



# Release Notes for Cisco Intrusion Prevention System 7.3(1)E4

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## IPS File List

**Note**

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Use the 4520 files to upgrade the IPS 4520-XL.

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The following files are part of Cisco IPS 7.3(1)E4:

- Readme
  - IPS-7-3-1-E4\_ReadMe.txt
- SHA512 checksums for 7.3(1)E4
- Minor Version Upgrade Files
  - IPS-4345-K9-7.3-1-E4.pkg
  - IPS-4360-K9-7.3-1-E4.pkg
  - IPS-4510-K9-7.3-1-E4.pkg
  - IPS-4520-K9-7.3-1-E4.pkg
- System Image Files
  - IPS-4345-K9-sys-1.1-a-7.3-1-E4.img
  - IPS-4360-K9-sys-1.1-a-7.3-1-E4.img
  - IPS-4510-K9-sys-1.1-a-7.3-1-E4.img
  - IPS-4520-K9-sys-1.1-a-7.3-1-E4.img
- Recovery Image Files
  - IPS-4345-K9-r-1.1-a-7.3-1-E4.pkg
  - IPS-4360-K9-r-1.1-a-7.3-1-E4.pkg
  - IPS-4510-K9-r-1.1-a-7.3-1-E4.pkg
  - IPS-4520-K9-r-1.1-a-7.3-1-E4.pkg
- CSM Service Pack File
  - IPS-CSM-K9-7.3-1-E4.zip

## Supported Platforms

Cisco IPS 7.3(1)E4 is supported on the following platforms:

- IPS 4345
- IPS 4345-DC
- IPS 4360
- IPS 4510

- IPS 4520
- IPS 4520-XL

## Supported Servers

The following FTP servers are supported for IPS software updates:

- WU-FTPD 2.6.2 (Linux)
- Solaris 2.8
- Sambar 6.0 (Windows 2000)
- Serv-U 5.0 (Windows 2000)
- MS IIS 5.0 (Windows 2000)

## ROMMON and TFTP

ROMMON uses TFTP to download an image and launch it. TFTP does not address network issues such as latency or error recovery. It does implement a limited packet integrity check so that packets arriving in sequence with the correct integrity value have an extremely low probability of error. But TFTP does not offer pipelining so the total transfer time is equal to the number of packets to be transferred times the network average RTT. Because of this limitation, we recommend that the TFTP server be located on the same LAN segment as the sensor. Any network with an RTT less than a 100 milliseconds should provide reliable delivery of the image. Be aware that some TFTP servers limit the maximum file size that can be transferred to ~32 MB.

## IPS Management and Event Viewers

Use the following tools for configuring Cisco IPS 7.3(1)E4 sensors:

- Cisco IDM 7.3.1  
IDM 7.3.1 is included within the IPS 7.3(1)E4 files.  
IDM 7.3.1 is included within IME 7.2.5.  
IDM 7.3.1 requires JRE 1.6 or later.  
You can use IDM 7.3.1 to configure IPS 7.3 sensors.
- Cisco IME 7.2.5  
You can use IME 7.2.5 to configure IPS 6.1, 6.2, 7.0, 7.1, 7.2 and 7.3 sensors.
- IPS CLI included in IPS 7.3(1)E4.

Use the following tools for monitoring Cisco IPS 7.3(1)E4 sensors:

- IDM 7.3.1
- IME 7.2.5
- CSM 4.4 SP1 or later

You can use CSM 4.4 SP1 to manage the following IPS sensors:

- IPS 4345

- IPS 4345-DC
- IPS 4360
- IPS 4510
- IPS 4520
- IPS 4520-XL



**Note** You may need to configure viewers that are already configured to monitor the earlier version sensors to accept a new SSL certificate for the Cisco IPS 7.3 sensors.

#### For More Information

For the procedure to apply IPS 7.3(1)E4 to sensors using CSM 4.4 SP1 or later, see [Applying IPS 7.3\(1\)E4 to sensors using CSM 4.6 SP1 or Later, page 10](#).

## New and Changed Information

Cisco IPS 7.3(1)E4 contains the following new and changed information:

- IDM 7.3.1
- Signature update S741
- Link Aggregation Control Protocol (LACP) support for the IPS 4500 series sensors:
  - Provides scalability with an aggregate throughput of 80 Gbps with 16 sensors connected in a port channel
  - Helps the switch to detect the IPS failures faster and redistribute the traffic among other members of the port channel
  - TCP failover/fallback session continuity
  - Link state mirroring
- Improved and stable SMB Advanced signature engine:
  - Enhanced inspection for MSRPC request handling code execution vulnerability
  - Support for Big-endian MSRPC traffic
  - Multiple DCE-RPC requests in single WriteAndX command
  - SMB AndX command with wordcount 0
  - SMB Predator Decoy trees evasion
  - Buffer overflow attempt to exploit the call\_trans2open function of Samba
  - Evasion with small RPC segments in conjunction with window resizing
- Base64 decoding support for HTTP traffic:
  - Inspection capability improvement with cross site scripting (XSS)
  - Prevents client-side exploits by inspecting Base64 encoded data
  - Decodes the HTML, CSS, and XML Base64 encoded data carried in the HTTP response payload

- Improved software capacity to enable additional signatures
- Enhanced license expiry notifications
- SNMP community string configuration enhancement (SNMP RO community string support)
- Show inventory enhancements for the 4520-XL
- Threat profile enhancement:
  - No longer have to manually tune signature sets for deployment
  - Threat profiles provide Cisco-recommended set of signatures for different deployment profiles: Edge, Data Center, Web Applications, and SCADA
  - Threat profiles delivered along with signature sets as a part of signature updates; your tunings are retained
  - An intuitive GUI interface to manage threat profiles

#### For More Information

- For more information about LACP and how to configure it, for the IDM refer to [Configuring LACP](#) and for the CLI, refer to [Configuring LACP for the 4500 Series Sensor](#).
- For more information about threat profiles and how to configure them, for the IDM refer to [Applying Signature Threat Profiles](#) and for the CLI refer [Configuring Threat Profiles](#).

## AC Power Supply in the IPS 4300 Series V01 and V02 Chassis

The Cisco IPS 4300 series sensors with the AC power supply can restore the previous power state of the system if AC power is lost. Earlier IPS 4300s (V01) require you to turn on the power with the power switch. Newer IPS 4300s (V02) automatically turn on when you plug in the power cable.

To determine your version, do one of the following:

- At the CLI, enter the **show inventory** command and look for V01 or V02 in the output.
- On the back of the chassis, look at the VID PID label for V01 or V02.

The V01 chassis has the following limitations (these limitations do not apply to the V02 chassis):

- The sensor requires 50 seconds from the time that AC power is applied before the power state can be updated and stored. This means that any changes to the power state within the first 50 seconds of applying AC power will not be observed if AC power is removed within that time.
- The sensor requires 10 seconds from the time it is placed into standby mode before the power state can be updated and stored. This means any changes to the power state within the first 10 seconds of entering standby mode (including the standby mode itself) will not be observed if AC power is removed within that time.

#### For More Information

For information on the AC power supplies in the IPS 4300 series sensors, refer to [Installing the IPS 4345 and IPS 4360](#).

# Obtaining Software

You can find major and minor updates, service packs, signature and signature engine updates, system and recovery files, firmware upgrades, and Readmes on the Download Software site on Cisco.com. Signature updates are posted to Cisco.com approximately every week, more often if needed. Service packs are posted to Cisco.com in a release train format, a new release every three months. Major and minor updates are also posted periodically. Check Cisco.com regularly for the latest IPS software.

You must have an account with cryptographic access before you can download software. You set this account up the first time you download IPS software from the Download Software site.



## Note

You must be logged in to Cisco.com to download software. You must have an active IPS maintenance contract and a Cisco.com password to download software. You must have a sensor license to apply signature updates.

### Downloading Cisco IPS Software

To download software on Cisco.com, follow these steps:

- Step 1** Log in to [Cisco.com](https://www.cisco.com).
- Step 2** From the Support drop-down menu, choose **Download Software**.
- Step 3** Under Select a Software Product Category, choose **Security Software**.
- Step 4** Choose **Intrusion Prevention System (IPS)**.
- Step 5** Enter your username and password.
- Step 6** In the Download Software window, choose **IPS Appliances > Cisco Intrusion Prevention System** and then click the version you want to download.



## Note

You must have an IPS subscription service license to download software.

- Step 7** Click the type of software file you need. The available files appear in a list in the right side of the window. You can sort by file name, file size, memory, and release date. And you can access the Release Notes and other product documentation.
- Step 8** Click the file you want to download. The file details appear.
- Step 9** Verify that it is the correct file, and click **Download**.
- Step 10** Click **Agree** to accept the software download rules. The File Download dialog box appears. The first time you download a file from Cisco.com, you must fill in the Encryption Software Export Distribution Authorization form before you can download the software.
  - a.** Fill out the form and click **Submit**. The Cisco Systems Inc. Encryption Software Usage Handling and Distribution Policy appears.
  - b.** Read the policy and click **I Accept**. The Encryption Software Export/Distribution Form appears.

If you previously filled out the Encryption Software Export Distribution Authorization form, and read and accepted the Cisco Systems Inc. Encryption Software Usage Handling and Distribution Policy, these forms are not displayed again.
- Step 11** Open the file or save it to your computer.

**Step 12** Follow the instructions in the Readme or the Release Notes to install the update.

## Upgrading to IPS 7.3(1)E4

This section describes how to upgrade the IPS 4345, IPS 4360, IPS 4510, IPS 4520, and IPS 4520-XL, and contains the following topics:

- [Upgrade Notes and Caveats, page 7](#)
- [Upgrading the Sensor, page 8](#)

## Upgrade Notes and Caveats

Pay attention to the following upgrade notes and caveats when upgrading to IPS 7.3(1)E4:

- You cannot upgrade to 7.3(1)E4 if the sensor license was generated for 6.0.x versions and earlier. The upgrade fails and the following message is displayed:
 

```
Error: execUpgradeSoftware : This license is a IPS version 6.0 or earlier license
which is not compatible with platforms running 7.1.X IPS Versions. Please install a
IPS version 6.1 or later license type. Refer to 7.3.X IPS version README or IPS
documents for the details of generating a new license.
```
- Anomaly detection has been disabled by default. If you did not configure the operation mode manually before the upgrade, it defaults to inactive after you upgrade to IPS 7.3(1)E4. If you configured the operation mode to detect, learn, or inactive, the tuned value is preserved after the upgrade.
- You must have a valid maintenance contract per sensor to download software upgrades from Cisco.com.
- You must be running the following versions to upgrade the following platforms to IPS 7.3(1)E4:
  - For the IPS 4300 series sensors, you must be running IPS 7.1(3)E4 or later
  - For the IPS 4500 series sensors, you must be running IPS 7.1(4)E4 or later
- Use the 4520 files to upgrade the IPS 4520-XL.
- This service pack automatically reboots the sensor to apply the changes. During reboot, inline network traffic is disrupted.
- You cannot uninstall 7.3(1)E4. To revert to a previous version, you must reimage the sensor using the appropriate system image file. All configuration settings are lost.

### For More Information

- For the procedure to download software from Cisco.com, see [Obtaining Software, page 6](#).
- For the procedure for using the **upgrade** command to upgrade the sensor, see [Upgrading the Sensor, page 8](#).
- For the procedure for installing the IPS 4345 and IPS 4560 system images, see [Installing the IPS 4300 Series System Image, page 10](#).
- For the procedure installing the IPS 4510 and IPS 4520 system images, see [Installing the IPS 4500 Series System Image, page 14](#).

## Upgrading the Sensor

Use the **upgrade** *source-url* command to apply service pack, signature update, engine update, minor version, major version, or recovery partition file upgrades.

The following options apply:

- *source-url*—Specifies the location of the source file to be copied:
  - ftp:—Source URL for an FTP network server. The syntax for this prefix is:  
ftp://[[username@]location][relativeDirectory]/filename  
ftp://[[username@]location][absoluteDirectory]/filename




---

**Note** You are prompted for a password.

---

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




---

**Note** You are prompted for a password. You must 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.

---

### Upgrading the Sensor

To upgrade the sensor, follow these steps:

- 
- Step 1** Download the appropriate file to an FTP, SCP, HTTP, or HTTPS server that is accessible from your sensor.
  - Step 2** Log in to the CLI using an account with administrator privileges.
  - Step 3** Enter configuration mode.  

```
sensor# configure terminal
```
  - Step 4** Upgrade the sensor.  

```
sensor(config)# upgrade url/IPS-4360-K9-7.3-1-E4.pkg
```



The URL points to where the update file is located, for example, to retrieve the update using FTP, enter the following:

```
sensor(config)# upgrade ftp://username@ip_address//directory/IPS-4360-K9-7.3-1-E4.pkg
```

**Step 5** Enter the password when prompted.

```
Enter password: *****
```

**Step 6** Enter **yes** to complete the upgrade.




---

**Note** Major updates, minor updates, and service packs may force a restart of the IPS processes or even force a reboot of the sensor to complete installation.

---




---

**Note** The operating system is reimaged and all files that have been placed on the sensor through the service account are removed.

---

**Step 7** Verify your new sensor version.

```
sensor# show version
Application Partition:

Cisco Intrusion Prevention System, Version 7.3(1)E4

Host:
  Realm Keys          key1.0
Signature Definition:
  Signature Update    S741.0      2013-09-10
  Threat Profile Version 2
OS Version:          2.6.29.1
Platform:            IPS-4360
Serial Number:       FGL1702401M
Licensed, expires:   21-Nov-2014 UTC
Sensor up-time is 22:09.
Using 14372M out of 15943M bytes of available memory (90% usage)
system is using 32.4M out of 160.0M bytes of available disk space (20% usage)
application-data is using 85.6M out of 376.4M bytes of available disk space (24% usage)
boot is using 63.1M out of 70.2M bytes of available disk space (95% usage)
application-log is using 494.0M out of 513.0M bytes of available disk space (96% usage)

MainApp              C-2013_12_16_14_00_7_3_0_143  (Release)  2013-12-16T14:06:20-0600
Running
AnalysisEngine       C-2013_12_16_14_00_7_3_0_143  (Release)  2013-12-16T14:06:20-0600
Running
CollaborationApp     C-2013_12_16_14_00_7_3_0_143  (Release)  2013-12-16T14:06:20-0600
Running
CLI                  C-2013_12_16_14_00_7_3_0_143  (Release)  2013-12-16T14:06:20-0600

Upgrade History:

  IPS-K9-7.3-1-E4    11:22:07 UTC Sat Jan 19 2013

Recovery Partition Version 1.1 - 7.3(1)E4
```

Host Certificate Valid from: 09-Oct-2014 to 09-Oct-2016

sensor#

---

**For More Information**

For a list of the specific IPS upgrade filenames, see [IPS File List, page 2](#).

## Applying IPS 7.3(1)E4 to sensors using CSM 4.6 SP1 or Later



**Note**

We recommend that you upgrade to CSM 4.6 SP1 (Service Pack 1) to manage sensors running IPS 7.3(1)E4.

To apply the 7.3(1)E4 service pack to sensors using CSM 4.6 SP1 or later, follow these steps:

- 
- Step 1** Download the service pack ZIP file, IPS-CSM-K9-7.3-1-E4.zip, to the <CSM-install-dir>/MDC/ips/updates directory.
  - Step 2** Launch the IPS Update Wizard from **Tools > Apply IPS Update**.
  - Step 3** Select Sensor Updates from the drop down menu, and then select the IPS-CSM-K9-7.3-1-E4.zip file.
  - Step 4** Click **Next**.
  - Step 5** Select the device(s) to which you want to apply the service pack, then click **Finish**.
  - Step 6** Create a deployment job and deploy to sensor(s) using Deployment Manager. You can launch Deployment Manager from **Tools > Deployment Manager**.
  - Step 7** Click **Deploy** in the popup and follow the instructions.
- 

## Reimaging the Sensor

This section describes how to reimage the sensor using the system image, and contains the following topics:

- [Installing the IPS 4300 Series System Image, page 10](#)
- [Installing the IPS 4500 Series System Image, page 14](#)

## Installing the IPS 4300 Series System Image

You can install the IPS 4345 and IPS 4360 system image by using the ROMMON on the appliance to TFTP the system image on to the compact flash device.



**Note**

This procedure is for IPS 4345, but is also applicable to IPS 4360. The system image for IPS 4360 has “4360” in the filename.

---

To install the IPS 4345 and IPS 4360 system image, follow these steps:

- Step 1** Download the IPS 4345 system image file to the tftp root directory of a TFTP server that is accessible from your IPS 4345.



**Note** Make sure you can access the TFTP server location from the network connected to the Ethernet port of your IPS 4345.

- Step 2** Boot the IPS 4345.

Booting system, please wait...

```
CISCO SYSTEMS
Embedded BIOS Version 1.0(5)0 09/14/04 12:23:35.90
```

Low Memory: 631 KB

High Memory: 2048 MB

PCI Device Table.

Bus	Dev	Func	VendID	DevID	Class	Irq
00	00	00	8086	2578	Host Bridge	
00	01	00	8086	2579	PCI-to-PCI Bridge	
00	03	00	8086	257B	PCI-to-PCI Bridge	
00	1C	00	8086	25AE	PCI-to-PCI Bridge	
00	1D	00	8086	25A9	Serial Bus	11
00	1D	01	8086	25AA	Serial Bus	10
00	1D	04	8086	25AB	System	
00	1D	05	8086	25AC	IRQ Controller	
00	1D	07	8086	25AD	Serial Bus	9
00	1E	00	8086	244E	PCI-to-PCI Bridge	
00	1F	00	8086	25A1	ISA Bridge	
00	1F	02	8086	25A3	IDE Controller	11
00	1F	03	8086	25A4	Serial Bus	5
00	1F	05	8086	25A6	Audio	5
02	01	00	8086	1075	Ethernet	11
03	01	00	177D	0003	Encrypt/Decrypt	9
03	02	00	8086	1079	Ethernet	9
03	02	01	8086	1079	Ethernet	9
03	03	00	8086	1079	Ethernet	9
03	03	01	8086	1079	Ethernet	9
04	02	00	8086	1209	Ethernet	11
04	03	00	8086	1209	Ethernet	5

Evaluating BIOS Options ...

Launch BIOS Extension to setup ROMMON

Cisco Systems ROMMON Version (1.0(5)0) #1: Tue Sep 14 12:20:30 PDT 2004

Platform IPS-4345-K9

Management0/0

MAC Address: 0000.c0ff.ee01

- Step 3** Press **Break** or **Esc** at the following prompt while the system is booting to interrupt boot. Press the spacebar to begin boot immediately.



**Note** You have ten seconds to press **Break** or **Esc**.

Use BREAK or ESC to interrupt boot.

Use SPACE to begin boot immediately.

The system enters ROMMON mode. The `rommon>` prompt appears.

**Step 4** Check the current network settings.

```
rommon> set
```

```
ROMMON Variable Settings:
ADDRESS=0.0.0.0
SERVER=0.0.0.0
GATEWAY=0.0.0.0
PORT=Management0/0
VLAN=untagged
IMAGE=
CONFIG=
```

The variables have the following definitions:

- Address—Local IP address of the IPS 4345.
- Server—TFTP server IP address where the application image is stored.
- Gateway—Gateway IP address used by the IPS 4345.
- Port—Ethernet interface used for the IPS 4345 management.
- VLAN—VLAN ID number (leave as untagged).
- Image—System image file/path name.
- Config—Unused by these platforms.




---

**Note** Not all values are required to establish network connectivity. The address, server, gateway, and image values are required. If you are not sure of the settings needed for your local environment, contact your system administrator.

---

**Step 5** If necessary, change the interface used for the TFTP download.




---

**Note** The default interface used for TFTP downloads is Management 0/0, which corresponds to the MGMT interface of the IPS 4345.

---

```
rommon> PORT=interface_name
```

**Step 6** If necessary, assign an IP address for the local port on the IPS 4345.

```
rommon> ADDRESS=ip_address
```




---

**Note** Use the same IP address that is assigned to the IPS 4345.

---

**Step 7** Assign the TFTP server IP address.

```
rommon> SERVER=ip_address
```

**Step 8** If necessary, assign the gateway IP address.

```
rommon> GATEWAY=ip_address
```

- Step 9** Verify that you have access to the TFTP server by pinging it from your local Ethernet port with one of the following commands:

```
rommon> ping server_ip_address
rommon> ping server
```

- Step 10** If necessary define the path and filename on the TFTP file server from which you are downloading the image.

```
rommon> IMAGE=path file_name
```

**Caution**

Make sure that you enter the **IMAGE** command in all uppercase. You can enter the other ROMMON commands in either lower case or upper case, but the **IMAGE** command specifically must be all uppercase.

## UNIX Example

```
rommon> IMAGE=system_images IPS-4345-K9-sys-1.1-a-7.3-1-E4.img
```



**Note** The path is relative to the default tftpboot directory of the UNIX TFTP server. Images located in the default tftpboot directory do not have any directory names or slashes in the IMAGE specification.

## Windows Example

```
rommon> IMAGE=system_images IPS-4345-K9-sys-1.1-a-7.3-1-E4.img
```

- Step 11** Enter **set** and press **Enter** to verify the network settings.



**Note** You can use the **sync** command to store these settings in NVRAM so they are maintained across boots. Otherwise, you must enter this information each time you want to boot an image from ROMMON.

- Step 12** Download and install the system image.

```
rommon> tftp
```

**Caution**

To avoid corrupting the system image, do not remove power from the IPS 4345 while the system image is being installed.



**Note** If the network settings are correct, the system downloads and boots the specified image on the IPS 4345. Be sure to use the IPS 4345 image.

**For More Information**

- For the procedure for locating software, see [Obtaining Software, page 6](#).
- For a list of supported TFTP servers, see [Supported Servers, page 3](#).

- For a list of the specific IPS software files, see [IPS File List, page 2](#).
- For the procedure for initializing the sensor with the **setup** command, see [Initializing the Sensor, page 19](#).

## Installing the IPS 4500 Series System Image

You can install the IPS 4510, IPS 4520, and IPS 4520-XL system image by using the ROMMON on the appliance to TFTP the system image onto the compact flash device.



### Note

The following procedure references the IPS 4510 but it also refers to the IPS 4520 and IPS 4520-XL. Use the 4520 files to upgrade the IPS 4520-XL.

To install the IPS 4510 system image, follow these steps:

- Step 1** Download the IPS 4510 system image file to the tftp root directory of a TFTP server that is accessible from your IPS 4510.



### Note

Make sure you can access the TFTP server location from the network connected to the Management port of your IPS 4510.

- Step 2** Boot the IPS 4510.

- Step 3** Press **Break** or **Esc** at the following prompt while the system is booting to interrupt boot. Press the spacebar to begin boot immediately.



### Note

You have ten seconds to press **Break** or **Esc**.

Use **BREAK** or **ESC** to interrupt boot.  
Use **SPACE** to begin boot immediately.

The system enters ROMMON mode. The `rommon>` prompt appears.

- Step 4** Check the current network settings.

```
rommon> set

ROMMON Variable Settings:
ADDRESS=0.0.0.0
SERVER=0.0.0.0
GATEWAY=0.0.0.0
PORT=Management0/0
VLAN=untagged
IMAGE=
CONFIG=
LINKTIMEOUT=20
PKTTIMEOUT=2
RETRY=20
```

The variables have the following definitions:

- Address—Specifies the local IP address of the IPS 4510.
- Server—Specifies the TFTP server IP address where the application image is stored.

- Gateway—Specifies the gateway IP address used by the IPS 4510.
- Port—Specifies the Ethernet interface used for IPS 4510 management.
- VLAN—Specifies the VLAN ID number (leave as untagged).
- Image—Specifies the system image file/path name.
- Config—Unused by these platforms.



**Note** Not all values are required to establish network connectivity. The address, server, gateway, and image values are required. If you are not sure of the settings needed for your local environment, contact your system administrator.

**Step 5** If necessary, assign an IP address for the local port on the IPS 4510.

```
rommon> ADDRESS=ip_address
```



**Note** Use the same IP address that is assigned to the IPS 4510.

**Step 6** If necessary, assign the TFTP server IP address.

```
rommon> SERVER=ip_address
```

**Step 7** If necessary, assign the gateway IP address.

```
rommon> GATEWAY=ip_address
```

**Step 8** Verify that you have access to the TFTP server by pinging it from your local Ethernet port with one of the following commands:

```
rommon> ping server_ip_address
rommon> ping server
```

**Step 9** If necessary define the path and filename on the TFTP file server from which you are downloading the image.

```
rommon> IMAGE=path/file_name
```

UNIX Example

```
rommon> IMAGE=/system_images/IPS-4510-K9-sys-1.1-a-7.3-1-E4.img
```



**Note** The path is relative to the UNIX TFTP server default tftpboot directory. Images located in the default tftpboot directory do not have any directory names or slashes in the IMAGE specification.

Windows Example

```
rommon> IMAGE=\\system_images\IPS-4510-K9-sys-1.1-a-7.3-1-E4.img
```

**Step 10** Enter **set** and press **Enter** to verify the network settings.



**Note** You can use the **sync** command to store these settings in NVRAM so they are maintained across boots. Otherwise, you must enter this information each time you want to boot an image from ROMMON.

**Step 11** Download and install the system image.

```
rommon> tftp
```



**Caution**

To avoid corrupting the system image, do not remove power from the IPS 4510 while the system image is being installed.



**Note**

If the network settings are correct, the system downloads and boots the specified image on the IPS 4510. Be sure to use the IPS 4510 image.

**For More Information**

- For the procedure for locating software, see [Obtaining Software, page 6](#).
- For a list of supported TFTP servers, see [Supported Servers, page 3](#).
- For a list of the specific IPS software files, see [IPS File List, page 2](#).
- For the procedure for initializing the sensor with the **setup** command, see [Initializing the Sensor, page 19](#).

## Licensing the Sensor

You can install the license key through the CLI, IDM, or IME. This section describes how to obtain and install the license key, and contains the following topics:

- [Using the IDM or IME, page 16](#)
- [Using the CLI, page 17](#)

## Using the IDM or IME




**Note**

In addition to a valid Cisco.com username and password, you must also have a Cisco Services for IPS service contract before you can apply for a license key.

To obtain and install the license key, follow these steps:

- Step 1** Log in to the IDM or the IME using an account with administrator privileges.
- Step 2** For the IDM choose **Configuration > Sensor Management > Licensing**. For the IME choose **Configuration > *sensor\_name* > Sensor Management > Licensing**.
- Step 3** The Licensing pane displays the status of the current license. If you have already installed your license, you can click **Download** to save it if needed.



- Step 4** Obtain a license key by doing one of the following:
- Click the **Cisco.com** radio button to obtain the license from Cisco.com. The IDM or the IME contacts the license server on Cisco.com and sends the server the serial number to obtain the license key. This is the default method. Go to Step 5.
  - Click the **License File** radio button to use a license file. To use this option, you must apply for a license key at this URL: [www.cisco.com/go/license](http://www.cisco.com/go/license). The license key is sent to you in e-mail and you save it to a drive that the IDM or the IME can access. This option is useful if your computer cannot access Cisco.com. Go to Step 7.
- Step 5** Click **Update License**, and in the Licensing dialog box, click **Yes** to continue. The Status dialog box informs you that the sensor is trying to connect to Cisco.com. An Information dialog box confirms that the license key has been updated.
- Step 6** Click **OK**.
- Step 7** Log in to [Cisco.com](http://Cisco.com).
- Step 8** Go to [www.cisco.com/go/license](http://www.cisco.com/go/license).
- Step 9** Fill in the required fields. Your license key will be sent to the e-mail address you specified.
- 
-  **Caution** You must have the correct IPS device serial number and product identifier (PID) because the license key only functions on the device with that number.
- 
- Step 10** Save the license key to a hard-disk drive or a network drive that the client running the IDM or the IME can access.
- Step 11** Log in to the IDM or the IME.
- Step 12** For the IDM choose **Configuration > Sensor Management > Licensing**. For the IME choose **Configuration > sensor\_name > Sensor Management > Licensing**.
- Step 13** Under Update License, click the **License File** radio button.
- Step 14** In the Local File Path field, specify the path to the license file or click **Browse Local** to browse to the file.
- Step 15** Browse to the license file and click **Open**.
- Step 16** Click **Update License**.
- 

## Using the CLI



### Note

You cannot install an older license key over a newer license key.

Use the **copy source-url license\_file\_name license-key** command to copy the license key to your sensor. The following options apply:

- *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.
- **license-key**—The subscription license file.
- *license\_file\_name*—The name of the license file you receive.

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

- ftp:—Source URL for an FTP network server. The syntax for this prefix is:

```
ftp://[[username@]location][relativeDirectory]/filename
```

```
ftp://[[username@]location][absoluteDirectory]/filename
```




---

**Note** You are prompted for a password.

---

- scp:—Source URL for the SCP network server. The syntax for this prefix is:

```
scp://[[username@]location][relativeDirectory]/filename
```

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




---

**Note** You are prompted for a password. You must 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.

---

### Installing the License Key

To install the license key, follow these steps:

---

**Step 1** Log in to [Cisco.com](https://www.cisco.com).

**Step 2** Apply for the license key at this URL: [www.cisco.com/go/license](https://www.cisco.com/go/license).




---

**Note** In addition to a valid Cisco.com username and password, you must also have a Cisco Services for IPS service contract before you can apply for a license key.

---

**Step 3** Fill in the required fields. Your Cisco IPS Signature Subscription Service license key will be sent by email to the e-mail address you specified.




---

**Note** You must have the correct IPS device serial number and product identifier (PID) because the license key only functions on the device with that number.

---

**Step 4** Save the license key to a system that has a Web server, FTP server, or SCP server.

**Step 5** Log in to the CLI using an account with administrator privileges.

**Step 6** Copy the license key to the sensor.

```
sensor# copy scp://user@192.168.1.2/24://tftpboot/dev.lic license-key
Password: *****
```

**Step 7** Verify the sensor is licensed.

```
sensor# show version
Application Partition:

Cisco Intrusion Prevention System, Version 7.3(1)E4

Host:
  Realm Keys          key1.0
Signature Definition:
  Signature Update    S741.0      2013-09-10
  Threat Profile Version 2
OS Version:          2.6.29.1
Platform:            IPS-4360
Serial Number:       FGL1702401M
Licensed, expires:   21-Nov-2014 UTC
Sensor up-time is 22:09.
Using 14372M out of 15943M bytes of available memory (90% usage)
system is using 32.4M out of 160.0M bytes of available disk space (20% usage)
application-data is using 85.6M out of 376.4M bytes of available disk space (24% usage)
boot is using 63.1M out of 70.2M bytes of available disk space (95% usage)
application-log is using 494.0M out of 513.0M bytes of available disk space (96% usage)

MainApp              C-2013_12_16_14_00_7_3_0_143  (Release)  2013-12-16T14:06:20-0600
Running
AnalysisEngine       C-2013_12_16_14_00_7_3_0_143  (Release)  2013-12-16T14:06:20-0600
Running
CollaborationApp     C-2013_12_16_14_00_7_3_0_143  (Release)  2013-12-16T14:06:20-0600
Running
CLI                  C-2013_12_16_14_00_7_3_0_143  (Release)  2013-12-16T14:06:20-0600

Upgrade History:

  IPS-K9-7.3-1-E4    11:22:07 UTC Sat Jan 19 2013

Recovery Partition Version 1.1 - 7.3(1)E4

Host Certificate Valid from: 09-Oct-2014 to 09-Oct-2016

sensor#
```

## Initializing the Sensor

This section describes how to initialize the sensor using the **setup** command, and contains the following sections:

- [Understanding Initialization, page 20](#)
- [Simplified Setup Mode, page 20](#)
- [System Configuration Dialog, page 20](#)
- [Basic Sensor Setup, page 22](#)

- [Advanced Setup for the IPS Appliance, page 25](#)
- [Verifying Initialization, page 31](#)

## Understanding Initialization



**Note**

You must be administrator to use the **setup** command.

After you install the sensor on your network, you must use the **setup** command to initialize it so that you can communicate with it over the network. You cannot use the IDM or the IME to configure the sensor until you initialize the sensor using the **setup** command.

With the **setup** command, you configure basic sensor settings, including the hostname, IP interfaces, access control lists, global correlation servers, and time settings. You can continue using advanced setup in the CLI to enable Telnet, configure the web server, and assign and enable virtual sensors and interfaces, or you can use the Startup Wizard in the IDM or the IME. After you configure the sensor with the **setup** command, you can change the network settings in the IDM or the IME.



**Caution**

You must have a valid sensor license for global correlation features to function. You can still configure and display statistics for the global correlation features, but the global correlation databases are cleared and no updates are attempted. Once you install a valid license, the global correlation features are reactivated.

## Simplified Setup Mode

The sensor automatically calls the **setup** command when you connect to the sensor using a console cable and the sensor basic network settings have not yet been configured. The sensor does not call automatic setup under the following conditions:

- When initialization has already been successfully completed.
- If you have recovered or downgraded the sensor.
- If you have set the host configuration to default after successfully configuring the sensor using automatic setup.

When you enter the **setup** command, an interactive dialog called the System Configuration Dialog appears on the system console screen. The System Configuration Dialog guides you through the configuration process. The values shown in brackets next to each prompt are the default values last set.

## System Configuration Dialog

When you enter the **setup** command, an interactive dialog called the System Configuration Dialog appears on the system console screen. The System Configuration Dialog guides you through the configuration process. The values shown in brackets next to each prompt are the current values.

You must go through the entire System Configuration Dialog until you come to the option that you want to change. To accept default settings for items that you do not want to change, press **Enter**.

To return to the EXEC prompt without making changes and without going through the entire System Configuration Dialog, press **Ctrl-C**. The System Configuration Dialog also provides help text for each prompt. To access the help text, enter **?** at a prompt.

When you complete your changes, the System Configuration Dialog shows you the configuration that you created during the setup session. It also asks you if you want to use this configuration. If you enter **yes**, the configuration is saved. If you enter **no**, the configuration is not saved and the process begins again. There is no default for this prompt; you must enter either **yes** or **no**.

You can configure daylight savings time either in recurring mode or date mode. If you choose recurring mode, the start and end days are based on week, day, month, and time. If you choose date mode, the start and end days are based on month, day, year, and time. Choosing disable turns off daylight savings time.



**Note**

You only need to set the date and time in the System Configuration Dialog if the system is an appliance and is NOT using NTP.



**Note**

The System Configuration Dialog is an interactive dialog. The default settings are displayed.

[Example 1](#) shows a sample System Configuration Dialog.

**Example 1 Sample System Configuration Dialog**

```
--- Basic 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 time: Wed Nov 11 21:19:51 2009

Setup Configuration last modified:

Enter host name[sensor]:
Enter IP interface[192.168.1.2/24,192.168.1.1]:
Modify current access list?[no]:
Current access list entries:
    [1] 0.0.0.0/0
Delete:
Permit:
Use DNS server for Global Correlation?[no]:
    DNS server IP address[171.68.226.120]:
Use HTTP proxy server for Global Correlation?[no]:
    HTTP proxy server IP address[128.107.341.169]:
    HTTP proxy server Port number[8080]:
Modify system clock settings?[no]:
    Modify summer time settings?[no]:
        Use USA SummerTime Defaults?[yes]:
        Recurring, Date or Disable?[Recurring]:
        Start Month[march]:
        Start Week[second]:
        Start Day[sunday]:
        Start Time[02:00:00]:
        End Month[november]:
```

```

End Week[first]:
End Day[sunday]:
End Time[02:00:00]:
DST Zone[]:
Offset[60]:
Modify system timezone?[no]:
Timezone[UTC]:
UTC Offset[0]:
Use NTP?[no]: yes
NTP Server IP Address[]:
Use NTP Authentication?[no]: yes
NTP Key ID[]: 1
NTP Key Value[]: 8675309
Participation in the SensorBase Network allows Cisco to collect aggregated statistics
about traffic sent to your IPS.
SensorBase Network Participation level?[off]: full

```

If you agree to participate in the SensorBase Network, Cisco will collect aggregated statistics about traffic sent to your IPS. This includes summary data on the Cisco IPS network traffic properties and how this traffic was handled by the Cisco appliances. We do not collect the data content of traffic or other sensitive business or personal information. All data is aggregated and sent via secure HTTP to the Cisco SensorBase Network servers in periodic intervals. All data shared with Cisco will be anonymous and treated as strictly confidential. The table below describes how the data will be used by Cisco.

Participation Level = "Partial":

- \* Type of Data: Protocol Attributes (e.g. TCP max segment size and options string)  
Purpose: Track potential threats and understand threat exposure
- \* Type of Data: Attack Type (e.g. Signature Fired and Risk Rating)  
Purpose: Used to understand current attacks and attack severity
- \* Type of Data: Connecting IP Address and port  
Purpose: Identifies attack source
- \* Type of Data: Summary IPS performance (CPU utilization memory usage, inline vs. promiscuous, etc)  
Purpose: Tracks product efficacy

Participation Level = "Full" additionally includes:

- \* Type of Data: Victim IP Address and port  
Purpose: Detect threat behavioral patterns

Do you agree to participate in the SensorBase Network?[no]:

## Basic Sensor Setup

To perform basic sensor setup using the **setup** command, follow these steps:

---

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




---

**Note** Both the default username and password are **cisco**.

---

**Step 2** The first time you log in to the sensor you are prompted to change the default password. Passwords must be at least eight characters long and be strong, that is, not be a dictionary word. After you change the password, basic setup begins.

**Step 3** Enter the **setup** command. The System Configuration Dialog is displayed.

**Step 4** Specify the hostname. The hostname is a case-sensitive character string up to 64 characters. Numbers, “\_” and “-” are valid, but spaces are not acceptable. The default is sensor.

**Step 5** Specify the IP interface. The IP interface is in the form of IP Address/Netmask, Gateway: X.X.X.X/*nn*, Y.Y.Y.Y, where X.X.X.X specifies the sensor IP address as a 32-bit address written as 4 octets separated by periods, *nn* specifies the number of bits in the netmask, and Y.Y.Y.Y specifies the default gateway as a 32-bit address written as 4 octets separated by periods.

**Step 6** Enter **yes** to modify the network access list:

- a. If you want to delete an entry, enter the number of the entry and press **Enter**, or press **Enter** to get to the Permit line.
- b. Enter the IP address and netmask of the network you want to add to the access list.



**Note** For example, 10.0.0.0/8 permits all IP addresses on the 10.0.0.0 network (10.0.0.0-10.255.255.255) and 10.1.1.0/24 permits only the IP addresses on the 10.1.1.0 subnet (10.1.1.0-10.1.1.255). If you want to permit access to a single IP address than the entire network, use a 32-bit netmask. For example, 10.1.1.1/32 permits just the 10.1.1.1 address.

- c. Repeat Step b until you have added all networks that you want to add to the access list, and then press **Enter** at a blank permit line to go to the next step.

**Step 7** You must configure a DNS server or an HTTP proxy server for global correlation to operate:

- a. Enter **yes** to add a DNS server, and then enter the DNS server IP address.
- b. Enter **yes** to add an HTTP proxy server, and then enter the HTTP proxy server IP address and port number.



**Caution**

You must have a valid sensor license for global correlation features to function. You can still configure and display statistics for the global correlation features, but the global correlation databases are cleared and no updates are attempted. Once you install a valid license, the global correlation features are reactivated.

**Step 8** Enter **yes** to modify the system clock settings:

- a. Enter **yes** to modify summertime settings.



**Note** Summertime is also known as DST. If your location does not use Summertime, go to Step m.

- b. Enter **yes** to choose the USA summertime defaults, or enter **no** and choose recurring, date, or disable to specify how you want to configure summertime settings. The default is recurring.
- c. If you chose recurring, specify the month you want to start summertime settings. Valid entries are january, february, march, april, may, june, july, august, september, october, november, and december. The default is march.
- d. Specify the week you want to start summertime settings. Valid entries are first, second, third, fourth, fifth, and last. The default is second.
- e. Specify the day you want to start summertime settings. Valid entries are sunday, monday, tuesday, wednesday, thursday, friday, and saturday. The default is sunday.
- f. Specify the time you want to start summertime settings. The default is 02:00:00.



**Note** The default recurring summertime parameters are correct for time zones in the United States. The default values specify a start time of 2:00 a.m. on the second Sunday in March, and a stop time of 2:00 a.m. on the first Sunday in November. The default summertime offset is 60 minutes.

- g. Specify the month you want summertime settings to end. Valid entries are january, february, march, april, may, june, july, august, september, october, november, and december. The default is november.
- h. Specify the week you want the summertime settings to end. Valid entries are first, second, third, fourth, fifth, and last. The default is first.
- i. Specify the day you want the summertime settings to end. Valid entries are sunday, monday, tuesday, wednesday, thursday, friday, and saturday. The default is sunday.
- j. Specify the time you want summertime settings to end. The default is 02:00:00.
- k. Specify the DST zone. The zone name is a character string up to 24 characters long in the pattern [A-Za-z0-9()+:,./-]+\$.
- l. Specify the summertime offset. Specify the summertime offset from UTC in minutes (negative numbers represent time zones west of the Prime Meridian). The default is 60.
- m. Enter **yes** to modify the system time zone.
- n. Specify the standard time zone name. The zone name is a character string up to 24 characters long.
- o. Specify the standard time zone offset. Specify the standard time zone offset from UTC in minutes (negative numbers represent time zones west of the Prime Meridian). The default is 0.
- p. Enter **yes** if you want to use NTP. To use authenticated NTP, you need the NTP server IP address, the NTP key ID, and the NTP key value. If you do not have those at this time, you can configure NTP later. Otherwise, you can choose unauthenticated NTP.

**Step 9** Enter **off**, **partial**, or **full** to participate in the SensorBase Network Participation:

- Off—No data is contributed to the SensorBase Network.
- Partial—Data is contributed to the SensorBase Network, but data considered potentially sensitive is filtered out and never sent.
- Full—All data is contributed to the SensorBase Network except the attacker/victim IP addresses that you exclude.

The SensorBase Network Participation disclaimer appears. It explains what is involved in participating in the SensorBase Network.

**Step 10** Enter **yes** to participate in the SensorBase Network.

The following configuration was entered.

```

service host
network-settings
host-ip 192.168.1.2/24, 192.168.1.1
host-name sensor
telnet-option disabled
sshd1-fallback disabled
access-list 10.0.0.0/8
ftp-timeout 300
no login-banner-text
dns-primary-server enabled
address 171.68.226.120
exit
dns-secondary-server disabled
dns-tertiary-server disabled
    
```



```

http-proxy proxy-server
address 128.107.341.170
port 8080
exit
time-zone-settings
offset -360
standard-time-zone-name CST
exit
summertime-option recurring
offset 60
summertime-zone-name CDT
start-summertime
month march
week-of-month second
day-of-week sunday
time-of-day 02:00:00
exit
end-summertime
month november
week-of-month first
day-of-week sunday
time-of-day 02:00:00
exit
exit
ntp-option enabled
ntp-keys 1 md5-key 8675309
ntp-servers 10.10.1.2 key-id 1
exit
service global-correlation
network-participation full
exit
    
```

- [0] Go to the command prompt without saving this config.
- [1] Return to setup without saving this config.
- [2] Save this configuration and exit setup.
- [3] Continue to Advanced setup.

**Step 11** Enter **2** to save the configuration (or **3** to continue with advanced setup using the CLI).

```

Enter your selection[2]: 2
Configuration Saved.
    
```

**Step 12** If you changed the time setting, enter **yes** to reboot the sensor.

## Advanced Setup for the IPS Appliance



**Note**

The currently supported Cisco IPS appliances are the IPS 4345, IPS 4360, IPS 4510, IPS 4520, and IPS 4520-XL.



**Note**

Adding new subinterfaces is a two-step process. You first organize the interfaces when you edit the virtual sensor configuration. You then choose which interfaces and subinterfaces are assigned to which virtual sensors.

To continue with advanced setup for the appliance, follow these steps:

- Step 1** Log in to the appliance using an account with administrator privileges.
- Step 2** Enter the `setup` command. The System Configuration Dialog is displayed. Press **Enter** or the spacebar to skip to the menu to access advanced setup.
- Step 3** Enter `3` to access advanced setup.
- Step 4** Specify the Telnet server status. The default is disabled.
- Step 5** Specify the SSHv1 fallback setting. The default is disabled.
- Step 6** Specify the web server port. The web server port is the TCP port used by the web server (1 to 65535). The default is 443.



**Note** If you change the web server port, you must specify the port in the URL address of your browser when you connect to the IDM in the following format: `https://appliance_ip_address:port` (for example, `https://10.1.9.201:1040`).



**Note** The web server is configured to use TLS/SSL encryption by default. Setting the port to 80 does not disable the encryption.

- Step 7** Enter `yes` to modify the interface and virtual sensor configuration and to see the current interface configuration.

```
Current interface configuration
Command control: Management0/0
Unassigned:
Promiscuous:
GigabitEthernet0/0
GigabitEthernet0/1
GigabitEthernet0/2
GigabitEthernet0/3

Virtual Sensor: vs0
Anomaly Detection: ad0
Event Action Rules: rules0
Signature Definitions: sig0

Virtual Sensor: vs1
Anomaly Detection: ad0
Event Action Rules: rules0
Signature Definitions: sig0

Virtual Sensor: vs2
Anomaly Detection: ad0
Event Action Rules: rules0
Signature Definitions: sig0

[1] Edit Interface Configuration
[2] Edit Virtual Sensor Configuration
[3] Display configuration
Option:
```

**Step 8** Enter **1** to edit the interface configuration.



**Note** The following options let you create and delete interfaces. You assign the interfaces to virtual sensors in the virtual sensor configuration. If you are using promiscuous mode for your interfaces and are not subdividing them by VLAN, no additional configuration is necessary.

```
[1] Remove interface configurations.
[2] Add/Modify Inline Vlan Pairs.
[3] Add/Modify Promiscuous Vlan Groups.
[4] Add/Modify Inline Interface Pairs.
[5] Add/Modify Inline Interface Pair Vlan Groups.
[6] Modify interface default-vlan.
```

Option:

**Step 9** Enter **2** to add inline VLAN pairs and display the list of available interfaces.



**Caution** The new VLAN pair is not automatically added to a virtual sensor.

```
Available Interfaces
[1] GigabitEthernet0/0
[2] GigabitEthernet0/1
[3] GigabitEthernet0/2
[4] GigabitEthernet0/3
```

Option:

**Step 10** Enter **1** to add an inline VLAN pair to GigabitEthernet 0/0, for example.

```
Inline Vlan Pairs for GigabitEthernet0/0
None
```

**Step 11** Enter a subinterface number and description.

```
Subinterface Number:
Description[Created via setup by user asmith]:
```

**Step 12** Enter numbers for VLAN 1 and 2.

```
Vlan1[]: 200
Vlan2[]: 300
```

**Step 13** Press **Enter** to return to the available interfaces menu.



**Note** Entering a carriage return at a prompt without a value returns you to the previous menu.

```
[1] GigabitEthernet0/0
[2] GigabitEthernet0/1
[3] GigabitEthernet0/2
[4] GigabitEthernet0/3
```

Option:



**Note** At this point, you can configure another interface, for example, GigabitEthernet 0/1, for inline VLAN pair.

**Step 14** Press **Enter** to return to the top-level interface editing menu.

```
[1] Remove interface configurations.
```

```
[2] Add/Modify Inline Vlan Pairs.
[3] Add/Modify Promiscuous Vlan Groups.
[4] Add/Modify Inline Interface Pairs.
[5] Add/Modify Inline Interface Pair Vlan Groups.
[6] Modify interface default-vlan.
Option:
```

**Step 15** Enter **4** to add an inline interface pair and see these options.

```
Available Interfaces
GigabitEthernet0/1
GigabitEthernet0/2
GigabitEthernet0/3
```

**Step 16** Enter the pair name, description, and which interfaces you want to pair.

```
Pair name: newPair
Description[Created via setup by user asmith:
Interface1[]: GigabitEthernet0/1
Interface2[]: GigabitEthernet0/2
Pair name:
```

**Step 17** Press **Enter** to return to the top-level interface editing menu.

```
[1] Remove interface configurations.
[2] Add/Modify Inline Vlan Pairs.
[3] Add/Modify Promiscuous Vlan Groups.
[4] Add/Modify Inline Interface Pairs.
[5] Add/Modify Inline Interface Pair Vlan Groups.
[6] Modify interface default-vlan.
Option:
```

**Step 18** Press **Enter** to return to the top-level editing menu.

```
[1] Edit Interface Configuration
[2] Edit Virtual Sensor Configuration
[3] Display configuration
Option:
```

**Step 19** Enter **2** to edit the virtual sensor configuration.

```
[1] Remove virtual sensor.
[2] Modify "vs0" virtual sensor configuration.
[3] Create new virtual sensor.
Option:
```

**Step 20** Enter **2** to modify the virtual sensor configuration, vs0.

```
Virtual Sensor: vs0
Anomaly Detection: ad0
Event Action Rules: rules0
Signature Definitions: sig0

No Interfaces to remove.

Unassigned:
Promiscuous:
[1] GigabitEthernet0/3
[2] GigabitEthernet0/0
Inline Vlan Pair:
[3] GigabitEthernet0/0:1 (Vlans: 200, 300)
Inline Interface Pair:
[4] newPair (GigabitEthernet0/1, GigabitEthernet0/2)
Add Interface:
```

- Step 21** Enter **3** to add inline VLAN pair GigabitEthernet0/0:1.
- Step 22** Enter **4** to add inline interface pair NewPair.
- Step 23** Press **Enter** to return to the top-level virtual sensor menu.

```
Virtual Sensor: vs0
  Anomaly Detection: ad0
  Event Action Rules: rules0
  Signature Definitions: sig0
  Inline Vlan Pair:
    GigabitEthernet0/0:1 (Vlans: 200, 300)
  Inline Interface Pair:
    newPair (GigabitEthernet0/1, GigabitEthernet0/2)

[1] Remove virtual sensor.
[2] Modify "vs0" virtual sensor configuration.
[3] Create new virtual sensor.
Option: GigabitEthernet0/1, GigabitEthernet0/2
Add Interface:
```

- Step 24** Press **Enter** to return to the top-level interface and virtual sensor configuration menu.

```
[1] Edit Interface Configuration
[2] Edit Virtual Sensor Configuration
[3] Display configuration
Option:
```

- Step 25** Enter **yes** if you want to modify the default threat prevention settings.




---

**Note** The sensor comes with a built-in override to add the deny packet event action to high risk rating alerts. If you do not want this protection, disable automatic threat prevention.

---

```
Virtual sensor newVs is configured to prevent high risk threats in inline mode. (Risk
Rating 90-100)
Virtual sensor vs0 is configured to prevent high risk threats in inline mode. (Risk Rating
90-100)
Do you want to disable automatic threat prevention on all virtual sensors?[no]:
```

- Step 26** Enter **yes** to disable automatic threat prevention on all virtual sensors.
- Step 27** Press **Enter** to exit the interface and virtual sensor configuration.

```
The following configuration was entered.
service host
network-settings
host-ip 192.168.1.2/24,192.168.1.1
host-name sensor
telnet-option disabled
sshv1-fallback disabled
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 342
exit
```

```

service interface
physical-interfaces GigabitEthernet0/0
admin-state enabled
subinterface-type inline-vlan-pair
subinterface 1
description Created via setup by user asmith
vlan1 200
vlan2 300
exit
exit
exit
physical-interfaces GigabitEthernet0/1
admin-state enabled
exit
physical-interfaces GigabitEthernet0/2
admin-state enabled
exit
physical-interfaces GigabitEthernet0/0
admin-state enabled
exit
inline-interfaces newPair
description Created via setup by user asmith
interface1 GigabitEthernet0/1
interface2 GigabitEthernet0/2
exit
exit
service analysis-engine
virtual-sensor newVs
description Created via setup by user cisco
signature-definition newSig
event-action-rules rules0
anomaly-detection
anomaly-detection-name ad0
operational-mode inactive
exit
physical-interface GigabitEthernet0/0
exit
virtual-sensor vs0
physical-interface GigabitEthernet0/0 subinterface-number 1
logical-interface newPair
service event-action-rules rules0
overrides deny-packet-inline
override-item-status Disabled
risk-rating-range 90-100
exit
exit

```

- [0] Go to the command prompt without saving this config.
- [1] Return back to the setup without saving this config.
- [2] Save this configuration and exit setup.

**Step 28** Enter 2 to save the configuration.

```

Enter your selection[2]: 2
Configuration Saved.

```

**Step 29** Reboot the appliance.

```

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

```

**Step 30** Enter **yes** to continue the reboot.

- Step 31** Apply the most recent service pack and signature update. You are now ready to configure your appliance for intrusion prevention.

## Verifying Initialization



**Note** The following **show configuration** output is an example of what your configuration may look like. It will not match exactly because of the optional setup choices.

To verify that you initialized your sensor, follow these steps:

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

**Step 2** View your configuration.

```

sensor# show configuration
! -----
! Current configuration last modified Fri Oct 10 09:41:17 2014
! -----
! Version 7.3(1)
! Host:
!   Realm Keys                key1.0
! Signature Definition:
!   Signature Update          S741.0   2013-09-10
!   Threat Profile Version    2
! -----
service interface
exit
! -----
service authentication
exit
! -----
service event-action-rules rules0
exit
! -----
service host
network-settings
host-ip 10.106.1.4/24,10.106.1.1
host-name sensor
telnet-option enabled
access-list 0.0.0.0/0
dns-primary-server disabled
exit
time-zone-settings
offset 0
standard-time-zone-name UTC
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
exit

sensor#

```




---

**Note** You can also use the **more current-config** command to view your configuration.

---

**Step 3** Display the self-signed X.509 certificate (needed by TLS).

```

sensor# show tls fingerprint
SHA1: 64:9B:AC:DE:21:62:0C:D3:57:2E:9B:E5:3D:04:8F:A7:FD:CD:6F:27

```

**Step 4** Write down the certificate fingerprints. You need the fingerprints to check the authenticity of the certificate when connecting to this sensor with a web browser.

---

## Logging In to the IDM

The IDM is a web-based, Java Web Start application that enables you to configure and manage your sensor. The web server for the IDM resides on the sensor. You can access it through Internet Explorer or Firefox web browsers.




---

**Note** The IDM is already installed on the sensor.

---



To log in to the IDM, follow these steps:

- Step 1** Open a web browser and enter the sensor IP address. A Security Alert dialog box appears.

`https://sensor_ip_address`



**Note** The default IP address is 192.168.1.2/24,192.168.1.1, which you change to reflect your network environment when you initialize the sensor. When you change the web server port, you must specify the port in the URL address of your browser when you connect to the IDM in the format `https://sensor_ip_address:port` (for example, `https://192.0.2.1:1040`).

- Step 2** Click **Yes** to accept the security certificate. The Cisco IPS Device Manager Version window appears.

- Step 3** To launch the IDM, click **Run IDM**. The JAVA loading message box appears, and then the Warning - Security dialog box appears.

- Step 4** To verify the security certificate, check the Always trust content from this publisher check box, and click **Yes**. The JAVA Web Start progress dialog box appears, and then the IDM on *ip\_address* dialog box appears.

- Step 5** To create a shortcut for the IDM, click **Yes**. The Cisco IDM Launcher dialog box appears.



**Note** You must have JRE 1.5 (JAVA 5) installed to create shortcuts for the IDM. If you have JRE 1.6 (JAVA 6) installed, the shortcut is created automatically.

- Step 6** To authenticate the IDM, enter your username and password, and click **OK**. Both the default username and password are **cisco**. You were prompted to change the password during sensor initialization. The IDM begins to load. If you change panes from Home to Configuration or Monitoring before the IDM has completed initialization, a Status dialog box appears with the following message:

Please wait while IDM is loading the current configuration from the sensor.

The main window of the IDM appears.



**Note** If you created a shortcut, you can launch the IDM by double-clicking the IDM shortcut icon. You can also close the The Cisco IPS Device Manager Version window. After you launch the IDM, it is not necessary for this window to remain open.

## Installing or Upgrading the IME

This section describes how to install and upgrade the IME, and how to migrate data from IEV or a previous version of IME.

### Cisco IEV, Cisco IOS IPS, and CSM

If you have a version of Cisco IPS Event Viewer installed, the Install wizard prompts you to remove it before installing the IME.

The IME event monitoring is also supported in IOS-IPS versions that support the Cisco IPS 5.x/6.x signature format. We recommend IOS-IPS 12.4(15)T4 if you intend to use the IME to monitor an IOS IPS device. Some of the new IME functionality including health monitoring is not supported.

**Caution**

Do not install the IME on top of existing installations of CSM. You must uninstall CSM before installing the IME.

**Installation Notes and Caveats****Note**

If you are using Windows 7 or Windows Server 2008, and an IME version earlier than 7.1.1, uninstall IME before upgrading it. Otherwise, just upgrade from your current IME version.

Observe the following when installing or upgrading the IME:

- You can install the IME over all versions of the IME but not over IEV. All alert database and user settings are preserved.
- The IME detects previous versions of IEV and prompts you to manually remove the older version before installing the IME or to install the IME on another system. The installation program then stops.
- Make sure you close any open instances of the IME before upgrading to a new version of the IME.
- Disable any anti-virus or host-based intrusion detection software before beginning the installation, and close any open applications. The installer spawns a command shell application that may trigger your host-based detection software, which causes the installation to fail.
- You must be administrator to install the IME.
- The IME coexists with other instances of the MySQL database. If you have a MySQL database installed on your system, you do NOT have to uninstall it before installing the IME.

**Installing or Upgrading the IME**

To install the IME, follow these steps:

- 
- Step 1** From the Download Software site on Cisco.com, download the IME executable file to your computer, or start the IDM in a browser window, and under Cisco IPS Manager Express, click **download** to install the IME executable file. IME-7.2.5.exe is an example of what the IME executable file might look like.
- Step 2** Double-click the executable file. The Cisco IPS Manager Express - InstallShield Wizard appears. You receive a warning if you have a previous version of Cisco IPS Event Viewer installed. Acknowledge the warning, and exit installation. Remove the older version of IEV, and then continue the IME installation
- Step 3** Click **Next** to start the IME installation.
- Step 4** Accept the license agreement and click **Next**.
- Step 5** Click **Next** to choose the destination folder, click **Install** to install the IME, and then click **Finish** to exit the wizard. The Cisco IME and Cisco IME Demo icons are now on your desktop.

**Note**

The first time you start the IME, you are prompted to set up a password.

**Migrating IEV Data**

To migrate IEV 5.x events to the IME, you must exit the installation and manually export the old events by using the IEV 5.x export function to move the data to local files. After installing the IME, you can import these files to the new IME system.

**Note**


---

The IME does not support import and migration functions for IEV 4.x.

---

To export event data from IEV 5.x to a local file:

- 
- Step 1** From IEV 5.x, choose **File > Database Administration > Export Database Tables**.
  - Step 2** Enter the file name and select the table(s).
  - Step 3** Click **OK**. The events in the selected table(s) are exported to the specified local file.
- 

**Importing IEV Event Data In to IME**

To import event data in to the IME, follow these steps:

- 
- Step 1** From the IME, choose **File > Import**.
  - Step 2** Select the file exported from IEV 5.x and click **Open**. The contents of the selected file are imported in to the IME.
- 

**For More Information**

For more information about the IME, refer to *Cisco Intrusion Prevention System Manager Express Installation Guide for IPS 7.3*.

## Cisco Security Intelligence Operations

The Cisco Security Intelligence Operations site on Cisco.com provides intelligence reports about current vulnerabilities and security threats. It also has reports on other security topics that help you protect your network and deploy your security systems to reduce organizational risk.

You should be aware of the most recent security threats so that you can most effectively secure and manage your network. Cisco Security Intelligence Operations contains the top ten intelligence reports listed by date, severity, urgency, and whether there is a new signature available to deal with the threat.

Cisco Security Intelligence Operations contains a Security News section that lists security articles of interest. There are related security tools and links.

You can access Cisco Security Intelligence Operations at this URL:

<http://tools.cisco.com/security/center/home.x>

Cisco Security Intelligence Operations is also a repository of information for individual signatures, including signature ID, type, structure, and description.

You can search for security alerts and signatures at this URL:

<http://tools.cisco.com/security/center/search.x>

# Restrictions and Limitations

The following restrictions and limitations apply to the Cisco IPS 7.3(1)E4 software and the products that run it:

- IME 7.2.5 is the only supported IME release for IPS 7.3(1)E4.
- The IDM has been built and tested with JAVA 7 Update 45 and earlier. The IDM is not compatible with JAVA 7 Update 51. For IDM to function, you must use the older version of Java. Refer to CSCum55433 if you must use Java 7u51 and there is no option to use earlier versions.
- While executing the **autoupgradenow** command, you cannot use the IDM, IME or the CLI or start any new sessions until the upgrade is complete.
- IPS 7.3(1)E4 supports TLS 1.0 and later. If the peer uses an older SSL version, the connection cannot be established. All management applications using the IPS Web server, such as the IDM or CSM, are affected by this change. If the management application does not support TLS1.0 or later, the management connectivity is lost after upgrading to IPS 7.3(1) because it does not support TLS versions earlier than TLS1.0.
- If the client does not support SSHv2 or if SSHv2 is disabled, the management connectivity is lost after upgrading from IPS 7.1(x)E4 to IPS 7.3(1)E4 because SSHv1 is disabled by default in IPS 7.3(1) and later.
- LACP has been tested only on the IPS sensor and the Nexus 7000 switch and the Catalyst 6000 switch. Other combinations of IPS sensors and switches have not been tested. It is unknown if the solution will work as expected with other switches. Also, VPC/VSS configurations are NOT supported.
- Link state mirroring applies to the inline interface pair configuration only. Detecting that the peer interface is up or down and setting the state of the link may take up to 3.5 seconds.
- The dual module configuration is available only for the IPS 4520. You can install another IPS 4520 module in an existing 4520 or you can order the IPS 4520-XL, which has the two-module configuration.
- To support the immediate automatic update feature, a default update schedule with a start time of 00:00:00 and interval of 24 hours has been set. You must enable the automatic update settings before issuing an immediate automatic update. Disable the automatic update schedule if you do not want to use the default scheduled update.
- Applying any signature template erases any existing tunings associated with the targeted signature definition file.
- Enabling HTTP advanced decoding can have a significantly negative performance and memory impact on the sensor.
- Use the **show statistics virtual-sensor | include load** command (CLI) or look at the statistics for the virtual sensor at **Configuration > Sensor Monitoring > Support Information > Statistics (IDM/IME)** to determine the load value over a longer period of time. The **show statistics analysis-engine** command (CLI) and the statistics for the Analysis Engine show values over a shorter period of time. If you compare the output, the values will appear to be inconsistent due to the different time periods. To get an accurate comparison between them, compare the processing load percentage from the statistics for the virtual sensor and the one-minute averaged value from the statistics for the Analysis Engine.
- TACACS+ authentication is not supported in IPS 7.3(1)E4.
- The CLI timeout feature is applicable only for sessions established through SSH, Telnet, and the console. Service account logins are not affected.

- Anomaly detection does not support IPv6 traffic; only IPv4 traffic is directed to the anomaly detection processor.
- IPv6 does not support the following event actions: Request Block Host, Request Block Connection, or Request Rate Limit.
- Global correlation does not support IPv6.
- There is no support for IPv6 on the management (command and control) interface.
- ICMP signature engines do not support ICMPv6, they are IPv4-specific, for example, the Traffic ICMP signature engine. ICMPv6 is covered by the Atomic IP Advanced signature engine.
- CSM does not support IPv6.
- When deploying an IPS sensor monitoring two sides of a network device that does TCP sequence number randomization, we recommend using a virtual sensor for each side of the device.
- 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.
- After you upgrade any IPS software on your sensor, you must restart the IDM to see the latest software features.
- The IDM does not support any non-English characters, such as the German umlaut or any other special language characters. If you enter such characters as a part of an object name through IDM, they are turned into something unrecognizable and you will not be able to delete or edit the resulting object through IDM or the CLI. This is true for any string that is used by the CLI as an identifier, for example, names of time periods, inspect maps, server and URL lists, and interfaces.
- When the SensorApp is reconfigured, there is a short period when the SensorApp is unable to respond to any queries. Wait a few minutes after reconfiguration is complete before querying the SensorApp for additional information.
- The IDM and IME launch MySDN from the last browser window you opened, which is the default setting for Windows. To change this default behavior, in Internet Explorer, choose **Tools > Internet Options**, and then click the **Advanced** tab. Scroll down and uncheck the **Reuse windows for launching shortcuts** check box.

## Caveats

This section lists the resolved and unresolved caveats, and contains the following topics:

- [Resolved Caveats, page 37](#)
- [Unresolved Caveats, page 38](#)

## Resolved Caveats

The following known issues are resolved in the 7.3(1)E4 release:

- CSCum55433 IDM is being blocked by Java after an upgrade to Java 7u51
- CSCty94671 Error message during bypass: enqueueDropCheck: Error TX Queue full

- CSCuf20148 Cisco IPS MainApp Denial of Service Vulnerability
- CSCtq32936 IPS crashes if signature auto-update is enabled without the license
- CSCug41013 IPS: RegexDepth Token Does Not Limit Hardware-accelerated Inspection
- CSCug54770 some sessions in Closing state have not set closing timeout
- CSCuh49784 4510 cannot be re-imaged if 'erase' command is run from rommon
- CSCuc63392 IDS: Spelling Mistakes and Inconsistencies in CLI Outputs
- CSCue54325 cli-inactivity-timeout does not proactively end the cli session
- CSCty68417 Orphaned User Sessions When Adding Authorized Key With RADIUS Enabled
- CSCug32267 Configuration Import Fails if Some Auto-Upgrade Information is Missing
- CSCuh66943 if attemptLimit is reached, there is no way to reset the account
- CSCub77629 nac fails to handle the pager correctly for long login banners
- CSCud32612 IPS drops IPv6 packets with flowlabel set due to sig 1250/0
- CSCuf82384 Data corruption in pipe during authentication request CT hangs mainApp
- CSCui25688 IPS crashes while generating TLS certificate with many HTTPS connections
- CSCuj02243 local scp update timeout will cause mainApp failure
- CSCuj31717 IPS : Vulnerability to CVE-2010-5107 - OpenSSH
- CSCug87980 HTTP-advanced-decoding causes sensorApp to fail for gzip encoding
- CSCuh42051 IPS: "http error response: 400" - Default Auto/Cisco.com cisco-url Value
- CSCub75688 sig update sensorApp abort in libhoard dlmalloc

## Unresolved Caveats

The following relevant issues are unresolved in the IPS 7.3(1)E4 release:

- CSCug40004 Sensor App crashes while tuning string signatures - udp,icmp
- CSCuh89283 DMABuf(getBufferIndex) failure" when the load percentage is 61% in 4510
- CSCui76855 Flow gets dropped when the interface is detached and then attached to VS
- CSCuj80446 Creating new sig instance sometime trigger failover/fallback or bypass
- CSCul10316 4510 crashed during boot up
- CSCtz38411 IPS: Single Flow can Max a CPU and Affect it Processing Other Traffic
- CSCui54193 summary-key Axxb in sweep engine does not work
- CSCul95220 IPS: Normalizer Engine Misfiring on Valid TCP Traffic, SIG 1330.14 Fires
- CSCui40980 high memory usage can cause sensorApp hang during signature update
- CSCul19423 Sensor does not generate summary log of sig3050/0 if traffic rate is low
- CSCum12974 Invalid host-name characters including slash are allowed

## Related Documentation

For a complete list of the Cisco IPS 7.3 documentation and where to find it, refer to the following URL:  
[http://www.cisco.com/en/US/docs/security/ips/7.3/roadmap/roadmap7\\_3.html](http://www.cisco.com/en/US/docs/security/ips/7.3/roadmap/roadmap7_3.html)

# Obtaining Documentation, Using the Cisco Bug Search Tool, and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation* at: <http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>.

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