit  
time-zone-settings  
offset 0  
standard-time-zone-name UTC  
exit  
summertime-option disabled  
ntp-option disabled  
exit  
service web-server  
port 443  
exit
```

- Step 2** If network devices, such as routers, switches, or firewalls, are between the sensor and the workstation, make sure these devices are configured to allow the workstation to access the sensor web server port. All remote management communication is performed by the sensor web server.

### For More Information

For the procedure for enabling and disabling Telnet on the sensor, and configuring the web server, see [Configuring Network Settings, page 4-1](#).

## Signatures Not Producing Alerts



### Caution

You cannot add other actions each time you configure the event actions. You are actually replacing the list of event actions every time you configure it, so make sure you choose Produce Alert every time you configure event actions.

If you are not seeing any alerts when signatures are firing, make sure that you have configured Produce Alert as an event action. For example, if you choose Produce Alert, but later add another event action and do not add Produce Alert to the new configuration, alerts are not sent to the Event Store. To make sure you are getting alerts, check the statistics for the virtual sensor and the Event Store.

### For More Information

- For more information about event actions, see [Event Actions, page 9-8](#).
- For the procedure for configuring event actions, see [Assigning Actions to Signatures, page 7-16](#).
- For the procedure for obtaining statistics about virtual sensor and Event Store, see [Displaying Statistics, page 18-19](#).

## Troubleshooting the ASA 5500 AIP SSM



### Tip

Before troubleshooting the ASA 5500 AIP SSM, check the Caveats section of the Readme for the software version you have installed on your sensor to see if you are dealing with a known issue.

The following section contains commands that are specific to troubleshooting ASA 5500 AIP SSM.

- [Health and Status Information, page C-60](#)
- [Failover Scenarios, page C-62](#)
- [The ASA 5500 AIP SSM and the Normalizer Engine, page C-63](#)
- [The ASA 5500 AIP SSM and the Data Plane, page C-65](#)
- [The ASA 5500 AIP SSM and Jumbo Packet Frame Size, page C-65](#)
- [The ASA 5500 AIP SSM and Jumbo Packets, page C-65](#)
- [TCP Reset Differences Between IPS Appliances and ASA IPS Modules, page C-65](#)
- [IPS Reloading Messages, page C-66](#)

## Health and Status Information

To see the general health of the ASA 5500 AIP SSM, use the **show module 1 details** command:

```
asa# show module 1 details
Getting details from the Service Module, please wait...
ASA 5500 Series Security Services Module-20
Model:                ASA-SSM-20
Hardware version:     0.2
Serial Number:        P2B000005D0
Firmware version:     1.0(10)0
Software version:     5.1(0.1)S153.0
```

```
Status: Up
Mgmt IP addr: 192.0.2.0
Mgmt web ports: 443
Mgmt TLS enabled: true
asa#
```

The output shows that the ASA 5500 AIP SSM is up. If the status reads `Down`, you can reset the module using the **hw-module module 1 reset** command:

```
asa# hw-module module 1 reset
The module in slot 1 should be shut down before
resetting it or loss of configuration may occur.
Reset module in slot 1? [confirm]
Reset issued for module in slot 1
asa(config)# show module
```

Mod	Card Type	Model	Serial No.
0	ASA 5520 Adaptive Security Appliance	ASA5520	P2A00000014
1	ASA 5500 Series Security Services Module-10	ASA-SSM-10	P2A0000067U

Mod	MAC Address Range	Hw Version	Fw Version	Sw Version
0	000b.fcf8.7bdc to 000b.fcf8.7be0	0.2	1.0(10)0	7.1(4)
1	000b.fcf8.0176 to 000b.fcf8.0176	0.2	1.0(10)0	5.1(0.1)S153.0

Mod Status

```
-----
0 Up Sys
1 Shutting Down
*****
```

```
asa(config)# show module
```

Mod	Card Type	Model	Serial No.
0	ASA 5520 Adaptive Security Appliance	ASA5520	P2A00000014
1	ASA 5500 Series Security Services Module-10	ASA-SSM-10	P2A0000067U

Mod	MAC Address Range	Hw Version	Fw Version	Sw Version
0	000b.fcf8.7bdc to 000b.fcf8.7be0	0.2	1.0(10)0	7.1(4)
1	000b.fcf8.0176 to 000b.fcf8.0176	0.2	1.0(10)0	5.1(0.1)S153.0

Mod Status

```
-----
0 Up Sys
1 Up
```

```
asa(config)#
```

If you have problems with reimaging the ASA 5500 AIP SSM, use the **debug module-boot** command to see the output as the module boots. Make sure you have the correct IP address for the TFTP server and you have the correct file on the TFTP server. Then use the **hw-module module 1 recover** command again to reimagine the module:

```
asa(config)# hw-module module 1 recover configure
Image URL [tftp://0.0.0.0]: tftp://192.0.2.0/IPS-SSM-K9-sys-1.1-a-5.1-0.1.i$
Port IP Address [0.0.0.0]: 10.89.150.227
VLAN ID [0]:
Gateway IP Address [0.0.0.0]: 10.89.149.254
asa(config)# debug module-boot
debug module-boot enabled at level 1
asa(config)# hw-module module 1 recover boot
```

```

The module in slot 1 will be recovered. This may erase all configuration and all data on
that device and attempt to download a new image for it.
Recover module in slot 1? [confirm]
Recover issued for module in slot 1
asa(config)# Slot-1 140> Cisco Systems ROMMON Version (1.0(10)0) #0: Fri Mar 25 23:02:10
PST 2005
Slot-1 141> Platform ASA-SSM-10
Slot-1 142> GigabitEthernet0/0
Slot-1 143> Link is UP
Slot-1 144> MAC Address: 000b.fcf8.0176
Slot-1 145> ROMMON Variable Settings:
Slot-1 146> ADDRESS=10.89.150.227
Slot-1 147> SERVER=10.89.146.1
Slot-1 148> GATEWAY=10.89.149.254
Slot-1 149> PORT=GigabitEthernet0/0
Slot-1 150> VLAN=untagged
Slot-1 151> IMAGE=IPS-SSM-K9-sys-1.1-a-7.1-4.1.img
Slot-1 152> CONFIG=
Slot-1 153> LINKTIMEOUT=20
Slot-1 154> PKTTIMEOUT=4
Slot-1 155> RETRY=20
Slot-1 156> tftp IPS-SSM-K9-sys-1.1-a-7.1-4.1.img@10.89.146.1 via 10.89.149.254
Slot-1 157> TFTP failure: Packet verify failed after 20 retries
Slot-1 158> Rebooting due to Autoboot error ...
Slot-1 159> Rebooting...
Slot-1 160> Cisco Systems ROMMON Version (1.0(10)0) #0: Fri Mar 25 23:02:10 PST 2005
Slot-1 161> Platform ASA-SSM-10
Slot-1 162> GigabitEthernet0/0
Slot-1 163> Link is UP
Slot-1 164> MAC Address: 000b.fcf8.0176
Slot-1 165> ROMMON Variable Settings:
Slot-1 166> ADDRESS=10.89.150.227
Slot-1 167> SERVER=10.89.146.1
Slot-1 168> GATEWAY=10.89.149.254
Slot-1 169> PORT=GigabitEthernet0/0
Slot-1 170> VLAN=untagged
Slot-1 171> IMAGE=IPS-SSM-K9-sys-1.1-a-7.1-4.1.img
Slot-1 172> CONFIG=
Slot-1 173> LINKTIMEOUT=20
Slot-1 174> PKTTIMEOUT=4
Slot-1 175> RETRY=20
Slot-1 176> tftp IPS-SSM-K9-sys-1.1-a-7.1-4.1.img@10.89.146.1 via 10.89.149.254

```

## Failover Scenarios

The following failover scenarios apply to the ASA in the event of configuration changes, signature/signature engine updates, service packs, and SensorApp crashes on the ASA 5500 AIP SSM.

### Single ASA in Fail-Open Mode

- If the ASA is configured in fail-open mode for the ASA 5500 AIP SSM, and the ASA 5500 AIP SSM experiences a configuration change or signature/signature engine update, traffic is passed through the ASA without being inspected.
- If the ASA is configured in fail-open mode for the ASA 5500 AIP SSM, and the ASA 5500 AIP SSM experiences a SensorApp crash or a service pack upgrade, traffic is passed through the ASA without being inspected.

**Single ASA in Fail-Close Mode**

- If the ASA is configured in fail-close mode for the ASA 5500 AIP SSM, and the ASA 5500 AIP SSM experiences a configuration change or a signature/signature engine update, traffic is stopped from passing through the ASA.
- If the ASA is configured in fail-close mode for the ASA 5500 AIP SSM, and the ASA 5500 AIP SSM experiences a SensorApp crash or a service pack upgrade, traffic is stopped from passing through the ASA.

**Two ASAs in Fail-Open Mode**

- If the ASAs are configured in fail-open mode and if the ASA 5500 AIP SSM on the active ASA experiences a configuration change or a signature/signature engine update, traffic is still passed through the active ASA without being inspected. Failover is not triggered.
- If the ASAs are configured in fail-open mode, and if the ASA 5500 AIP SSM on the active ASA experiences a SensorApp crash or a service pack upgrade, failover is triggered and traffic passes through the ASA 5500 AIP SSM that was previously the standby the ASA 5500 AIP SSM.

**Two ASAs in Fail-Close Mode**

- If the ASAs are configured in fail-close mode, and if the ASA 5500 AIP SSM on the active ASA experiences a configuration change or a signature/signature engine update, traffic is stopped from passing through the active ASA. No failover is triggered.
- If the ASAs are configured in fail-close mode, and if the ASA 5500 AIP SSM on the active ASA experiences a SensorApp crash or a service pack upgrade, failover is triggered and traffic passes through the ASA 5500 AIP SSM that was previously the standby for the ASA 5500 AIP SSM.

**Configuration Examples**

Use the following configuration for the primary ASA:

```
interface GigabitEthernet0/7
  description LAN Failover Interface

failover
failover lan unit primary
failover lan interface folink GigabitEthernet0/7
failover interface ip folink 172.27.48.1 255.255.255.0 standby 172.27.48.2
```

Use the following configuration for the secondary ASA:

```
interface GigabitEthernet0/7
  description LAN Failover Interface

failover
failover lan unit secondary
failover lan interface folink GigabitEthernet0/7
failover interface ip folink 172.27.48.1 255.255.255.0 standby 172.27.48.2
```

## The ASA 5500 AIP SSM and the Normalizer Engine

The majority of the features in the Normalizer engine are not used on the ASA 5500 AIP SSM, because the ASA itself handles the normalization. Packets on the ASA IPS modules go through a special path in the Normalizer that only reassembles fragments and puts packets in the right order for the TCP stream. The Normalizer does not do any of the normalization that is done on an inline IPS appliance, because that causes problems in the way the ASA handles the packets.

The following Normalizer engine signatures are not supported:

- 1300.0
- 1304.0
- 1305.0
- 1307.0
- 1308.0
- 1309.0
- 1311.0
- 1315.0
- 1316.0
- 1317.0
- 1330.0
- 1330.1
- 1330.2
- 1330.9
- 1330.10
- 1330.12
- 1330.14
- 1330.15
- 1330.16
- 1330.17
- 1330.18

**For More Information**

For detailed information about the Normalizer engine, see [Normalizer Engine](#), page B-36.



## The ASA 5500 AIP SSM and the Data Plane

**Symptom** The ASA 5500 AIP SSM data plane is kept in the Up state while applying signature updates. You can check the ASA 5500 AIP SSM data plane status by using the **show module** command during signature updates.

**Possible Cause** Bypass mode is set to off. The issue is seen when updating signatures, and when you use either CSM or IDM to apply signature updates. This issue is not seen when upgrading IPS system software.

## The ASA 5500 AIP SSM and Jumbo Packet Frame Size

Refer to the following URL for information about the ASA 5500 AIP SSM jumbo packet frame size:

[http://www.cisco.com/en/US/docs/security/asa/asa84/configuration/guide/interface\\_start.html#wp1328869](http://www.cisco.com/en/US/docs/security/asa/asa84/configuration/guide/interface_start.html#wp1328869)

**Note**

A jumbo frame is an Ethernet packet that is larger than the standard maximum of 1518 bytes (including Layer 2 header and FCS).

## The ASA 5500 AIP SSM and Jumbo Packets

The jumbo packet count in the **show interface** command output from the lines `Total Jumbo Packets Received` and `Total Jumbo Packets Transmitted` for ASA IPS modules may be larger than expected due to some packets that were almost jumbo size on the wire being counted as jumbo size by the IPS. This miscount is a result of header bytes added to the packet by the ASA before the packet is transmitted to the IPS. For IPv4, 58 bytes of header data are added. For IPv6, 78 bytes of header data are added. The ASA removes the added IPS header before the packet leaves the ASA.

## TCP Reset Differences Between IPS Appliances and ASA IPS Modules

The IPS appliance sends TCP reset packets to both the attacker and victim when Reset TCP Connection is selected. The IPS appliance sends a TCP reset packet only to the victim under the following circumstances:

- When a Deny Packet Inline or Deny Connection Inline is selected
- When TCP-based signatures and Reset TCP Connection have NOT been selected

In the case of the ASA IPS module, the TCP reset request is sent to the ASA, and the ASA then sends the TCP reset packets. The ASA sends TCP reset packets to both the attacker and victim when the Reset TCP Connection is selected. When Deny Packet Inline or Deny Connection Inline is selected, the ASA sends the TCP reset packet to either the attacker or victim depending on the configuration of the signature. Signatures configured to swap the attacker and victim when reporting the alert can cause the ASA to send the TCP reset packet to the attacker.

**For More Information**

For a detailed list of the event actions, see [Event Actions, page 9-8](#).

## IPS Reloading Messages

**Symptom** ASA syslog messages similar to the following are observed and the root cause of the message is not clear:

```
%ASA-1-505013: ASA-SSM-10 Module in slot 1, application reloading "IPS", version
"7.1(6)E4" Config Change
%ASA-1-505013: ASA5585-SSP-IPS10 Module in slot 1, application reloading "IPS", version
"7.1(1)E4" Config Change
```

These messages occur once an hour for sensors not actively being configured or more often for sensors being configured.

**Conditions** ASA adaptive appliances running an affected software version with an ASA IPS module (ASA 5500 AIP SSMASA 5500-X IPS SSPASA 5585-X IPS SSP) installed that is running IPS 7.1 or later. The common cause for these messages is global correlation and/or signature updates occurring on the ASA IPS module that results in these messages being generated for some, but not necessarily all of the updates, which are attempted every five minutes.

**Workaround** None. The cause of these messages can be confirmed on the sensor module by reviewing the **show events status past** command output and identifying a status event that corresponds to the ASA syslog message that matches the date and time. The sensor's status event should provide further details about what operation occurred that resulted in the ASA syslog message.

## Troubleshooting the ASA 5500-X IPS SSP



**Tip**

Before troubleshooting the ASA 5500-X IPS SSP, check the Caveats section of the Readme for the software version installed on your sensor to see if you are dealing with a known issue.

This section contains troubleshooting information specific to the ASA 5500-X IPS SSP, and contains the following topics:

- [Failover Scenarios, page C-67](#)
- [Health and Status Information, page C-68](#)
- [The ASA 5500-X IPS SSP and the Normalizer Engine, page C-69](#)
- [The ASA 5500-X IPS SSP and Memory Usage, page C-70](#)
- [The ASA 5500-X IPS SSP and Jumbo Packet Frame Size, page C-70](#)
- [The ASA 5500-X IPS SSP and Jumbo Packets, page C-70](#)
- [TCP Reset Differences Between IPS Appliances and ASA IPS Modules, page C-71](#)
- [IPS Reloading Messages, page C-71](#)
- [IPS Not Loading, page C-71](#)

## Failover Scenarios

The following failover scenarios apply to the ASA in the event of configuration changes, signature/signature engine updates, service packs, and SensorApp crashes on the ASA 5500-X IPS SSP.

### Single ASA in Fail-Open Mode

- If the ASA is configured in fail-open mode for the ASA 5500-X IPS SSP, and the ASA 5500-X IPS SSP experiences a configuration change or signature/signature engine update, traffic is passed through the ASA without being inspected.
- If the ASA is configured in fail-open mode for the ASA 5500-X IPS SSP, and the ASA 5500-X IPS SSP experiences a SensorApp crash or a service pack upgrade, traffic is passed through the ASA without being inspected.

### Single ASA in Fail-Close Mode

- If the ASA is configured in fail-close mode for the ASA 5500-X IPS SSP, and the ASA 5500-X IPS SSP experiences a configuration change or a signature/signature engine update, traffic is stopped from passing through the ASA.
- If the ASA is configured in fail-close mode for the ASA 5500-X IPS SSP, and the ASA 5500-X IPS SSP experiences a SensorApp crash or a service pack upgrade, traffic is stopped from passing through the ASA.

### Two ASAs in Fail-Open Mode

- If the ASAs are configured in fail-open mode and if the ASA 5500-X IPS SSP on the active ASA experiences a configuration change or a signature/signature engine update, traffic is still passed through the active ASA without being inspected. Failover is not triggered.
- If the ASAs are configured in fail-open mode, and if the ASA 5500-X IPS SSP on the active ASA experiences a SensorApp crash or a service pack upgrade, failover is triggered and traffic passes through the ASA 5500-X IPS SSP that was previously the standby ASA 5500-X IPS SSP.

### Two ASAs in Fail-Close Mode

- If the ASAs are configured in fail-close mode, and if the ASA 5500-X IPS SSP on the active ASA experiences a configuration change or a signature/signature engine update, traffic is stopped from passing through the active ASA. No failover is triggered.
- If the ASAs are configured in fail-close mode, and if the ASA 5500-X IPS SSP on the active ASA experiences a SensorApp crash or a service pack upgrade, failover is triggered and traffic passes through the ASA 5500-X IPS SSP that was previously the standby for the ASA 5500-X IPS SSP.

### Configuration Examples

Use the following configuration for the primary ASA:

```
interface GigabitEthernet0/7
  description LAN Failover Interface

failover
failover lan unit primary
failover lan interface folink GigabitEthernet0/7
failover interface ip folink 172.27.48.1 255.255.255.0 standby 172.27.48.2
```

Use the following configuration for the secondary ASA:

```
interface GigabitEthernet0/7
  description LAN Failover Interface
```

```
failover
failover lan unit secondary
failover lan interface folink GigabitEthernet0/7
failover interface ip folink 172.27.48.1 255.255.255.0 standby 172.27.48.2
```

## Health and Status Information

To see the general health of the ASA 5500-X IPS SSP, use the **show module ips details** command.

```
asa# show module ips details
Getting details from the Service Module, please wait...

Card Type:          IPS 5555 Intrusion Prevention System
Model:              IPS5555
Hardware version:    N/A
Serial Number:       FCH1504V0CW
Firmware version:    N/A
Software version:    7.1(3)E4
MAC Address Range:   503d.e59c.7ca0 to 503d.e59c.7ca0
App. name:           IPS
App. Status:         Up
App. Status Desc:    Normal Operation
App. version:        7.1(3)E4
Data Plane Status:   Up
Status:              Up
License:             IPS Module Enabled perpetual
Mgmt IP addr:        192.168.1.2
Mgmt Network mask:   255.255.255.0
Mgmt Gateway:        192.168.1.1
Mgmt web ports:      443
Mgmt TLS enabled:    true
asa#
```

The output shows that the ASA 5500-X IPS SSP is up. If the status reads **Down**, you can reset it using the **sw-module module 1 reset** command.

If you have problems with reimaging the ASA 5500-X IPS SSP, use the **debug module-boot** command to see the output as it boots. Make sure you have the correct IP address for the TFTP server and you have the correct file on the TFTP server. Then use the **sw-module module ips recover** command again to reimage the module.

```
asa-ips# sw-module module ips recover configure image
disk0:/IPS-SSP_5555-K9-sys-1.1-a-7.1-3-E4.aip
Image URL [tftp://192.0.2.1/IPS-5545-K9-sys-1.1-a-7.1-3-E4.aip]:
Port IP Address [192.0.2.226]:
VLAN ID [0]:
Gateway IP Address [192.0.2.254]:

asa-ips# debug module-boot
debug module-boot enabled at level 1
asa-ips# sw-module module ips reload

Reload module ips? [confirm]
Reload issued for module ips.
asa-ips# Mod-ips 228> ***
Mod-ips 229> *** EVENT: The module is reloading.
Mod-ips 230> *** TIME: 08:07:36 CST Jan 17 2012
Mod-ips 231> ***
Mod-ips 232> Mod-ips 233> The system is going down NOW!
Mod-ips 234> Sending SIGTERM to all processes
Mod-ips 235> Sending SIGKILL to all processes
```

```
Mod-ips 236> Requesting system reboot
Mod-ips 237> e1000 0000:00:07.0: PCI INT A disabled
Mod-ips 238> e1000 0000:00:06.0: PCI INT A disabled
Mod-ips 239> e1000 0000:00:05.0: PCI INT A disabled
Mod-ips 240> Restarting system.
Mod-ips 241> machine restart
Mod-ips 242> IVSHMEM: addr = 4093640704 size = 67108864
Mod-ips 243> Booting 'Cisco IPS'
Mod-ips 244> root (hd0,0)
Mod-ips 245> Filesystem type is ext2fs, partition type 0x83
Mod-ips 246> kernel /ips-2.6.ld ro initfsDev=/dev/hda1 init=loader.run rootrw=/dev/hda2
init
Mod-ips 247> fs=runtime-image.cpio.bz2 hda=nodma console=ttyS0 plat=saleen htlblow=1
hugepag
Mod-ips 248> es=3223
device2
--MORE--
```

## The ASA 5500-X IPS SSP and the Normalizer Engine

The majority of the features in the Normalizer engine are not used on the ASA 5500-X IPS SSP, because the ASA itself handles the normalization. Packets on the ASA IPS modules go through a special path in the Normalizer that only reassembles fragments and puts packets in the right order for the TCP stream. The Normalizer does not do any of the normalization that is done on an inline IPS appliance, because that causes problems in the way the ASA handles the packets.

The following Normalizer engine signatures are not supported:

- 1300.0
- 1304.0
- 1305.0
- 1307.0
- 1308.0
- 1309.0
- 1311.0
- 1315.0
- 1316.0
- 1317.0
- 1330.0
- 1330.1
- 1330.2
- 1330.9
- 1330.10
- 1330.12
- 1330.14
- 1330.15
- 1330.16

- 1330.17
- 1330.18

#### For More Information

For detailed information about the Normalizer engine, see [Normalizer Engine, page B-36](#).

## The ASA 5500-X IPS SSP and Memory Usage

For the ASA 5500-X IPS SSP, the memory usage is 93%. The default health thresholds for the sensor are 80% for yellow and 91% for red, so the sensor health will be shown as red on these platforms even for normal operating conditions. You can tune the threshold percentage for memory usage so that it reads more accurately for these platforms by configuring the Memory Usage option in the sensor health metrics.



#### Note

Make sure you have the Memory Usage option in the sensor health metrics enabled.

[Table C-3](#) lists the Yellow Threshold and the Red Threshold health values.

**Table C-3 ASA 5500-X IPS SSP Memory Usage Values**

Platform	Yellow	Red	Memory Used
ASA 5512-X IPS SSP	85%	91%	28%
ASA 5515-X IPS SSP	88%	92%	14%
ASA 5525-X IPS SSP	88%	92%	14%
ASA 5545-X IPS SSP	93%	96%	13%
ASA 5555-X IPS SSP	95%	98%	17%

## The ASA 5500-X IPS SSP and Jumbo Packet Frame Size

Refer to the following URL for information about the ASA 5500-X IPS SSP jumbo packet frame size:

[http://www.cisco.com/en/US/docs/security/asa/asa84/configuration/guide/interface\\_start.html#wp1328869](http://www.cisco.com/en/US/docs/security/asa/asa84/configuration/guide/interface_start.html#wp1328869)



#### Note

A jumbo frame is an Ethernet packet that is larger than the standard maximum of 1518 bytes (including Layer 2 header and FCS).

## The ASA 5500-X IPS SSP and Jumbo Packets

The jumbo packet count in the **show interface** command output from the lines `Total Jumbo Packets Received` and `Total Jumbo Packets Transmitted` for ASA IPS modules may be larger than expected due to some packets that were almost jumbo size on the wire being counted as jumbo size by the IPS. This miscount is a result of header bytes added to the packet by the ASA before the packet is transmitted to the IPS. For IPv4, 58 bytes of header data are added. For IPv6, 78 bytes of header data are added. The ASA removes the added IPS header before the packet leaves the ASA.

## TCP Reset Differences Between IPS Appliances and ASA IPS Modules

The IPS appliance sends TCP reset packets to both the attacker and victim when Reset TCP Connection is selected. The IPS appliance sends a TCP reset packet only to the victim under the following circumstances:

- When a Deny Packet Inline or Deny Connection Inline is selected
- When TCP-based signatures and Reset TCP Connection have NOT been selected

In the case of the ASA IPS module, the TCP reset request is sent to the ASA, and the ASA then sends the TCP reset packets. The ASA sends TCP reset packets to both the attacker and victim when the Reset TCP Connection is selected. When Deny Packet Inline or Deny Connection Inline is selected, the ASA sends the TCP reset packet to either the attacker or victim depending on the configuration of the signature. Signatures configured to swap the attacker and victim when reporting the alert can cause the ASA to send the TCP reset packet to the attacker.

### For More Information

For a detailed list of the event actions, see [Event Actions, page 9-8](#).

## IPS Reloading Messages

**Symptom** ASA syslog messages similar to the following are observed and the root cause of the message is not clear:

```
%ASA-1-505013: ASA-SSM-10 Module in slot 1, application reloading "IPS", version
"7.1(6)E4" Config Change
%ASA-1-505013: ASA5585-SSP-IPS10 Module in slot 1, application reloading "IPS", version
"7.1(1)E4" Config Change
```

These messages occur once an hour for sensors not actively being configured or more often for sensors being configured.

**Conditions** ASA adaptive appliances running an affected software version with an ASA IPS module (ASA 5500 AIP SSM, ASA 5500-X IPS SSP, ASA 5585-X IPS SSP) installed that is running IPS 7.1 or later. The common cause for these messages is global correlation and/or signature updates occurring on the ASA IPS module that results in these messages being generated for some, but not necessarily all of the updates, which are attempted every five minutes.

**Workaround** None. The cause of these messages can be confirmed on the sensor module by reviewing the **show events status past** command output and identifying a status event that corresponds to the ASA syslog message that matches the date and time. The sensor's status event should provide further details about what operation occurred that resulted in the ASA syslog message.

## IPS Not Loading

**Symptom** For a failing unit, the Mod Card Type shows `ips Unknown`:

```
CMGR PLAT: In sw_mod_idprom_resp_handler Failed to find idp resp udi pdesc for slot 1
messages are seen on the ASA console.
```

The mac address contains either `da` or `cb` (hex values).

**Conditions** Loading the IPS image on ASA 5500-X platforms.

**Workaround** The IPS 7.1(8) p1E4 patch fixes this problem.

# Troubleshooting the ASA 5585-X IPS SSP



**Tip**

Before troubleshooting the ASA 5585-X IPS SSP, check the Caveats section of the Readme for the software version installed on your sensor to see if you are dealing with a known issue.

This section contains troubleshooting information specific to the ASA 5585-X IPS SSP, and contains the following topics:

- [Failover Scenarios, page C-72](#)
- [Traffic Flow Stopped on IPS Switchports, page C-73](#)
- [Health and Status Information, page C-74](#)
- [The ASA 5585-X IPS SSP and the Normalizer Engine, page C-77](#)
- [The ASA 5585-X IPS SSP and Jumbo Packet Frame Size, page C-77](#)
- [The ASA 5585-X IPS SSP and Jumbo Packets, page C-78](#)
- [TCP Reset Differences Between IPS Appliances and ASA IPS Modules, page C-78](#)
- [IPS Reloading Messages, page C-78](#)

## Failover Scenarios

The following failover scenarios apply to the ASA 5585-X in the event of configuration changes, signature/signature engine updates, service packs, and SensorApp crashes on the ASA 5585-X IPS SSP.

### Single ASA 5585-X in Fail-Open Mode

- If the ASA is configured in fail-open mode for the ASA 5585-X IPS SSP, and the ASA 5585-X IPS SSP experiences a configuration change or signature/signature engine update, traffic is passed through the ASA without being inspected.
- If the ASA is configured in fail-open mode for the ASA 5585-X IPS SSP, and the ASA 5585-X IPS SSP experiences a SensorApp crash or a service pack upgrade, traffic is passed through the ASA without being inspected.

### Single ASA 5585-X in Fail-Close Mode

- If the ASA is configured in fail-close mode for the ASA 5585-X IPS SSP, and the ASA 5585-X IPS SSP experiences a configuration change or a signature/signature engine update, traffic is stopped from passing through the ASA.
- If the ASA is configured in fail-close mode for the ASA 5585-X IPS SSP, and the ASA 5585-X IPS SSP experiences a SensorApp crash or a service pack upgrade, traffic is stopped from passing through the ASA.



### Two ASA 5585-Xs in Fail-Open Mode

- If the ASAs are configured in fail-open mode and if the ASA 5585-X IPS SSP on the active ASA experiences a configuration change or a signature/signature engine update, traffic is still passed through the active ASA without being inspected. Failover is not triggered.
- If the ASAs are configured in fail-open mode, and if the ASA 5585-X IPS SSP on the active ASA experiences a SensorApp crash or a service pack upgrade, failover is triggered and traffic passes through the ASA 5585-X IPS SSP that was previously the standby ASA 5585-X IPS SSP.

### Two ASA 5585-Xs in Fail-Close Mode

- If the ASAs are configured in fail-close mode, and if the ASA 5585-X IPS SSP on the active ASA experiences a configuration change or a signature/signature engine update, traffic is stopped from passing through the active ASA. No failover is triggered.
- If the ASAs are configured in fail-close mode, and if the ASA 5585-X IPS SSP on the active ASA experiences a SensorApp crash or a service pack upgrade, failover is triggered and traffic passes through the ASA 5585-X IPS SSP that was previously the standby for the ASA 5585-X IPS SSP.

### Configuration Examples

Use the following configuration for the primary ASA:

```
interface GigabitEthernet0/7
  description LAN Failover Interface

failover
failover lan unit primary
failover lan interface folink GigabitEthernet0/7
failover interface ip folink 172.27.48.1 255.255.255.0 standby 172.27.48.2
```

Use the following configuration for the secondary ASA:

```
interface GigabitEthernet0/7
  description LAN Failover Interface

failover
failover lan unit secondary
failover lan interface folink GigabitEthernet0/7
failover interface ip folink 172.27.48.1 255.255.255.0 standby 172.27.48.2
```

## Traffic Flow Stopped on IPS Switchports

**Problem** Traffic on any port located on the ASA 5585-X IPS SSP (1/x) no longer passes through the adaptive security appliance when the ASA 5585-X IPS SSP is reset or shut down. This affects all traffic through these ports regardless of whether or not the traffic would have been monitored by the IPS. The link on the ports will link down when the ASA 5585-X IPS SSP is reset or shut down.

**Possible Cause** Using the ports located on the ASA 5585-X IPS SSP (1/x), and resetting or shutting it down via any mechanism.

**Solution** Use the ports on the adaptive security appliance (0/x) instead because those ports do not lose their link when the ASA 5585-X IPS SSP is reset or shut down.

## Health and Status Information

To see the general health of the ASA 5585-X IPS SSP, use the **show module 1 details** command.

```
asa# show module 1 details
Getting details from the Service Module, please wait...
ASA 5585-X IPS Security Services Processor-20 with 8GE
Model:                ASA5585-SSP-IPS20
Hardware version:     1.0
Serial Number:        ABC1234DEFG
Firmware version:     2.0(1)3
Software version:     7.1(1)E4
MAC Address Range:    8843.e12f.5414 to 8843.e12f.541f
App. name:            IPS
App. Status:          Up
App. Status Desc:     Normal Operation
App. version:         7.1(1)E4
Data plane Status:    Up
Status:               Up
Mgmt IP addr:         192.0.2.3
Mgmt Network mask:    255.255.255.0
Mgmt Gateway:         192.0.2.254
Mgmt Access List:     10.0.0.0/8
Mgmt Access List:     64.0.0.0/8
Mgmt web ports:       443
Mgmt TLS enabled      true
asa
```

The output shows that the ASA 5585-X IPS SSP is up. If the status reads **Down**, you can reset it using the **hw-module module 1 reset** command.

```
asa# hw-module module 1 reset
The module in slot 1 should be shut down before
resetting it or loss of configuration may occur.
Reset module in slot 1? [confirm]
Reset issued for module in slot 1
asa# show module 1 details
Getting details from the Service Module, please wait...
Unable to read details from slot 1
ASA 5585-X IPS Security Services Processor-20 with 8GE
Model:                ASA5585-SSP-IPS20
Hardware version:     1.0
Serial Number:        ABC1234DEFG
Firmware version:     2.0(7)0
Software version:     7.1(1)E4
MAC Address Range:    5475.d029.7f9c to 5475.d029.7fa7
App. name:            IPS
App. Status:          Not Applicable
App. Status Desc:     Not Applicable
App. version:         7.1(1)E4
Data plane Status:    Not Applicable
Status:               Shutting Down
asa# show module 1 details
Getting details from the Service Module, please wait...
Unable to read details from slot 1
ASA 5585-X IPS Security Services Processor-20 with 8GE
Model:                ASA5585-SSP-IPS20
Hardware version:     1.0
Serial Number:        ABC1234DEFG
Firmware version:     2.0(7)0
Software version:     7.1(1)E4
MAC Address Range:    5475.d029.7f9c to 5475.d029.7fa7
App. name:            IPS
```

```

App. Status:      Not Applicable
App. Status Desc: Not Applicable
App. version:     7.1(1)E4
Data plane Status: Not Applicable
Status:          Down
asa# show module 1 details
Getting details from the Service Module, please wait...
Unable to read details from slot 1
ASA 5585-X IPS Security Services Processor-20 with 8GE
Model:            ASA5585-SSP-IPS20
Hardware version: 1.0
Serial Number:    ABC1234DEFG
Firmware version: 2.0(7)0
Software version: 7.1(1)E4
MAC Address Range: 5475.d029.7f9c to 5475.d029.7fa7
App. name:        IPS
App. Status:      Not Applicable
App. Status Desc: Not Applicable
App. version:     7.1(1)E4
Data plane Status: Not Applicable
Status:          Init
asa# show module 1 details
Getting details from the Service Module, please wait...
ASA 5585-X IPS Security Services Processor-20 with 8GE
Model:            ASA5585-SSP-IPS20
Hardware version: 1.0
Serial Number:    ABC1234DEFG
Firmware version: 2.0(7)0
Software version: 7.1(1)E4
MAC Address Range: 5475.d029.7f9c to 5475.d029.7fa7
App. name:        IPS
App. Status:      Reload
App. Status Desc: Starting up
App. version:     7.1(1)E4
Data plane Status: Down
Status:          Up
Mgmt IP addr:     192.0.2.3
Mgmt Network mask: 255.255.255.0
Mgmt Gateway:     192.0.2.254
Mgmt Access List: 0.0.0.0/0
Mgmt web ports:   443
Mgmt TLS enabled: true
asa# show module 1 details
Getting details from the Service Module, please wait...
ASA 5585-X IPS Security Services Processor-20 with 8GE
Model:            ASA5585-SSP-IPS20
Hardware version: 1.0
Serial Number:    ABC1234DEFG
Firmware version: 2.0(7)0
Software version: 7.1(1)E4
MAC Address Range: 5475.d029.7f9c to 5475.d029.7fa7
App. name:        IPS
App. Status:      Up
App. Status Desc: Normal Operation
App. version:     7.1(1)E4
Data plane Status: Up
Status:          Up
Mgmt IP addr:     192.0.2.3
Mgmt Network mask: 255.255.255.0
Mgmt Gateway:     192.0.2.254
Mgmt Access List: 0.0.0.0/0
Mgmt web ports:   443
Mgmt TLS enabled: true
asa#

```

If you have problems with reimaging the ASA 5585-X IPS SSP, use the **debug module-boot** command to see the output as it boots. Make sure you have the correct IP address for the TFTP server and you have the correct file on the TFTP server. Then use the **hw-module module 1 recover** command again to reimage the module.

```
ips-ssp# hw-module module 1 recover configure
Image URL [tftp://0.0.0.0/]: tftp://10.10.10.10//IPS-SSP_20-K9-sys-1.1-a-7.1-1-E4.img
Port IP Address [0.0.0.0]: 10.10.10.11
VLAN ID [0]:
Gateway IP Address [0.0.0.0]: 10.10.10.254

asa(config)# debug module-boot
debug module-boot enabled at level 1
asa(config)# hw-module module 1 recover boot
The module in slot 1 will be recovered. This may erase all configuration and all data on
that device and attempt to download a new image for it.
Recover module in slot 1? [confirm]
Recover issued for module in slot 1
asa(config)# Slot-1 140> Cisco Systems ROMMON Version (1.0(10)0) #0: Fri Mar 25 23:02:10
PST 2010
Slot-1 141> Platform ASA5585-SSP-IPS20
Slot-1 142> GigabitEthernet0/0
Slot-1 143> Link is UP
Slot-1 144> MAC Address: 000b.fcf8.0176
Slot-1 145> ROMMON Variable Settings:
Slot-1 146> ADDRESS=192.0.2.3
Slot-1 147> SERVER=192.0.2.15
Slot-1 148> GATEWAY=192.0.2.254
Slot-1 149> PORT=GigabitEthernet0/0
Slot-1 150> VLAN=untagged
Slot-1 151> IMAGE=IPS-SSP-K9-sys-1.1-a-7.1-0.1.img
Slot-1 152> CONFIG=
Slot-1 153> LINKTIMEOUT=20
Slot-1 154> PKTTIMEOUT=4
Slot-1 155> RETRY=20
Slot-1 156> tftp IPS-SSP_10-K9-sys-1.1-a-7.1-0.1.img@192.0.2.15 via 192.0.2.254
Slot-1 157> TFTP failure: Packet verify failed after 20 retries
Slot-1 158> Rebooting due to Autoboot error ...
Slot-1 159> Rebooting....
Slot-1 160> Cisco Systems ROMMON Version (1.0(10)0) #0: Fri Mar 25 23:02:10 PST 2010
Slot-1 161> Platform ASA5585-SSP-IPS20
Slot-1 162> GigabitEthernet0/0
Slot-1 163> Link is UP
Slot-1 164> MAC Address: 000b.fcf8.0176
Slot-1 165> ROMMON Variable Settings:
Slot-1 166> ADDRESS=192.0.2.3
Slot-1 167> SERVER=192.0.2.15
Slot-1 168> GATEWAY=192.0.2.254
Slot-1 169> PORT=GigabitEthernet0/0
Slot-1 170> VLAN=untagged
Slot-1 171> IMAGE=IPS-SSP_10-K9-sys-1.1-a-7.1-0.1.img
Slot-1 172> CONFIG=
Slot-1 173> LINKTIMEOUT=20
Slot-1 174> PKTTIMEOUT=4
Slot-1 175> RETRY=20
Slot-1 176> tftp IPS-SSP_10-K9-sys-1.1-a-7.1-0.1.img@192.0.2.15 via 192.0.2.254
```

## The ASA 5585-X IPS SSP and the Normalizer Engine

The majority of the features in the Normalizer engine are not used on the ASA 5585-X IPS SSP, because the ASA itself handles the normalization. Packets on the ASA IPS modules go through a special path in the Normalizer that only reassembles fragments and puts packets in the right order for the TCP stream. The Normalizer does not do any of the normalization that is done on an inline IPS appliance, because that causes problems in the way the ASA handles the packets.

The following Normalizer engine signatures are not supported:

- 1300.0
- 1304.0
- 1305.0
- 1307.0
- 1308.0
- 1309.0
- 1311.0
- 1315.0
- 1316.0
- 1317.0
- 1330.0
- 1330.1
- 1330.2
- 1330.9
- 1330.10
- 1330.12
- 1330.14
- 1330.15
- 1330.16
- 1330.17
- 1330.18

### For More Information

For detailed information about the Normalizer engine, see [Normalizer Engine, page B-36](#).

## The ASA 5585-X IPS SSP and Jumbo Packet Frame Size

Refer to the following URL for information about the ASA 5585-X IPS SSP jumbo packet frame size:  
[http://www.cisco.com/en/US/docs/security/asa/asa84/configuration/guide/interface\\_start.html#wp1328869](http://www.cisco.com/en/US/docs/security/asa/asa84/configuration/guide/interface_start.html#wp1328869)



**Note**

A jumbo frame is an Ethernet packet that is larger than the standard maximum of 1518 bytes (including Layer 2 header and FCS).

## The ASA 5585-X IPS SSP and Jumbo Packets

The jumbo packet count in the **show interface** command output from the lines `Total Jumbo Packets Received` and `Total Jumbo Packets Transmitted` for ASA IPS modules may be larger than expected due to some packets that were almost jumbo size on the wire being counted as jumbo size by the IPS. This miscount is a result of header bytes added to the packet by the ASA before the packet is transmitted to the IPS. For IPv4, 58 bytes of header data are added. For IPv6, 78 bytes of header data are added. The ASA removes the added IPS header before the packet leaves the ASA.

## TCP Reset Differences Between IPS Appliances and ASA IPS Modules

The IPS appliance sends TCP reset packets to both the attacker and victim when Reset TCP Connection is selected. The IPS appliance sends a TCP reset packet only to the victim under the following circumstances:

- When a Deny Packet Inline or Deny Connection Inline is selected
- When TCP-based signatures and Reset TCP Connection have NOT been selected

In the case of the ASA IPS module, the TCP reset request is sent to the ASA, and the ASA then sends the TCP reset packets. The ASA sends TCP reset packets to both the attacker and victim when the Reset TCP Connection is selected. When Deny Packet Inline or Deny Connection Inline is selected, the ASA sends the TCP reset packet to either the attacker or victim depending on the configuration of the signature. Signatures configured to swap the attacker and victim when reporting the alert can cause the ASA to send the TCP reset packet to the attacker.

### For More Information

For a detailed list of the event actions, see [Event Actions](#), page 9-8.

## IPS Reloading Messages

**Symptom** ASA syslog messages similar to the following are observed and the root cause of the message is not clear:

```
%ASA-1-505013: ASA-SSM-10 Module in slot 1, application reloading "IPS", version
"7.1(6)E4" Config Change
```

```
%ASA-1-505013: ASA5585-SSP-IPS10 Module in slot 1, application reloading "IPS", version
"7.1(1)E4" Config Change
```

These messages occur once an hour for sensors not actively being configured or more often for sensors being configured.

**Conditions** ASA adaptive appliances running an affected software version with an ASA IPS module (ASA 5500 AIP SSMASA 5500-X IPS SSPASA 5585-X IPS SSP) installed that is running IPS 7.1 or later. The common cause for these messages is global correlation and/or signature updates occurring on the ASA IPS module that results in these messages being generated for some, but not necessarily all of the updates, which are attempted every five minutes.

**Workaround** None. The cause of these messages can be confirmed on the sensor module by reviewing the **show events status past** command output and identifying a status event that corresponds to the ASA syslog message that matches the date and time. The sensor's status event should provide further details about what operation occurred that resulted in the ASA syslog message.

## Gathering Information

This section describes how to gather troubleshooting information about your sensor, and contains the following topics:

- [Understanding Information Gathering, page C-79](#)
- [Health and Network Security Information, page C-79](#)
- [Tech Support Information, page C-80](#)
- [Version Information, page C-84](#)
- [Statistics Information, page C-87](#)
- [Interfaces Information, page C-99](#)
- [Events Information, page C-100](#)
- [cidDump Script, page C-104](#)
- [Uploading and Accessing Files on the Cisco FTP Site, page C-105](#)

## Understanding Information Gathering

You can use the following CLI commands and scripts to gather information and diagnose the state of the sensor when problems occur. You can use the **show tech-support** command to gather all the information of the sensor, or you can use the other individual commands listed in this section for specific information.

## Health and Network Security Information



### Caution

When the sensor is first starting, it is normal for certain health metric statuses to be red until the sensor is fully up and running.



### Note

The ASA 5500-X IPS SSP and ASA 5585-X IPS SSP do not support bypass mode. The adaptive security appliance will either fail open, fail close, or fail over depending on the configuration of the adaptive security appliance and the type of activity being done on the IPS.

Use the **show health** command in privileged EXEC mode to display the overall health status information of the sensor. The health status categories are rated by red and green with red being critical. To display the overall health status of the sensor, follow these steps:

**Step 1** Log in to the CLI.

**Step 2** Show the health and security status of the sensor.

```

sensor# show health
Overall Health Status                               Red
Health Status for Failed Applications                Green
Health Status for Signature Updates                 Green
Health Status for License Key Expiration             Red
Health Status for Running in Bypass Mode             Green
Health Status for Interfaces Being Down              Red
Health Status for the Inspection Load                Green
Health Status for the Time Since Last Event Retrieval Green
Health Status for the Number of Missed Packets        Green
Health Status for the Memory Usage                   Not Enabled
Health Status for Global Correlation                 Red
Health Status for Network Participation               Not Enabled

Security Status for Virtual Sensor vs0               Green
sensor#

```

## Tech Support Information

This section describes the **show tech-support** command, and contains the following topics:

- [Understanding the show tech-support Command, page C-80](#)
- [Displaying Tech Support Information, page C-81](#)
- [Tech Support Command Output, page C-82](#)

### Understanding the show tech-support Command

The **show tech-support** command captures all status and configuration information on the sensor and includes the current configuration, version information, and cidDump information. The output can be large, over 1 MB. You can transfer the output to a remote system.

To get the same information from IDM, choose **Monitoring > Sensor Monitoring > Support Information > System Information**.



#### Note

Always run the **show tech-support** command before contacting the TAC.

#### For More Information

For the procedure for copying the output to a remote system, see [Displaying Tech Support Information, page C-81](#).



## Displaying Tech Support Information



### Note

The **show tech-support** command now displays historical interface data for each interface for the past 72 hours.

Use the **show tech-support [page] [destination-url destination\_url]** command to display system information on the screen or have it sent to a specific URL. You can use the information as a troubleshooting tool with the TAC.

The following parameters are optional:

- **page**—Displays the output, one page of information at a time. Press **Enter** to display the next line of output or use the spacebar to display the next page of information.
- **destination-url**—Indicates the information should be formatted as HTML and sent to the destination that follows this command. If you use this keyword, the output is not displayed on the screen.
- **destination\_url**—Indicates the information should be formatted as HTML. The URL specifies where the information should be sent. If you do not use this keyword, the information is displayed on the screen.
- You can specify the following destination types:
  - **ftp**—Destination URL for FTP network server. The syntax for this prefix is:  
`ftp://[[username@location]/relativeDirectory]/filename` OR  
`ftp://[[username@location]//absoluteDirectory]/filename`
  - **scp**—Destination URL for the SCP network server. The syntax for this prefix is:  
`scp://[[username@]location]/relativeDirectory]/filename` OR  
`scp://[[username@]location]//absoluteDirectory]/filename`

### Varlog Files

The `/var/log/messages` file has the latest logs. A new softlink called `varlog` has been created under the `/usr/cids/idsRoot/log` folder that points to the `/var/log/messages` file. Old logs are stored in `varlog.1` and `varlog.2` files. The maximum size of these varlog files is 200 KB. Once they cross the size limit the content is rotated. The content of `varlog`, `varlog.1`, and `varlog.2` is displayed in the output of the **show tech-support** command.

### Displaying Tech Support Information

To display tech support information, follow these steps:

- 
- Step 1** Log in to the CLI using an account with administrator privileges.
- Step 2** View the output on the screen. The system information appears on the screen, one page at a time. Press the spacebar to view the next page or press **Ctrl-C** to return to the prompt
- ```
sensor# show tech-support page
```
- Step 3** To send the output (in HTML format) to a file:
- a. Enter the following command, followed by a valid destination. The `password:` prompt appears.
- ```
sensor# show tech-support destination-url destination_url
```

### Example

To send the tech support output to the file `/absolute/reports/sensor1Report.html`:

```
sensor# show tech support dest
ftp://csidsuser@10.2.1.2//absolute/reports/sensor1Report.html
```

- b. Enter the password for this user account. The `Generating report:` message is displayed.

## Tech Support Command Output

The following is an example of the `show tech-support` command output:



### Note

This output example shows the first part of the command and lists the information for the interfaces, authentication, and the Analysis Engine.

```
sensor# show tech-support page
System Status Report
This Report was generated on Wed Nov 30 23:40:09 2011.
Output from show version
Application Partition:

Cisco Intrusion Prevention System, Version 7.1(3)E4

Host:
  Realm Keys          key1.0
Signature Definition:
  Signature Update    S605.0          2011-10-25
OS Version:          2.6.29.1
Platform:             ASA5585-SSP-IPS10
Serial Number:        123456789AB
No license present
Sensor up-time is 13 days.
Using 4395M out of 5839M bytes of available memory (75% usage)
system is using 26.2M out of 160.0M bytes of available disk space (16% usage)
application-data is using 69.7M out of 171.6M bytes of available disk space (43%
usage)
boot is using 57.3M out of 70.5M bytes of available disk space (86% usage)
application-log is using 494.0M out of 513.0M bytes of available disk space (96%
usage)

MainApp              S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600   Running
AnalysisEngine       S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600   Running
CollaborationApp     S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600   Running
CLI                  S-2011_NOV_16_00_20_7_1_3_46   (Release)   2011-11-16T00:23:0
6-0600

Upgrade History:

  IPS-K9-7.1-3-E4    00:30:07 UTC Wed Nov 16 2011

Recovery Partition Version 1.1 - 7.1(3)E4

Host Certificate Valid from: 16-Nov-2011 to 16-Nov-2013
```

```
Output from show interfaces
Interface Statistics
  Total Packets Received = 4285610
  Total Bytes Received = 548558080
  Missed Packet Percentage = 0
MAC statistics from interface Management0/0
  Interface function = Command-control interface
  Description =
  Media Type = TX
  Default Vlan = 0
  Link Status = Up
  Link Speed = Auto_100
  Link Duplex = Auto_Full
  Total Packets Received = 9584350
  Total Bytes Received = 986355666
  Total Multicast Packets Received = 0
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total Packets Transmitted = 7205444
  Total Bytes Transmitted = 1376470584
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0
MAC statistics from interface PortChannel0/0
  Interface function = Sensing interface
  Description =
  Media Type = backplane
  Default Vlan = 0
  InlineMode = Unpaired
  Pair Status = N/A
  Hardware Bypass Capable = No
  Hardware Bypass Paired = N/A
  Link Status = Up
  Admin Enabled Status = Enabled
  Link Speed = Auto_10000
  Link Duplex = Auto_Full
  Missed Packet Percentage = 0
  Total Packets Received = 4285610
  Total Bytes Received = 548558080
  Total Multicast Packets Received = 0
  Total Broadcast Packets Received = 0
  Total Jumbo Packets Received = 0
  Total Undersize Packets Received = 0
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total requests for buffer when none available = 0
  Total Packets Transmitted = 4285610
  Total Bytes Transmitted = 548558080
  Total Multicast Packets Transmitted = 0
  Total Broadcast Packets Transmitted = 0
  Total Jumbo Packets Transmitted = 0
  Total Undersize Packets Transmitted = 0
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0
MAC statistics from interface Management0/1
  Interface function = Reserved for future use

Output from show statistics authentication
General
  totalAuthenticationAttempts = 237
  failedAuthenticationAttempts = 14

Output from show statistics analysis-engine
```

```

Analysis Engine Statistics
Number of seconds since service started = 1150851
Processing Load Percentage
  Thread    5 sec   1 min   5 min
    0         1     1     1
    1         1     1     1
    2         1     1     1
  Average    1     1     1

The rate of TCP connections tracked per second = 0
The rate of packets per second = 0
The rate of bytes per second = 0
Receiver Statistics
  Total number of packets processed since reset = 0
  Total number of IP packets processed since reset = 0
Transmitter Statistics
  Total number of packets transmitted = 4285631
  Total number of packets denied = 0
  Total number of packets reset = 0
Fragment Reassembly Unit Statistics
  Number of fragments currently in FRU = 0
  Number of datagrams currently in FRU = 0
TCP Stream Reassembly Unit Statistics
  TCP streams currently in the embryonic state = 0
  TCP streams currently in the established state = 0
  TCP streams currently in the closing state = 0
  TCP streams currently in the system = 0
  TCP Packets currently queued for reassembly = 0
The Signature Database Statistics.
  Total nodes active = 0
  TCP nodes keyed on both IP addresses and both ports = 0
  UDP nodes keyed on both IP addresses and both ports = 0
  IP nodes keyed on both IP addresses = 0
Statistics for Signature Events
  Number of SigEvents since reset = 0
Statistics for Actions executed on a SigEvent
  Number of Alerts written to the IdsEventStore = 0
Inspection Stats

--MORE--

```

## Version Information

This section describes the **show version** command, and contains the following topics:

- [Understanding the show version Command, page C-84](#)
- [Displaying Version Information, page C-85](#)

## Understanding the show version Command

The **show version** command shows the basic sensor information and can indicate where a failure is occurring. It gives the following information:

- Which applications are running
- Versions of the applications

- Disk and memory usage
- Upgrade history of the applications

**Note**

To get the same information from IDM, choose **Monitoring > Sensor Monitoring > Support Information > Diagnostics Report**.

## Displaying Version Information

Use the **show version** command to display version information for all installed operating system packages, signature packages, and IPS processes running on the system. To view the configuration for the entire system, use the **more current-config** command.

**Note**

The CLI output is an example of what your configuration may look like. It will not match exactly due to the optional setup choices, sensor model, and IPS 7.1 version you have installed.

To display the version and configuration, follow these steps:

**Step 1** Log in to the CLI.

**Step 2** View version information.

```
sensor# show version
Application Partition:

Cisco Intrusion Prevention System, Version 7.1(3)E4

Host:
  Realm Keys          key1.0
Signature Definition:
  Signature Update     S605.0          2011-10-25
OS Version:           2.6.29.1
Platform:             ASA5585-SSP-IPS10
Serial Number:        123456789AB
No license present
Sensor up-time is 13 days.
Using 4395M out of 5839M bytes of available memory (75% usage)
system is using 26.2M out of 160.0M bytes of available disk space (16% usage)
application-data is using 69.7M out of 171.6M bytes of available disk space (43%
usage)
boot is using 57.3M out of 70.5M bytes of available disk space (86% usage)
application-log is using 494.0M out of 513.0M bytes of available disk space (96%
usage)

MainApp               S-2011_NOV_16_00_20_7_1_3_46  (Release)  2011-11-16T00:23:0
6-0600 Running
AnalysisEngine        S-2011_NOV_16_00_20_7_1_3_46  (Release)  2011-11-16T00:23:0
6-0600 Running
CollaborationApp      S-2011_NOV_16_00_20_7_1_3_46  (Release)  2011-11-16T00:23:0
6-0600 Running
CLI                   S-2011_NOV_16_00_20_7_1_3_46  (Release)  2011-11-16T00:23:0
6-0600

Upgrade History:

IPS-K9-7.1-3-E4      00:30:07 UTC Wed Nov 16 2011
```

Recovery Partition Version 1.1 - 7.1(3)E4

Host Certificate Valid from: 16-Nov-2011 to 16-Nov-2013

sensor#



**Note** If the `--MORE--` prompt is displayed, press the spacebar to see more information or **Ctrl-C** to cancel the output and get back to the CLI prompt.

**Step 3** View configuration information.



**Note** You can use the **more current-config** or **show configuration** commands.

```
sensor# more current-config
! -----
! Current configuration last modified Tue Nov 22 16:11:35 2011
! -----
! Version 7.1(3)
! Host:
!   Realm Keys          key1.0
! Signature Definition:
!   Signature Update    S605.0   2011-10-25
! -----
service interface
exit
! -----
service authentication
exit
! -----
service event-action-rules rules0
exit
! -----
service host
network-settings
host-ip 192.168.1.2/24, 192.168.1.1
host-name sensor
telnet-option enabled
access-list 0.0.0.0/0
dns-primary-server disabled
exit
exit
! -----
service logger
exit
! -----
service network-access
exit
! -----
service notification
exit
! -----
service signature-definition sig0
exit
! -----
service ssh-known-hosts
exit
! -----
service trusted-certificates
exit
```

```
! -----
service web-server
exit
! -----
service anomaly-detection ad0
exit
! -----
service external-product-interface
exit
! -----
service health-monitor
exit
! -----
service global-correlation
exit
! -----
service aaa
exit
! -----
service analysis-engine
sensor#
```

---

## Statistics Information

This section describes the **show statistics** command, and contains the following topics:

- [Understanding the show statistics Command, page C-87](#)
- [Displaying Statistics, page C-88](#)

## Understanding the show statistics Command

The **show statistics** command provides a snapshot of the state of the sensor services. The following services provide statistics:

- AnalysisEngine
- Authentication
- Denied Attackers
- Event Server
- Event Store
- Host
- Logger
- Attack Response (formerly known as Network Access)
- Notification
- SDEE Server
- Transaction Server
- Transaction Source
- Virtual Sensor
- Web Server

**Note**

To get the same information from IDM, choose **Monitoring > Sensor Monitoring > Support Information > Statistics**.

## Displaying Statistics

Use the **show statistics** [**analysis-engine** | **anomaly-detection** | **authentication** | **denied-attackers** | **event-server** | **event-store** | **external-product-interface** | **global-correlation** | **host** | **logger** | **network-access** | **notification** | **os-identification** | **sdee-server** | **transaction-server** | **virtual-sensor** | **web-server**] [**clear**] command to display statistics for each sensor application.

Use the **show statistics** {**anomaly-detection** | **denied-attackers** | **os-identification** | **virtual-sensor**} [**name** | **clear**] command to display statistics for these components for all virtual sensors. If you provide the virtual sensor name, the statistics for that virtual sensor only are displayed.

**Note**

The **clear** option is not available for the analysis engine, anomaly detection, host, network access, or OS identification applications.

To display statistics for the sensor, follow these steps:

**Step 1** Log in to the CLI.

**Step 2** Display the statistics for the Analysis Engine.

```
sensor# show statistics analysis-engine
Analysis Engine Statistics
  Number of seconds since service started = 431157
  Processing Load Percentage
    Thread    5 sec    1 min    5 min
    0          1        1        1
    1          1        1        1
    2          1        1        1
    3          1        1        1
    4          1        1        1
    5          1        1        1
    6          1        1        1
    Average   1         1        1

The rate of TCP connections tracked per second = 0
The rate of packets per second = 0
The rate of bytes per second = 0
Receiver Statistics
  Total number of packets processed since reset = 0
  Total number of IP packets processed since reset = 0
Transmitter Statistics
  Total number of packets transmitted = 133698
  Total number of packets denied = 203
  Total number of packets reset = 3
Fragment Reassembly Unit Statistics
  Number of fragments currently in FRU = 0
  Number of datagrams currently in FRU = 0
TCP Stream Reassembly Unit Statistics
  TCP streams currently in the embryonic state = 0
  TCP streams currently in the established state = 0
  TCP streams currently in the closing state = 0
  TCP streams currently in the system = 0
  TCP Packets currently queued for reassembly = 0
```



The Signature Database Statistics.

Total nodes active = 0

TCP nodes keyed on both IP addresses and both ports = 0

UDP nodes keyed on both IP addresses and both ports = 0

IP nodes keyed on both IP addresses = 0

Statistics for Signature Events

Number of SigEvents since reset = 0

Statistics for Actions executed on a SigEvent

Number of Alerts written to the IdsEventStore = 0

Inspection Stats

Inspector	active	call	create	delete	loadPct
AtomicAdvanced	0	2312	4	4	33
Fixed	0	1659	1606	1606	1
MSRPC_TCP	0	20	4	4	0
MSRPC_UDP	0	1808	1575	1575	0
MultiString	0	145	10	10	2
ServiceDnsUdp	0	1841	3	3	0
ServiceGeneric	0	2016	14	14	1
ServiceHttp	0	2	2	2	51
ServiceNtp	0	3682	3176	3176	0
ServiceP2PTCP	0	21	9	9	0
ServiceRpcUDP	0	1841	3	3	0
ServiceRpcTCP	0	130	9	9	0
ServiceSMBAdvanced	0	139	3	3	0
ServiceSnmp	0	1841	3	3	0
ServiceTNS	0	18	14	14	0
String	0	225	16	16	0
SweepUDP	0	1808	1555	1555	6
SweepTCP	0	576	17	17	0
SweepOtherTcp	0	288	6	6	0
TrojanBO2K	0	261	11	11	0
TrojanUdp	0	1808	1555	1555	0

GlobalCorrelationStats

SwVersion = 7.1(4.70)E4

SigVersion = 645.0

DatabaseRecordCount = 0

DatabaseVersion = 0

RuleVersion = 0

ReputationFilterVersion = 0

AlertsWithHit = 0

AlertsWithMiss = 0

AlertsWithModifiedRiskRating = 0

AlertsWithGlobalCorrelationDenyAttacker = 0

AlertsWithGlobalCorrelationDenyPacket = 0

AlertsWithGlobalCorrelationOtherAction = 0

AlertsWithAuditRepDenies = 0

ReputationForcedAlerts = 0

EventStoreInsertTotal = 0

EventStoreInsertWithHit = 0

EventStoreInsertWithMiss = 0

EventStoreDenyFromGlobalCorrelation = 0

EventStoreDenyFromOverride = 0

EventStoreDenyFromOverlap = 0

EventStoreDenyFromOther = 0

ReputationFilterDataSize = 0

ReputationFilterPacketsInput = 0

ReputationFilterRuleMatch = 0

DenyFilterHitsNormal = 0

DenyFilterHitsGlobalCorrelation = 0

SimulatedReputationFilterPacketsInput = 0

SimulatedReputationFilterRuleMatch = 0

SimulatedDenyFilterInsert = 0

SimulatedDenyFilterPacketsInput = 0

```

SimulatedDenyFilterRuleMatch = 0
TcpDeniesDueToGlobalCorrelation = 0
TcpDeniesDueToOverride = 0
TcpDeniesDueToOverlap = 0
TcpDeniesDueToOther = 0
SimulatedTcpDeniesDueToGlobalCorrelation = 0
SimulatedTcpDeniesDueToOverride = 0
SimulatedTcpDeniesDueToOverlap = 0
SimulatedTcpDeniesDueToOther = 0
LateStageDenyDueToGlobalCorrelation = 0
LateStageDenyDueToOverride = 0
LateStageDenyDueToOverlap = 0
LateStageDenyDueToOther = 0
SimulatedLateStageDenyDueToGlobalCorrelation = 0
SimulatedLateStageDenyDueToOverride = 0
SimulatedLateStageDenyDueToOverlap = 0
SimulatedLateStageDenyDueToOther = 0
AlertHistogram
RiskHistogramEarlyStage
RiskHistogramLateStage
ConfigAggressiveMode = 0
ConfigAuditMode = 0
RegexAccelerationStats
  Status = Enabled
  DriverVersion = 6.2.1
  Devices = 1
  Agents = 12
  Flows = 7
  Channels = 0
  SubmittedJobs = 4968
  CompletedJobs = 4968
  SubmittedBytes = 72258005
  CompletedBytes = 168
  TCPFlowsWithoutLCB = 0
  UDPFlowsWithoutLCB = 0
  TCPMissedPacketsDueToUpdate = 0
  UDPMissedPacketsDueToUpdate = 0
  MemorySize = 1073741824
  HostDirectMemSize = 0
MaliciousSiteDenyHitCounts
MaliciousSiteDenyHitCountsAUDIT
sensor#

```

### Step 3 Display the statistics for anomaly detection.

```

sensor# show statistics anomaly-detection
Statistics for Virtual Sensor vs0
  No attack
  Detection - ON
  Learning - ON
  Next KB rotation at 10:00:01 UTC Sat Jan 18 2008
  Internal Zone
    TCP Protocol
    UDP Protocol
    Other Protocol
  External Zone
    TCP Protocol
    UDP Protocol
    Other Protocol
  Illegal Zone
    TCP Protocol
    UDP Protocol
    Other Protocol
Statistics for Virtual Sensor vs1

```

```

No attack
Detection - ON
Learning - ON
Next KB rotation at 10:00:00 UTC Sat Jan 18 2008
Internal Zone
    TCP Protocol
    UDP Protocol
    Other Protocol
External Zone
    TCP Protocol
    UDP Protocol
    Other Protocol
Illegal Zone
    TCP Protocol
    UDP Protocol
    Other Protocol
sensor#

```

**Step 4** Display the statistics for authentication.

```

sensor# show statistics authentication
General
    totalAuthenticationAttempts = 128
    failedAuthenticationAttempts = 0
sensor#

```

**Step 5** Display the statistics for the denied attackers in the system.

```

sensor# show statistics denied-attackers
Denied Attackers and hit count for each.
Denied Attackers and hit count for each.
Statistics for Virtual Sensor vs0
    Denied Attackers with percent denied and hit count for each.

    Denied Attackers with percent denied and hit count for each.

Statistics for Virtual Sensor vs1
    Denied Attackers with percent denied and hit count for each.

    Denied Attackers with percent denied and hit count for each.

sensor#

```

**Step 6** Display the statistics for the Event Server.

```

sensor# show statistics event-server
General
    openSubscriptions = 0
    blockedSubscriptions = 0
Subscriptions
sensor#

```

**Step 7** Display the statistics for the Event Store.

```

sensor# show statistics event-store
EEvent store statistics
    General information about the event store
        The current number of open subscriptions = 2
        The number of events lost by subscriptions and queries = 0
        The number of filtered events not written to the event store = 850763
        The number of queries issued = 0

```

```

    The number of times the event store circular buffer has wrapped = 0
Number of events of each type currently stored
Status events = 4257
Shun request events = 0
Error events, warning = 669
Error events, error = 8
Error events, fatal = 0
Alert events, informational = 0
Alert events, low = 0
Alert events, medium = 0
Alert events, high = 0
Alert events, threat rating 0-20 = 0
Alert events, threat rating 21-40 = 0
Alert events, threat rating 41-60 = 0
Alert events, threat rating 61-80 = 0
Alert events, threat rating 81-100 = 0
Cumulative number of each type of event
Status events = 4257
Shun request events = 0
Error events, warning = 669
Error events, error = 8
Error events, fatal = 0
Alert events, informational = 0
Alert events, low = 0
Alert events, medium = 0
Alert events, high = 0
Alert events, threat rating 0-20 = 0
Alert events, threat rating 21-40 = 0
Alert events, threat rating 41-60 = 0
Alert events, threat rating 61-80 = 0
Alert events, threat rating 81-100 = 0
sensor#

```

#### Step 8 Display the statistics for global correlation.

```

sensor# show statistics global-correlation
Network Participation:
  Counters:
    Total Connection Attempts = 0
    Total Connection Failures = 0
    Connection Failures Since Last Success = 0
  Connection History:
Updates:
  Status Of Last Update Attempt = Disabled
  Time Since Last Successful Update = never
  Counters:
    Update Failures Since Last Success = 0
    Total Update Attempts = 0
    Total Update Failures = 0
  Update Interval In Seconds = 300
  Update Server = update-manifests.ironport.com
  Update Server Address = Unknown
  Current Versions:
Warnings:
  Unlicensed = Global correlation inspection and reputation filtering have been
disabled because the sensor is unlicensed.
  Action Required = Obtain a new license from http://www.cisco.com/go/license.
sensor#

```

#### Step 9 Display the statistics for the host.

```

sensor# show statistics host
General Statistics
  Last Change To Host Config (UTC) = 25-Jan-2012 02:59:18

```

```

Command Control Port Device = Management0/0
Network Statistics
  = ma0_0      Link encap:Ethernet  HWaddr 00:04:23:D5:A1:8D
  =            inet addr:10.89.130.98  Bcast:10.89.131.255  Mask:255.255.254.0
  =            UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
  =            RX packets:1688325 errors:0 dropped:0 overruns:0 frame:0
  =            TX packets:38546 errors:0 dropped:0 overruns:0 carrier:0
  =            collisions:0 txqueuelen:1000
  =            RX bytes:133194316 (127.0 MiB)  TX bytes:5515034 (5.2 MiB)
  =            Base address:0xcc80 Memory:fcee0000-fcf00000
NTP Statistics
  status = Not applicable
Memory Usage
  usedBytes = 1889357824
  freeBytes = 2210988032
  totalBytes = 4100345856
CPU Statistics
  Note: CPU Usage statistics are not a good indication of the sensor processin load. The
  Inspection Load Percentage in the output of 'show inspection-load' should be used instead.
  Usage over last 5 seconds = 0
  Usage over last minute = 2
  Usage over last 5 minutes = 2
  Usage over last 5 seconds = 0
  Usage over last minute = 1
  Usage over last 5 minutes = 1
Memory Statistics
  Memory usage (bytes) = 1889357824
  Memory free (bytes) = 2210988032
Auto Update Statistics
  lastDirectoryReadAttempt = N/A
  lastDownloadAttempt = N/A
  lastInstallAttempt = N/A
  nextAttempt = N/A
Auxilliary Processors Installed
sensor#

```

#### Step 10 Display the statistics for the logging application.

```

sensor# show statistics logger
The number of Log interprocessor FIFO overruns = 0
The number of syslog messages received = 11
The number of <evError> events written to the event store by severity
  Fatal Severity = 0
  Error Severity = 64
  Warning Severity = 35
  TOTAL = 99
The number of log messages written to the message log by severity
  Fatal Severity = 0
  Error Severity = 64
  Warning Severity = 24
  Timing Severity = 311
  Debug Severity = 31522
  Unknown Severity = 7
  TOTAL = 31928
sensor#

```

#### Step 11 Display the statistics for the ARC.

```

sensor# show statistics network-access
Current Configuration
  LogAllBlockEventsAndSensors = true
  EnableNvramWrite = false
  EnableAclLogging = false
  AllowSensorBlock = false

```

```

BlockMaxEntries = 11
MaxDeviceInterfaces = 250
NetDevice
    Type = PIX
    IP = 10.89.150.171
    NATAddr = 0.0.0.0
    Communications = ssh-3des
NetDevice
    Type = PIX
    IP = 192.0.2.4
    NATAddr = 0.0.0.0
    Communications = ssh-3des
NetDevice
    Type = PIX
    IP = 192.0.2.5
    NATAddr = 0.0.0.0
    Communications = telnet
NetDevice
    Type = Cisco
    IP = 192.0.2.6
    NATAddr = 0.0.0.0
    Communications = telnet
    BlockInterface
        InterfaceName = ethernet0/1
        InterfaceDirection = out
        InterfacePostBlock = Post_Acl_Test
    BlockInterface
        InterfaceName = ethernet0/1
        InterfaceDirection = in
        InterfacePreBlock = Pre_Acl_Test
        InterfacePostBlock = Post_Acl_Test
NetDevice
    Type = CAT6000_VACL
    IP = 192.0.2.1
    NATAddr = 0.0.0.0
    Communications = telnet
    BlockInterface
        InterfaceName = 502
        InterfacePreBlock = Pre_Acl_Test
    BlockInterface
        InterfaceName = 507
        InterfacePostBlock = Post_Acl_Test
State
    BlockEnable = true
NetDevice
    IP = 192.0.2.3
    AclSupport = Does not use ACLs
    Version = 6.3
    State = Active
    Firewall-type = PIX
NetDevice
    IP = 192.0.2.7
    AclSupport = Does not use ACLs
    Version = 7.0
    State = Active
    Firewall-type = ASA
NetDevice
    IP = 102.0.2.8
    AclSupport = Does not use ACLs
    Version = 2.2
    State = Active
    Firewall-type = FWSM
NetDevice
    IP = 192.0.2.9

```

```

    AclSupport = uses Named ACLs
    Version = 12.2
    State = Active
  NetDevice
    IP = 192.0.2.10
    AclSupport = Uses VACLs
    Version = 8.4
    State = Active
  BlockedAddr
    Host
      IP = 203.0.113.1
      Vlan =
      ActualIp =
      BlockMinutes =
    Host
      IP = 203.0.113.2
      Vlan =
      ActualIp =
      BlockMinutes =
    Host
      IP = 203.0.113.4
      Vlan =
      ActualIp =
      BlockMinutes = 60
      MinutesRemaining = 24
  Network
    IP = 203.0.113.9
    Mask = 255.255.0.0
    BlockMinutes =
sensor#

```

**Step 12** Display the statistics for the notification application.

```

sensor# show statistics notification
General
  Number of SNMP set requests = 0
  Number of SNMP get requests = 0
  Number of error traps sent = 0
  Number of alert traps sent = 0
sensor#

```

**Step 13** Display the statistics for OS identification.

```

sensor# show statistics os-identification
Statistics for Virtual Sensor vs0
  OS Identification
    Configured
    Imported
    Learned
sensor#

```

**Step 14** Display the statistics for the SDEE server.

```

sensor# show statistics sdee-server
General
  Open Subscriptions = 1
  Blocked Subscriptions = 1
  Maximum Available Subscriptions = 5
  Maximum Events Per Retrieval = 500
Subscriptions
  sub-4-d074914f
    State = Read Pending
    Last Read Time = 23:54:16 UTC Wed Nov 30 2011
    Last Read Time (nanoseconds) = 1322697256078549000
sensor#

```

**Step 15** Display the statistics for the transaction server.

```

sensor# show statistics transaction-server
General
    totalControlTransactions = 35
    failedControlTransactions = 0
sensor#

```

**Step 16** Display the statistics for a virtual sensor.

```

sensor# show statistics virtual-sensor vs0
Statistics for Virtual Sensor vs0
    Name of current Signature-Defintion instance = sig0
    Name of current Event-Action-Rules instance = rules0
    List of interfaces monitored by this virtual sensor =
    General Statistics for this Virtual Sensor
        Number of seconds since a reset of the statistics = 1151770
        MemoryAlloPercent = 23
        MemoryUsedPercent = 22
        MemoryMaxCapacity = 3500000
        MemoryMaxHighUsed = 4193330
        MemoryCurrentAllo = 805452
        MemoryCurrentUsed = 789047
        Processing Load Percentage = 1
        Total packets processed since reset = 0
        Total IP packets processed since reset = 0
        Total IPv4 packets processed since reset = 0
        Total IPv6 packets processed since reset = 0
        Total IPv6 AH packets processed since reset = 0
        Total IPv6 ESP packets processed since reset = 0
        Total IPv6 Fragment packets processed since reset = 0
        Total IPv6 Routing Header packets processed since reset = 0
        Total IPv6 ICMP packets processed since reset = 0
        Total packets that were not IP processed since reset = 0
        Total TCP packets processed since reset = 0
        Total UDP packets processed since reset = 0
        Total ICMP packets processed since reset = 0
        Total packets that were not TCP, UDP, or ICMP processed since reset = 0
        Total ARP packets processed since reset = 0
        Total ISL encapsulated packets processed since reset = 0
        Total 802.1q encapsulated packets processed since reset = 0
        Total GRE Packets processed since reset = 0
        Total GRE Fragment Packets processed since reset = 0
        Total GRE Packets skipped since reset = 0
        Total GRE Packets with Bad Header skipped since reset = 0
        Total IpIp Packets with Bad Header skipped since reset = 0
        Total Encapsulated Tunnel Packets with Bad Header skipped since reset = 0
        Total packets with bad IP checksums processed since reset = 0
        Total packets with bad layer 4 checksums processed since reset = 0
        Total cross queue TCP packets processed since reset = 0
        Total cross queue UDP packets processed since reset = 0
        Packets dropped due to regex resources unavailable since reset = 0
        Total number of bytes processed since reset = 0
        The rate of packets per second since reset = 0
        The rate of bytes per second since reset = 0
        The average bytes per packet since reset = 0
    Denied Address Information
        Number of Active Denied Attackers = 0
        Number of Denied Attackers Inserted = 0
        Number of Denied Attacker Victim Pairs Inserted = 0
        Number of Denied Attacker Service Pairs Inserted = 0
        Number of Denied Attackers Total Hits = 0
        Number of times max-denied-attackers limited creation of new entry = 0

```



```

Number of exec Clear commands during uptime = 0
Denied Attackers and hit count for each.
Denied Attackers with percent denied and hit count for each.

```

#### The Signature Database Statistics.

```

The Number of each type of node active in the system
  Total nodes active = 0
  TCP nodes keyed on both IP addresses and both ports = 0
  UDP nodes keyed on both IP addresses and both ports = 0
  IP nodes keyed on both IP addresses = 0
The number of each type of node inserted since reset
  Total nodes inserted = 0
  TCP nodes keyed on both IP addresses and both ports = 0
  UDP nodes keyed on both IP addresses and both ports = 0
  IP nodes keyed on both IP addresses = 0
The rate of nodes per second for each time since reset
  Nodes per second = 0
  TCP nodes keyed on both IP addresses and both ports per second = 0
  UDP nodes keyed on both IP addresses and both ports per second = 0
  IP nodes keyed on both IP addresses per second = 0
The number of root nodes forced to expire because of memory constraints
  TCP nodes keyed on both IP addresses and both ports = 0
  Packets dropped because they would exceed Database insertion rate limits = 0
Fragment Reassembly Unit Statistics for this Virtual Sensor
  Number of fragments currently in FRU = 0
  Number of datagrams currently in FRU = 0
  Number of fragments received since reset = 0
  Number of fragments forwarded since reset = 0
  Number of fragments dropped since last reset = 0
  Number of fragments modified since last reset = 0
  Number of complete datagrams reassembled since last reset = 0
  Fragments hitting too many fragments condition since last reset = 0
  Number of overlapping fragments since last reset = 0
  Number of Datagrams too big since last reset = 0
  Number of overwriting fragments since last reset = 0
  Number of Initial fragment missing since last reset = 0
  Fragments hitting the max partial dgrams limit since last reset = 0
  Fragments too small since last reset = 0
  Too many fragments per dgram limit since last reset = 0
  Number of datagram reassembly timeout since last reset = 0
  Too many fragments claiming to be the last since last reset = 0
  Fragments with bad fragment flags since last reset = 0
TCP Normalizer stage statistics
  Packets Input = 0
  Packets Modified = 0
  Dropped packets from queue = 0
  Dropped packets due to deny-connection = 0
  Duplicate Packets = 0
  Current Streams = 0
  Current Streams Closed = 0
  Current Streams Closing = 0
  Current Streams Embryonic = 0
  Current Streams Established = 0
  Current Streams Denied = 0
  Total SendAck Limited Packets = 0
  Total SendAck Limited Streams = 0
  Total SendAck Packets Sent = 0
Statistics for the TCP Stream Reassembly Unit
  Current Statistics for the TCP Stream Reassembly Unit
    TCP streams currently in the embryonic state = 0
    TCP streams currently in the established state = 0
    TCP streams currently in the closing state = 0
    TCP streams currently in the system = 0

```

```

    TCP Packets currently queued for reassembly = 0
    Cumulative Statistics for the TCP Stream Reassembly Unit since reset
    TCP streams that have been tracked since last reset = 0
    TCP streams that had a gap in the sequence jumped = 0
    TCP streams that was abandoned due to a gap in the sequence = 0
    TCP packets that arrived out of sequence order for their stream = 0
    TCP packets that arrived out of state order for their stream = 0
    The rate of TCP connections tracked per second since reset = 0
    SigEvent Preliminary Stage Statistics
    Number of Alerts received = 0
    Number of Alerts Consumed by AlertInterval = 0
    Number of Alerts Consumed by Event Count = 0
    Number of FireOnce First Alerts = 0
    Number of FireOnce Intermediate Alerts = 0
    Number of Summary First Alerts = 0
    Number of Summary Intermediate Alerts = 0
    Number of Regular Summary Final Alerts = 0
    Number of Global Summary Final Alerts = 0
    Number of Active SigEventDataNodes = 0
    Number of Alerts Output for further processing = 0
--MORE--

```

**Step 17** Display the statistics for the web server.

```

sensor# show statistics web-server
listener-443
  session-11
    remote host = 64.101.182.167
    session is persistent = no
    number of requests serviced on current connection = 1
    last status code = 200
    last request method = GET
    last request URI = cgi-bin/sdee-server
    last protocol version = HTTP/1.1
    session state = processingGetServlet
    number of server session requests handled = 957134
    number of server session requests rejected = 0
    total HTTP requests handled = 365871
    maximum number of session objects allowed = 40
    number of idle allocated session objects = 12
    number of busy allocated session objects = 1
  summarized log messages
    number of TCP socket failure messages logged = 0
    number of TLS socket failure messages logged = 0
    number of TLS protocol failure messages logged = 0
    number of TLS connection failure messages logged = 595015
    number of TLS crypto warning messages logged = 0
    number of TLS expired certificate warning messages logged = 0
    number of receipt of TLS fatal alert message messages logged = 594969
  crypto library version = 6.2.1.0
sensor#

```

**Step 18** Clear the statistics for an application, for example, the logging application. The statistics are retrieved and cleared.

```

sensor# show statistics logger clear
The number of Log interprocessor FIFO overruns = 0
The number of syslog messages received = 141
The number of <evError> events written to the event store by severity
  Fatal Severity = 0
  Error Severity = 14
  Warning Severity = 142
  TOTAL = 156
The number of log messages written to the message log by severity

```

```

Fatal Severity = 0
Error Severity = 14
Warning Severity = 1
Timing Severity = 0
Debug Severity = 0
Unknown Severity = 28
TOTAL = 43

```

**Step 19** Verify that the statistics have been cleared. The statistics now all begin from 0.

```

sensor# show statistics logger
The number of Log interprocessor FIFO overruns = 0
The number of syslog messages received = 0
The number of <evError> events written to the event store by severity
  Fatal Severity = 0
  Error Severity = 0
  Warning Severity = 0
  TOTAL = 0
The number of log messages written to the message log by severity
  Fatal Severity = 0
  Error Severity = 0
  Warning Severity = 0
  Timing Severity = 0
  Debug Severity = 0
  Unknown Severity = 0
  TOTAL = 0
sensor#

```

---

## Interfaces Information

This section describes the **show interfaces** command, and contains the following topics:

- [Understanding the show interfaces Command, page C-99](#)
- [Interfaces Command Output, page C-99](#)

### Understanding the show interfaces Command

The **show interfaces** command is useful for gathering information on the sensing and command and control interfaces. You can learn the following information from the **show interfaces** command:

- Whether the interface is up or down
- Whether or not packets are being seen, and on which interfaces
- Whether or not packets are being dropped by SensorApp
- Whether or not there are errors being reported by the interfaces that can result in packet drops

The **show interfaces** command displays statistics for all system interfaces. Or you can use the individual commands to display statistics for the command and control interface (**show interfaces *command\_control\_interface\_name***), the sensing interface (**show interfaces *interface\_name***).

### Interfaces Command Output

The following example shows the output from the **show interfaces** command:

```

sensor# show interfaces

```

```
Interface Statistics
  Total Packets Received = 0
  Total Bytes Received = 0
  Missed Packet Percentage = 0
  Current Bypass Mode = Auto_off
MAC statistics from interface GigabitEthernet0/1
  Media Type = backplane
  Missed Packet Percentage = 0
  Inline Mode = Unpaired
  Pair Status = N/A
  Link Status = Up
  Link Speed = Auto_1000
  Link Duplex = Auto_Full
  Total Packets Received = 0
  Total Bytes Received = 0
  Total Multicast Packets Received = 0
  Total Broadcast Packets Received = 0
  Total Jumbo Packets Received = 0
  Total Undersize Packets Received = 0
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total Packets Transmitted = 0
  Total Bytes Transmitted = 0
  Total Multicast Packets Transmitted = 0
  Total Broadcast Packets Transmitted = 0
  Total Jumbo Packets Transmitted = 0
  Total Undersize Packets Transmitted = 0
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0
MAC statistics from interface GigabitEthernet0/0
  Media Type = TX
  Link Status = Up
  Link Speed = Auto_100
  Link Duplex = Auto_Full
  Total Packets Received = 2211296
  Total Bytes Received = 157577635
  Total Multicast Packets Received = 20
  Total Receive Errors = 0
  Total Receive FIFO Overruns = 0
  Total Packets Transmitted = 239723
  Total Bytes Transmitted = 107213390
  Total Transmit Errors = 0
  Total Transmit FIFO Overruns = 0
sensor#
```

## Events Information

This section describes the **show events** command, and contains the following topics:

- [Sensor Events, page C-101](#)
- [Understanding the show events Command, page C-101](#)
- [Displaying Events, page C-101](#)
- [Clearing Events, page C-104](#)

## Sensor Events

You can use the **show events** command to view the alerts generated by SensorApp and errors generated by an application. There are five types of events:

- **evAlert**—Intrusion detection alerts
- **evError**—Application errors
- **evStatus**—Status changes, such as an IP log being created
- **evLogTransaction**—Record of control transactions processed by each sensor application
- **evShunRqst**—Block requests

Events remain in the Event Store until they are overwritten by newer events.

## Understanding the show events Command

The **show events** command is useful for troubleshooting event capture issues in which you are not seeing events in Event Viewer or Security Monitor. You can use the **show events** command to determine which events are being generated on the sensor to make sure events are being generated and that the fault lies with the monitoring side.

You can clear all events from Event Store by using the **clear events** command.

Here are the parameters for the **show events** command:

```
sensor# show events
<cr>
alert          Display local system alerts.
error          Display error events.
hh:mm[:ss]     Display start time.
log            Display log events.
nac            Display NAC shun events.
past           Display events starting in the past specified time.
status         Display status events.
|              Output modifiers.
```

## Displaying Events



### Note

The Event Store has a fixed size of 30 MB for all platforms.



### Note

Events are displayed as a live feed. To cancel the request, press **Ctrl-C**.

Use the **show events** [{**alert** [informational] [low] [medium] [high] [**include-traits** *traits*] [**exclude-traits** *traits*] [**min-threat-rating** *min-rr*] [**max-threat-rating** *max-rr*] | **error** [warning] [error] [fatal] | **NAC** | **status**}] [*hh:mm:ss* [*month day* [*year*]]] | **past** *hh:mm:ss*] command to display events from Event Store. Events are displayed beginning at the start time. If you do not specify a start time, events are displayed beginning at the current time. If you do not specify an event type, all events are displayed. The following options apply:

- **alert**—Displays alerts. Provides notification of some suspicious activity that may indicate an attack is in process or has been attempted. Alert events are generated by the Analysis Engine whenever a signature is triggered by network activity. If no level is selected (informational, low, medium, or high), all alert events are displayed.
- **include-traits**—Displays alerts that have the specified traits.
- **exclude-traits**—Does not display alerts that have the specified traits.
- **traits**—Specifies the trait bit position in decimal (0 to 15).
- **min-threat-rating**—Displays events with a threat rating above or equal to this value. The default is 0. The valid range is 0 to 100.
- **max-threat-rating**—Displays events with a threat rating below or equal to this value. The default is 100. The valid range is 0 to 100.
- **error**—Displays error events. Error events are generated by services when error conditions are encountered. If no level is selected (warning, error, or fatal), all error events are displayed.
- **NAC**—Displays the ARC (block) requests.



**Note** The ARC is formerly known as NAC. This name change has not been completely implemented throughout the IDM, the IME, and the CLI for Cisco IPS 7.1.

- **status**—Displays status events.
- **past**—Displays events starting in the past for the specified hours, minutes, and seconds.
- *hh:mm:ss*—Specifies the hours, minutes, and seconds in the past to begin the display.



**Note**

The **show events** command continues to display events until a specified event is available. To exit, press **Ctrl-C**.

### Displaying Events

To display events from the Event Store, follow these steps:

- Step 1** Log in to the CLI.
- Step 2** Display all events starting now. The feed continues showing all events until you press **Ctrl-C**.

```
sensor# show events
evError: eventId=1041472274774840147 severity=warning vendor=Cisco
  originator:
    hostId: sensor2
    appName: cidwebserver
    appInstanceId: 12075
  time: 2011/01/07 04:41:45 2011/01/07 04:41:45 UTC
  errorMessage: name=errWarning received fatal alert: certificate_unknown

evError: eventId=1041472274774840148 severity=error vendor=Cisco
  originator:
    hostId: sensor2
    appName: cidwebserver
    appInstanceId: 351
  time: 2011/01/07 04:41:45 2011/01/07 04:41:45 UTC
  errorMessage: name=errTransport WebSession::sessionTask(6) TLS connection exception: handshake incomplete.
```

**Step 3** Display the block requests beginning at 10:00 a.m. on February 9, 2011.

```

sensor# show events NAC 10:00:00 Feb 9 2011
evShunRqst: eventId=1106837332219222281 vendor=Cisco
  originator:
    deviceName: Sensor1
    appName: NetworkAccessControllerApp
    appInstance: 654
  time: 2011/02/09 10:33:31 2011/08/09 13:13:31
  shunInfo:
    host: connectionShun=false
    srcAddr: 11.0.0.1
    destAddr:
    srcPort:
    destPort:
    protocol: numericType=0 other
    timeoutMinutes: 40
  evAlertRef: hostId=esendHost 123456789012345678
sensor#

```

**Step 4** Display errors with the warning level starting at 10:00 a.m. on February 9, 2011.

```

sensor# show events error warning 10:00:00 Feb 9 2011
evError: eventId=1041472274774840197 severity=warning vendor=Cisco
  originator:
    hostId: sensor
    appName: cidwebserver
    appInstanceId: 12160
  time: 2011/01/07 04:49:25 2011/01/07 04:49:25 UTC
  errorMessage: name=errWarning received fatal alert: certificate_unknown

```

**Step 5** Display alerts from the past 45 seconds.

```

sensor# show events alert past 00:00:45

evIdsAlert: eventId=1109695939102805307 severity=medium vendor=Cisco
  originator:
    hostId: sensor
    appName: sensorApp
    appInstanceId: 367
  time: 2011/03/02 14:15:59 2011/03/02 14:15:59 UTC
  signature: description=Nachi Worm ICMP Echo Request id=2156 version=S54
    subsigId: 0
    sigDetails: Nachi ICMP
  interfaceGroup:
  vlan: 0
  participants:
    attacker:
      addr: locality=OUT 10.89.228.202
    target:
      addr: locality=OUT 10.89.150.185
  riskRatingValue: 70
  interface: fe0_1
  protocol: icmp

evIdsAlert: eventId=1109695939102805308 severity=medium vendor=Cisco
  originator:
--MORE--

```

**Step 6** Display events that began 30 seconds in the past.

```

sensor# show events past 00:00:30
evStatus: eventId=1041526834774829055 vendor=Cisco
  originator:

```

```

hostId: sensor
appName: mainApp
appInstanceId: 2215
time: 2011/01/08 02:41:00 2011/01/08 02:41:00 UTC
controlTransaction: command=getVersion successful=true
description: Control transaction response.
requestor:
  user: cids
  application:
    hostId: 64.101.182.101
    appName: -cidcli
    appInstanceId: 2316

evStatus: eventId=1041526834774829056 vendor=Cisco
originator:
  hostId: sensor
  appName: login(pam_unix)
  appInstanceId: 2315
time: 2011/01/08 02:41:00 2011/01/08 02:41:00 UTC
syslogMessage:
  description: session opened for user cisco by cisco(uid=0)

```

---

## Clearing Events

Use the **clear events** command to clear the Event Store. To clear events from the Event Store, follow these steps:

---

**Step 1** Log in to the CLI using an account with administrator privileges.

**Step 2** Clear the Event Store.

```

sensor# clear events
Warning: Executing this command will remove all events currently stored in the event
store.
Continue with clear? []:

```

**Step 3** Enter **yes** to clear the events.

---

## cidDump Script

If you do not have access to the IDM, the IME, or the CLI, you can run the underlying script `cidDump` from the service account by logging in as root and running `/usr/cids/idsRoot/bin/cidDump`. The path of the `cidDump` file is `/usr/cids/idsRoot/htdocs/private/cidDump.html`. `cidDump` is a script that captures a large amount of information including the IPS processes list, log files, OS information, directory listings, package information, and configuration files.

To run the `cidDump` script, follow these steps:

---

**Step 1** Log in to the sensor service account.

**Step 2** **su** to **root** using the service account password.

**Step 3** Enter the following command.



```
/usr/cids/idsRoot/bin/cidDump
```

- Step 4** Enter the following command to compress the resulting `/usr/cids/idsRoot/log/cidDump.html` file.
- ```
gzip /usr/cids/idsRoot/log/cidDump.html
```
- Step 5** Send the resulting HTML file to the TAC or the IPS developers in case of a problem.
- 

#### For More Information

For the procedure for putting a file on the Cisco FTP site, see [Uploading and Accessing Files on the Cisco FTP Site, page C-105](#).

## Uploading and Accessing Files on the Cisco FTP Site

You can upload large files, for example, `cidDump.html`, the **show tech-support** command output, and cores, to the ftp-sj server.

To upload and access files on the Cisco FTP site, follow these steps:

---

- Step 1** Log in to `ftp-sj.cisco.com` as anonymous.
- Step 2** Change to the `/incoming` directory.
- Step 3** Use the **put** command to upload the files. Make sure to use the binary transfer type.
- Step 4** To access uploaded files, log in to an ECS-supported host.
- Step 5** Change to the `/auto/ftp/incoming` directory.
-

