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SmartConnector for Cisco IOS Syslog

This guide provides information for installing the SmartConnector for Cisco IOS Syslog and configuring the IOS device for syslog event collection. This connector supports Cisco IOS 2600 series and later with IOS 12.4, 15.0, 15.1, 15.2, 15.3, 15.4, 15.5, and 15.6.

Overview

Cisco IOS Software is the world's leading network infrastructure software, delivering a seamless integration of technology innovation, business-critical services, and hardware support. Dozens of hardware platforms are supported, and more than 700 industry-leading features that span multiple technology areas, including Security, Voice, High Availability, IP Routing, Quality of Service, IP Multicast, IP Addressing, IP Mobility, Multiprotocol Label Switching, and VPNs.



Note: IOS debug logs are not supported.

Configurations

Configuring the Device for Event Collection

To configure a Cisco IOS device to send syslog events to a syslog server:

1. Telnet to your IOS device.
2. Within the console, specify **enable** or **en** to enable mode.
3. Specify configuration mode as **configure terminal** or **conf t**.

Follow the instructions provided in the following sections to enable timestamps and system message logging, and to set the syslog destination, severity level, and syslog facility.

Enabling Time-Stamps on Log Messages

By default, log messages are not time-stamped. To enable time-stamping of log messages and debug messages, use the following commands in global configuration mode respectively:

- Router(Config)#service timestamps log datetime localtime
- Router(Config)#service timestamps debug datetime localtime

Enabling System Message Logging

System message logging is enabled by default. It must be enabled to send messages to any destination other than the console. To re-enable message logging after it has been disabled, use the following command in global configuration mode:

```
Router(config)#logging on
```

Setting the Syslog Destination

To identify the syslog server that is to receive logging messages, use the following command in global configuration mode:

```
Router(config)#logging host
```

The *host* argument is the name or IP address of the host. By issuing this command more than once, you build a list of syslog servers that receive logging messages. The `no logging` command deletes the syslog server with the specified address from the list of syslogs.

Limiting the Error Message Severity Level

You can limit the number of messages by specifying the severity level of the error message. To do so, use the following command in global configuration mode:

Router(config)#logging trap *Level*

Keyword	Level	Description	Syslog Def
emergencies	0	System unusable	LOG_EMERG
alerts	1	Immediate action needed	LOG_ALERT
critical	2	Critical conditions	LOG_CRIT
errors	3	Error conditions	LOG_ERR
warnings	4	Warning conditions	LOG_WARNING
notifications	5	Normal but significant condition	LOG_NOTICE
informational	6	Informational messages only	LOG_INFO
debugging	7	Debugging messages	LOG_DEBUG

Defining the UNIX System Logging Facility

You can log messages produced by UNIX system utilities. To do this, enable this type of logging and define the UNIX system facility from which you want to log messages. Consult the operator manual for your UNIX operating system for more information about these UNIX system facilities.

To define UNIX system facility message logging, use the following command in global configuration mode: Router(config)#logging facility *facility-type*

Configuring the Syslog SmartConnectors

The types of ArcSight Syslog SmartConnectors are:

- Syslog Daemon
- Syslog Pipe
- Syslog File

The Syslog Daemon SmartConnector

The Syslog Daemon SmartConnector is a syslogd-compatible daemon designed to work in operating systems that have no syslog daemon in their default configuration, such as Microsoft Windows. The SmartConnector for Syslog Daemon implements a UDP receiver on port 514 (configurable) by default that can be used to receive syslog events. Use of the TCP protocol or a different port can be configured manually.

If you are using SmartConnector for Syslog Daemon, add the following statement in the `rsyslog.conf` file to forward device events so that Syslog Daemon will start receiving events: `*.* @@(remote/local-host-IP):514`

Sample example: `local1.warning @@10.0.0.1:514`



Note: You can either use `*.*` to read all Syslog events or you can filter specific events by replacing regex with the specific event name. For example: `*.* @@(remote/local-host-IP):514` and `local1.warning @@10.0.0.1:514`



Note: Use `@@` to send events over a TCP connection and use `@` to send events over an UDP connection.

If you are running SmartConnector for Syslog Daemon on the same machine, you must provide the IP address of the local host. If you want to forward events to other machines, you must provide the IP address of the same.



Note: Messages longer than 1024 bytes may be split into multiple messages on syslog daemon; no such restriction exists on syslog file or pipe.

The Syslog Pipe and File SmartConnectors

When a syslog daemon is already in place and configured to receive syslog messages, an extra line in the syslog configuration file (`rsyslog.conf`) can be added to write the events to either a *file* or a system *pipe* and the ArcSight SmartConnector can be configured to read the events from it. **In this scenario, the ArcSight SmartConnector runs on the same machine as the syslog daemon. Therefore, you must do additional**

configurations for the ArcSight syslog file or syslog pipe SmartConnectors in the system where all Syslog Daemon SmartConnector configurations are done.

The **Syslog Pipe** SmartConnector is designed to work with an existing syslog daemon. This SmartConnector is especially useful when storage is a factor. In this case, syslogd is configured to write to a named pipe, and the Syslog Pipe SmartConnector reads from it to receive events.

The **Syslog File** SmartConnector is similar to the Pipe SmartConnector; however, this SmartConnector monitors events written to a syslog file (such as `messages.log`) rather than to a system pipe.

Configuring the Syslog Pipe or File SmartConnector

This section provides information about how to set up your existing syslog infrastructure to send events to the ArcSight Syslog Pipe or File SmartConnector.

The standard UNIX implementation of a syslog daemon reads the configuration parameters from the `/etc/rsyslog.conf` file, which contains specific details about which events to write to files, write to pipes, or send to another host. First, create a pipe or a file; then modify the `/etc/rsyslog.conf` file to send events to it.

For syslog pipe:

1. Create a pipe by executing the following command: `mkfifo /var/tmp/syspipe`
2. Add any of the following line to your `/etc/rsyslog.conf` file based on the operating system:
 - `*.debug /var/tmp/syspipe`
 - `*.debug |/var/tmp/syspipe`
3. After modifying the file, restart Syslog Daemon either by executing the scripts `/etc/init.d/syslogd stop` and `/etc/init.d/syslogd start`, or by sending a `configuration restart` signal.
 - On RedHat Linux, execute: `service syslog restart`
 - On Solaris, execute: `kill -HUP `cat /var/run/syslog.pid``

This command forces Syslog Daemon to reload the configuration and start writing to the pipe you just created.

For syslog file:

1. Create a file or use the default for the file into which log messages are to be written.
2. After editing the `/etc/rsyslog.conf` file, ensure to restart the syslog daemon as described above.
3. When you follow the SmartConnector Installation Wizard, you will be prompted for the absolute path to the syslog file or pipe you created.

Installing the SmartConnector

The following sections provide instructions for installing and configuring your selected SmartConnector.

Installing Syslog

Install this SmartConnector (on the syslog server or servers identified in the Configuration section) using the SmartConnector Installation Wizard appropriate for your operating system. The wizard will guide you through the installation process. When prompted, select one of the following Syslog connectors (see Configure the Syslog SmartConnectors in this guide for more information):

- Syslog Daemon
- Syslog Pipe
- Syslog File

Because all Syslog SmartConnectors are sub-connectors of the main syslog SmartConnector, the name of the specific Syslog SmartConnector you are installing is not required during installation.

The Syslog Daemon connector listens on port 514 (configurable) for UDP syslog events by default. You can configure the port number or use the TCP protocol manually. The Syslog Pipe and Syslog File connectors read events from a system pipe and file, respectively. You can select the appropriate connector as per the Syslog infrastructure setup.

Preparing to Install Connector

Before you install any SmartConnectors, make sure that the Micro Focus ArcSight products with which the connectors will communicate have already been installed correctly (such as ArcSight ESM or ArcSight Logger).

For complete product information, refer to the *Administrator's Guide to ArcSight Platform* guide, available on [ArcSight Documentation](#).

If you are adding a connector to the ArcSight Management Center, see the *ArcSight Management Center Administrator's Guide* for instructions.

Start the installation procedure from step 3.

Before installing the SmartConnector, make sure that the following are available:

- Local access to the machine where the SmartConnector is to be installed
- Administrator passwords

Installing and Configuring the SmartConnector by Using the Wizard

The installation steps described in this section are specific to the Cisco IOS Syslog Connector. For detailed installation steps or for manual installation steps, see SmartConnector Installation and User Guide.

To install and configure the Cisco IOS Syslog Connector:

1. Start the installation wizard.
2. Follow the instructions in the wizard to install the core software.
3. Specify the relevant [Global Parameters](#), when prompted.
4. Select a Syslog Deamon or Syslog File connector from the **Type** drop-down, then click **Next**.

Because all syslog SmartConnectors are sub-connectors of the main syslog SmartConnector, a specific name is not required during installation.

5. Specify the following information depending on the type SmartConnector that you are installing:

For Syslog Deamon, specify the following parameters:

Syslog Daemon Parameters	Network port	The SmartConnector for Syslog Daemon listens for syslog events from this port.
	IP Address	The SmartConnector for Syslog Daemon listens for syslog events only from this IP address, apart from the default (ALL) to bind to all available IP addresses.

	Reading Events Real Time or Batch	Specify whether to read files in batch mode or real-time mode. In batch mode, all files are read from the beginning.
	Action Upon Reaching EOF	This option applies to Batch Mode only. Specify None , Rename , or Delete as the action to be performed to the file when the connector finishes reading and reaches end of file . For the real-time mode, retain the default value None .
	File Extension If Rename Action	This option applies to Batch Mode only. Specify the extension to be added to the file name if the action on reaching the end of file is specified as Rename . The default value is Processed , which adds a <code>.processed</code> extension.

For Syslog File Type, specify the following parameters:

Syslog Pipe Parameter	Pipe Absolute Path Name	Specify an absolute path to the pipe, or accept the default value: <code>/var/tmp/syspipe</code> .
Syslog File Parameters	File Absolute Path Name	<p>Specify the full path name for the file from which this connector will read events. The following are default values:</p> <ul style="list-style-type: none"> • Solaris: <code>\var\adm\messages</code> • Linux: <code>\var\log\messages</code> <p>You can use a wildcard pattern in the file name.</p> <p>In the real-time mode, rotation can occur only if the file is over-written or removed from the folder. The real-time processing mode assumes the following external rotation:</p> <ul style="list-style-type: none"> • Date format log rotation: The device creates a new log at a specified time in the with the naming convention <code>filename.timestamp.log</code>. The connector detects the new log and terminates the reader thread to the previous log after the processing is complete. The connector then creates a new reader thread to the new <code>filename.timestamp.log</code> and begins processing that file. To enable this log rotation, specify timestamp in <code>yyyy-MM-dd</code> date format. For example, <code>filename.yyyy-MM-dd.log</code> • Index log rotation: The device writes to indexed files in the following format: <code>filename.log.001</code>, <code>filename.log.002</code>, <code>filename.log.003</code>, and so on. At startup, the connector processes the log with highest index. When the device creates a log with a greater index, the connector terminates the reader thread to the previous log after processing completes, creates a thread to the new log, and begins processing that log. To enable this log rotation, use an index format, as shown in the following example: <code>filename'%d,1,99,true'.log</code>; Specifying <code>true</code> indicates that the index can be skipped. For example, if 5 appears before 4, processing proceeds with 5 and will not read 4. Use of <code>true</code> is optional.
	Reading Events Real Time or Batch	Specify whether to read files in batch mode or real-time mode. In batch mode, all files are read from the beginning.
	Action Upon Reaching EOF	This option applies to Batch Mode only. Specify None , Rename , or Delete as the action to be performed to the file when the connector finishes reading and reaches end of file. For the real-time mode, retain the default value None .
	File Extension If Rename Action	This option applies to Batch Mode only. Specify the extension to be added to the file name if the action on reaching the end of file is specified as Rename . The default value is Processed , which adds a <code>.processed</code> extension.

6. Select a [destination and configure parameters](#).
7. Specify a name for the connector.
8. If you have selected ArcSight Manager as the destination, the certificate import window for the ArcSight Manager is displayed. Select **Import the certificate to the connector from destination** and click **Next**. (If you select **Do not import the certificate to connector from destination**, the connector installation will end.) The certificate is imported and the **Add connector Summary** window is displayed.
9. Select whether you want to [run the connector as a service or in the standalone mode](#).
10. The connector cannot detect the network drive when running as a service on a Windows platform. This problem does not occur when the connector and IIS Server are installed on the same host.
11. Complete the installation.
12. [Run the SmartConnector](#).

For instructions about upgrading the connector or modifying parameters, see [SmartConnector Installation and User Guide](#).

Device Event Mapping to ArcSight Fields

The following section lists the mappings of ArcSight data fields to the device's specific event definitions. See the *ArcSight Console User's Guide* for more information about the ArcSight data fields.

Cisco Router IOS Event Mappings to ArcSight ESM Events

ArcSight ESM Field	Device-Specific Field
Agent (Connector) Severity	Very High = 0 or 1; High = 2 or 3; Medium = 4 or 5; Low = 6 or 7.
Destination Address	dest_addr
Device Custom Floating Point 1	Operating value
Device Custom Floating Point 2	Threshold value
Device Custom IPv6 Address 2	Source IPv6 Address
Device Custom IPv6 Address 3	Destination IPv6 Address
Device Custom Number 2	Packets
Device Custom String 1	Slot/Card
Device Custom String 2	CiscoFacility
Device Custom String 3	CiscoCode
Device Custom String 4	ICMP Type
Device Custom String 5	CiscoAlertCode
Device Custom String 6	ACL Number
Device Event Category	Category
Device Event Class ID	CiscoFacility plus CiscoCode
Device Facility	_SYSLOG_FACILITY
Device Inbound Interface	R0/0
Device Process Name	kernel
Device Product	'CiscoRouter'
Device Receipt Time	DetectTime

ArcSight ESM Field	Device-Specific Field
Device Severity	CiscoSeverity
Device Vendor	'CISCO'
External ID	CiscoAlertID
File	btrace_rotate_sh_pmanlog_R0-0.24184_15571.20210507122646.bin.gz
File Location	/harddisk/tracelogs/.btrace_rotate_sh_pmanlog_R0-0.24184_15571.20210507122646.bin.gz.tmp
File Size	size
Message	Message Detail
Name	Message Detail
Old File Name	Object Name
Old File Path	Object Location
Old File Permission	Warning
Reason	Status
Source Address	src_addr
Source Translated Address	remote IP Address
Source User Name	Client User



Note: The **event.name** field is supported by the common mapping, and then parsed by another mapping file again.

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