



Configuring IP Logging

This chapter describes how to configure IP logging on the sensor. It contains the following sections:

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IP Logging Notes and Caveats

The following notes and caveats apply to IP logging:

- Enabling IP logging slows down system performance.
- IP logging allows a maximum limit of 20 concurrent IP log files. Once the limit of 20 is reached, you receive the following message in `main.log`: `Cid/W errWarnIpLogProcessor::addIpLog: Ran out of file descriptors.`
- You cannot delete or manage IP log files. The **no iplog** command does not delete IP logs, it only stops more packets from being recorded for that IP log. IP logs are stored in a circular buffer that is never filled because new IP logs overwrite old ones.
- You can configure IP logging restrictions using the **permit-packet-logging true | false** command.
- On IPS sensors with multiple processors, packets may be captured out of order in the IP logs and by the **packet** command. Because the packets are not processed using a single processor, the packets can become out of sync when received from multiple processors.

For More Information

For detailed information about the packet-related command restrictions, see [Configuring Packet Command Restriction, page 4-26](#).

Understanding IP Logging

You can manually configure the sensor to capture all IP traffic associated with a host you specify by IP address. You can specify how long you want the IP traffic to be logged, how many packets you want logged, and how many bytes you want logged. The sensor stops logging IP traffic at the first parameter you specify.

You can also have the sensor log IP packets every time a particular signature is fired. You can specify how long you want the sensor to log IP traffic and how many packets and bytes you want logged.

You can copy the IP logs from the sensor and have them analyzed by a tool that can read packet files in a libpcap format, such as Wireshark or TCPDUMP.

**Note**

Each alert references IP logs that are created because of that alert. If multiple alerts create IP logs for the same IP address, only one IP log is created for all the alerts. Each alert references the same IP log. However, the output of the IP log status only shows the event ID of the first alert triggering the IP log.

**Note**

IP logging allows a maximum limit of 20 concurrent IP log files. Once the limit of 20 is reached, you receive the following message in main.log: `Cid/W errWarnIpLogProcessor::addIpLog: Ran out of file descriptors.`

Configuring Automatic IP Logging

Use the **ip-log-packets** *number*, **ip-log-time** *number*, and **ip-log-bytes** *number* commands to configure automatic IP logging parameters on the sensor.

The following parameters apply:

- **ip-log-packets**—Identifies the number of packets you want logged. The valid value is 0 to 65535. The default is 0.
- **ip-log-time**—Identifies the duration in seconds you want the sensor to log packets. The valid value is 30 to 300 seconds. The default is 30 seconds.
- **ip-log-bytes** —Identifies the maximum number of bytes you want logged. The valid value is 0 to 2147483647. The default is 0.
- **default**—Resets the parameters.

**Note**

An automatic IP log continues capturing packets until one of these parameters is reached.

Automatic IP logging is configured on a per signature basis or as an event action override. The following actions trigger automatic IP logging:

- log-attacker-packets
- log-victim-packets
- log-pair-packets

Configuring Automatic IP Logging

To configure automatic IP logging parameters, follow these steps:

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- Step 1** Log in to the CLI using an account with administrator or operator privileges.
- Step 2** Enter signature definition IP log configuration submode.
- ```
sensor# configure terminal
sensor(config)# service signature-definition sig0
sensor(config-sig)# ip-log
```
- Step 3** Specify the number of packets you want the sensor to log. The range is 0 to 65535.
- ```
sensor(config-sig-ip)# ip-log-packets 200
```
- Step 4** Specify the duration in seconds you want the sensor to log packets. The range is 30 to 300 seconds.
- ```
sensor(config-sig-ip)# ip-log-time 60
```
- Step 5** Specify the number of bytes you want logged. The range is 0 to 2147483647.
- ```
sensor(config-sig-ip)# ip-log-bytes 5024
```
- Step 6** Verify the settings.
- ```
sensor(config-sig-ip)# show settings
ip-log

ip-log-packets: 200 default: 0
ip-log-time: 60 default: 30
ip-log-bytes: 5024 default: 0

sensor(config-sig-ip)#
```
- Step 7** Exit IP logging submode.
- ```
sensor(config-sig-ip)# exit
sensor(config-sig)# exit
Apply Changes?:[yes]:
```
- Step 8** Press **Enter** to apply the changes or type **no** to discard the changes.
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For More Information

- To copy and view an IP log file, see [Copying IP Log Files to Be Viewed](#), page 12-7.
- For more information on event actions, see [Assigning Actions to Signatures](#), page 7-15 and [Configuring Event Action Overrides](#), page 8-17.

Configuring Manual IP Logging for a Specific IP Address

Use the **iplog name ip_address [duration minutes] [packets numPackets] [bytes numBytes]** command to log IP packets manually on a virtual sensor for a specific IP address.

The following parameters apply:

- *name*—Specifies the virtual sensor on which to begin and end logging.
- *ip_address*—Logs packets containing the specified source and/or destination IP address.

- *minutes*—Specifies the duration the logging should be active. The valid range is 1 to 60 minutes. The default is 10 minutes.
- *numPackets*—Specifies the maximum number of packets to log. The valid range is 0 to 4294967295. The default is 1000 packets.
- *numBytes*—Specifies the maximum number of bytes to log. The valid range is 0 to 4294967295. A value of 0 indicates unlimited bytes.

**Note**

The *minutes*, *numPackets*, and *numBytes* parameters are optional, you do not have to specify all three. However, if you include more than one parameter, the sensor continues logging only until the first threshold is reached. For example, if you set the duration to 5 minutes and the number of packets to 1000, the sensor stops logging after the 1000th packet is captured, even if only 2 minutes have passed.

Configuring Manual IP Logging

To manually log packets on a virtual sensor for a specific IP address, follow these steps:

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

Step 2 Start IP logging for a specific IP address. The range is 1 to 60 minutes.

```
sensor# iplog vs0 10.16.0.0 duration 5
Logging started for virtual sensor vs0, IP address 192.0.2.1, Log ID 1
Warning: IP Logging will affect system performance.
sensor#
```

The example shows the sensor logging all IP packets for 5 minutes to and from the IP address 192.0.2.1.



Note Make note of the Log ID for future reference.

Step 3 Monitor the IP log status with the **iplog-status** command.

```
sensor# iplog-status
Log ID:          1
IP Address 1:    192.0.2.1
Virtual Sensor:  vs0
Status:          added
Event ID:        0
Bytes Captured:  0
Packets Captured: 0
sensor
```



Note Each alert references IP logs that are created because of that alert. If multiple alerts create IP logs for the same IP address, only one IP log is created for all the alerts. Each alert references the same IP log. However, the output of the IP log status only shows the event ID of the first alert triggering the IP log.

For More Information

- To stop logging IP packets for a specific IP address, see [Stopping Active IP Logs, page 12-6](#).
- To log IP packets as an event associated with a signature, see [Configuring Automatic IP Logging, page 12-2](#).

- To copy and view an IP log file, see [Copying IP Log Files to Be Viewed](#), page 12-7.

Displaying the Contents of IP Logs

Use the `iplog-status [log-id log_id] [brief] [reverse] [| {begin regular_expression | exclude regular_expression | include regular_expression }]` command to display the description of the available IP log contents.

When the log is created, the status reads `added`. If and when the first entry is inserted in the log, the status changes to `started`. When the log is completed, because it reaches the packet count limit, for example, the status changes to `completed`.

The following parameters apply:

- `log_id`—(Optional) Specifies the log ID of the file for which you want to see the status.
- `brief`—(Optional) Displays a summary of IP log status information for each log.
- `reverse`—(Optional) Displays the list in reverse chronological order (newest log first).
- `|`—(Optional) Indicates that an output processing specification follows.
- `regular_expression`—Specifies any regular expression found in the IP log status output.
- `begin`—Searches the output of the `more` command and displays the output from the first instance of a specified string.
- `exclude`—Filters the IP log status output so that it excludes lines that contain a particular regular expression.
- `include`—Filters the IP log status output so that it includes lines that contain a particular regular expression.

Displaying IP Logs

To view the contents of IP logs, follow these steps:

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- Step 1** Log in to the CLI.
- Step 2** Display the status of all IP logs.

```

sensor# iplog-status
Log ID:                2425
IP Address 1:          192.0.2.1
Virtual Sensor:        vs0
Status:                started
Start Time:            2003/07/30 18:24:18 2002/07/30 12:24:18 CST
Packets Captured:     1039438

Log ID:                2342
IP Address 1:          192.0.2.10
IP Address 2:          192.0.2.20
Virtual Sensor:        vs0
Status:                completed
Event ID:              209348
Start Time:            2003/07/30 18:24:18 2002/07/30 12:24:18 CST
End Time:              2003/07/30 18:34:18 2002/07/30 12:34:18 CST
sensor#

```

Step 3 Display a brief list of all IP logs.

```
sensor# iplog-status brief
Log ID   VS    IP Address1  Status    Event ID   Start Date
2425    vs0   192.0.2.10   started   N/A        2003/07/30
2342    vs0   192.0.2.20   completed 209348     2003/07/30
sensor#
```

Stopping Active IP Logs

Use the **no iplog** [**log-id** *log_id* | **name** *name*] command to stop logging for the logs that are in the `started` state and to remove logs that are in the `added` state. The **no iplog** command does not remove or delete the IP log. It only signals to the sensor to stop capturing additional packets on that IP log.



Note

Using the **no iplog** command on an `added` state IP log stops the IP log. The `added` state means that the IP log is still empty (no packets). Stopping it when there are no packets means you are stopping an empty IP log. An empty log is removed when it is stopped.

The following parameters apply:

- *log_id*—Specifies the log ID of the logging session to stop. Use the **iplog-status** command to find the log ID.
- *name*—Specifies the virtual sensor on which to begin or end logging.

Disabling IP Logging Sessions

To disable one or all IP logging sessions, follow these steps:

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

Step 2 Stop a particular IP logging session:

- Find the log ID of the session you want to stop.

```
sensor# iplog-status
Log ID:          1
IP Address 1:    192.0.2.1
Virtual Sensor:  vs0
Status:          added
Event ID:        0
Bytes Captured:  0
Packets Captured: 0
sensor#
```



Note

Each alert references IP logs that are created because of that alert. If multiple alerts create IP logs for the same IP address, only one IP log is created for all the alerts. Each alert references the same IP log. However, the output of the IP log status only shows the event ID of the first alert triggering the IP log.

- Stop the IP log session.

```
sensor# no iplog log-id 137857512
```

Step 3 Stop all IP logging sessions on a virtual sensor.

```
sensor# no iplog name vs0
```

Step 4 Verify that IP logging has been stopped. When the logs are stopped, the status shows them as completed.

```
sensor# iplog-status
Log ID:          1
IP Address 1:    192.0.2.1
Virtual Sensor:  vs0
Status:          completed
Event ID:        0
Bytes Captured:  0
Packets Captured: 0
sensor#
```

Copying IP Log Files to Be Viewed

Use the **copy iplog log_id destination_url** command to copy IP log files to an FTP or SCP server so that you can view them with a sniffing tool such as Ethereal or TCPDUMP.

The following parameters apply:

- *log_id*—Specifies the log ID of the logging session. You can retrieve the log ID using the **iplog-status** command.
- *destination_url*—Specifies the location of the destination file to be copied. It can be a URL or a keyword.

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

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

When you use FTP or SCP protocol, you are prompted for a password.

Copying IP Log Files

To copy IP log files to an FTP or SCP server, follow these steps:

Step 1 Log in to the CLI.

Step 2 Monitor the IP log status with the **iplog-status** command until you see that the status reads completed for the log ID of the log file that you want to copy.

```
sensor# iplog-status
Log ID:          2425
IP Address:      192.0.2.1
Virtual Sensor:  vs0
Status:          started
Start Time:      2003/07/30 18:24:18 2002/07/30 12:24:18 CST
```

```
Packets Captured:    1039438

Log ID:              2342
IP Address:          192.0.2.2
Virtual Sensor:      vs0
Status:              completed
Event ID:            209348
Start Time:          2003/07/30 18:24:18 2002/07/30 12:24:18 CST
End Time:            2003/07/30 18:34:18 2002/07/30 12:34:18 CST
sensor#
```

Step 3 Copy the IP log to your FTP or SCP server.

```
sensor# copy iplog 2342 ftp://root@209.165.200.225/user/iplog1
Password: ***** Connected to 209.165.200.225 (209.165.200.225). 220 linux.machine.com
FTP server (Version wu-2.6.0(1) Mon Feb 28 10:30 :36 EST 2000) ready. ftp> user (username)
root 331 Password required for root. Password:230 User root logged in. ftp> 200 Type set
to I. ftp> put iplog.8518.tmp iplog1 local: iplog.8518.tmp remote: iplog1 227 Entering
Passive Mode (2,4,6,8,179,125) 150 Opening BINARY mode data connection for iplog1. 226
Transfer complete. 30650 bytes sent in 0.00246 secs (1.2e+04 Kbytes/sec) ftp>
```

Step 4 Open the IP log using a sniffer program such as Wireshark or TCPDUMP. For more information on Wireshark, go to <http://www.wireshark.org>. For more information on TCPDUMP, go to <http://www.tcpdump.org/>.
