



Configuring System Message Logging

This chapter describes how to configure system message logging on the Cisco Nexus 5000 Series switch and contains the following sections:

- [Information About System Message Logging, page 1](#)
- [Configuring System Message Logging, page 2](#)
- [Verifying System Message Logging Configuration, page 13](#)
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Information About System Message Logging

You can use system message logging to control the destination and to filter the severity level of messages that system processes generate. You can configure logging to terminal sessions, a log file, and syslog servers on remote systems.

By default, the Cisco Nexus 5000 Series switch outputs messages to terminal sessions.

By default, the switch logs system messages to a log file.

The following table describes the severity levels used in system messages. When you configure the severity level, the system outputs messages at that level and lower.

Table 1: System Message Severity Levels

Level	Description
0 – emergency	System unusable
1 – alert	Immediate action needed
2 – critical	Critical condition
3 – error	Error condition
4 – warning	Warning condition

Level	Description
5 – notification	Normal but significant condition
6 – informational	Informational message only
7 – debugging	Appears during debugging only

The switch logs the most recent 100 messages of severity 0, 1, or 2 to the NVRAM log. You cannot configure logging to the NVRAM.

You can configure which system messages should be logged based on the facility that generated the message and its severity level.

Related Topics

- [Configuring Module and Facility Messages Logging, page 6](#)
- [Configuring System Message Logging to a File, page 5](#)
- [Configuring System Message Logging to Terminal Sessions, page 2](#)

syslog Servers

syslog servers run on remote systems that are configured to log system messages based on the syslog protocol. You can configure the Cisco Nexus 5000 Series to send its logs to up to three syslog servers.

To support the same configuration of syslog servers on all switches in a fabric, you can use the Cisco Fabric Services (CFS) to distribute the syslog server configuration.



Note

When the switch first initializes, messages are sent to syslog servers only after the network is initialized.

Configuring System Message Logging

Configuring System Message Logging to Terminal Sessions

You can configure the switch to log messages by their severity level to console, Telnet, and SSH sessions.

By default, logging is enabled for terminal sessions.

SUMMARY STEPS

1. switch# **terminal monitor**
2. switch# **configure terminal**
3. switch(config)# **logging console** [*severity-level*]
4. (Optional) switch(config)# **no logging console** [*severity-level*]
5. switch(config)# **logging monitor** [*severity-level*]
6. (Optional) switch(config)# **no logging monitor** [*severity-level*]
7. (Optional) switch# **show logging console**
8. (Optional) switch# **show logging monitor**
9. (Optional) switch# **copy running-config startup-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	switch# terminal monitor	Copies syslog messages from the console to the current terminal session.
Step 2	switch# configure terminal	Enters configuration mode.
Step 3	switch(config)# logging console [<i>severity-level</i>]	<p>Enables the switch to log messages to the console session based on a specified severity level or higher (a lower number value indicates a higher severity level). Severity levels range from 0 to 7:</p> <ul style="list-style-type: none"> • 0 – emergency • 1 – alert • 2 – critical • 3 – error • 4 – warning • 5 – notification • 6 – informational • 7 – debugging <p>If the severity level is not specified, the default of 2 is used.</p>
Step 4	switch(config)# no logging console [<i>severity-level</i>]	(Optional) Disables logging messages to the console.
Step 5	switch(config)# logging monitor [<i>severity-level</i>]	<p>Enables the switch to log messages to the monitor based on a specified severity level or higher (a lower number value indicates a higher severity level). Severity levels range from 0 to 7:</p> <ul style="list-style-type: none"> • 0 – emergency • 1 – alert • 2 – critical

	Command or Action	Purpose
		<ul style="list-style-type: none"> • 3 – error • 4 – warning • 5 – notification • 6 – informational • 7 – debugging <p>If the severity level is not specified, the default of 2 is used.</p> <p>The configuration applies to Telnet and SSH sessions.</p>
Step 6	switch(config)# no logging monitor [severity-level]	(Optional) Disables logging messages to telnet and SSH sessions.
Step 7	switch# show logging console	(Optional) Displays the console logging configuration.
Step 8	switch# show logging monitor	(Optional) Displays the monitor logging configuration.
Step 9	switch# copy running-config startup-config	(Optional) Copies the running configuration to the startup configuration.

The following example shows how to configure a logging level of 3 for the console:

```
switch# configure terminal
switch(config)# logging console 3
```

The following example shows how to display the console logging configuration:

```
switch# show logging console
Logging console:                enabled (Severity: error)
```

The following example shows how to disable logging for the console:

```
switch# configure terminal
switch(config)# no logging console
```

The following example shows how to configure a logging level of 4 for the terminal session:

```
switch# terminal monitor
switch# configure terminal
switch(config)# logging monitor 4
```

The following example shows how to display the terminal session logging configuration:

```
switch# show logging monitor
Logging monitor:                enabled (Severity: warning)
```

The following example shows how to disable logging for the terminal session:

```
switch# configure terminal
switch(config)# no logging monitor
```

Configuring System Message Logging to a File

You can configure the switch to log system messages to a file. By default, system messages are logged to the file `log:messages`.

SUMMARY STEPS

1. `switch# configure terminal`
2. `switch(config)# logging logfile logfile-name severity-level [size bytes]`
3. (Optional) `switch(config)# no logging logfile [logfile-name severity-level [size bytes]]`
4. (Optional) `switch# show logging info`
5. (Optional) `switch# copy running-config startup-config`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>switch# configure terminal</code>	Enters configuration mode.
Step 2	<code>switch(config)# logging logfile logfile-name severity-level [size bytes]</code>	Configures the name of the log file used to store system messages and the minimum severity level to log. You can optionally specify a maximum file size. The default severity level is 5 and the file size is 4194304. Severity levels range from 0 to 7: <ul style="list-style-type: none"> • 0 – emergency • 1 – alert • 2 – critical • 3 – error • 4 – warning • 5 – notification • 6 – informational • 7 – debugging The file size is from 4096 to 10485760 bytes.
Step 3	<code>switch(config)# no logging logfile [logfile-name severity-level [size bytes]]</code>	(Optional) Disables logging to the log file.
Step 4	<code>switch# show logging info</code>	(Optional) Displays the logging configuration.
Step 5	<code>switch# copy running-config startup-config</code>	(Optional) Copies the running configuration to the startup configuration.

The following example shows how to configure a switch to log system messages to a file:

```
switch# configure terminal
switch(config)# logging logfile my_log 6 size 4194304
```

The following example shows how to display the logging configuration (some of the output has been removed for brevity):

```
switch# show logging info
Logging console:          enabled (Severity: debugging)
Logging monitor:         enabled (Severity: debugging)
Logging linecard:        enabled (Severity: notifications)
Logging fex:             enabled (Severity: notifications)
Logging timestamp:       Seconds
Logging server:          disabled
Logging logfile:         enabled
                        Name - my_log: Severity - informational Size - 4194304
Facility                 Default Severity          Current Session Severity
-----
aaa                      3                          3
aclmgr                   3                          3
afm                      3                          3
altos                    3                          3
auth                     0                          0
authpriv                 3                          3
bootvar                  5                          5
callhome                 2                          2
capability               2                          2
cdp                      2                          2
cert_enroll              2                          2
...
```

Related Topics

- [Displaying and Clearing Log Files, page 13](#)

Configuring Module and Facility Messages Logging

You can configure the severity level and time-stamp units of messages logged by modules and facilities.

SUMMARY STEPS

1. switch# **configure terminal**
2. switch(config)# **logging module** [*severity-level*]
3. switch(config)# **logging level** *facility severity-level*
4. (Optional) switch(config)# **no logging module** [*severity-level*]
5. (Optional) switch(config)# **no logging level** [*facility severity-level*]
6. (Optional) switch# **show logging module**
7. (Optional) switch# **show logging level** [*facility*]
8. (Optional) switch# **copy running-config startup-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters configuration mode.

	Command or Action	Purpose
Step 2	switch(config)# logging module [<i>severity-level</i>]	<p>Enables module log messages that have the specified severity level or higher. Severity levels range from 0 to 7:</p> <ul style="list-style-type: none"> • 0 – emergency • 1 – alert • 2 – critical • 3 – error • 4 – warning • 5 – notification • 6 – informational • 7 – debugging <p>If the severity level is not specified, the default of 5 is used.</p>
Step 3	switch(config)# logging level <i>facility</i> <i>severity-level</i>	<p>Enables logging messages from the specified facility that have the specified severity level or higher. Severity levels from 0 to 7:</p> <ul style="list-style-type: none"> • 0 – emergency • 1 – alert • 2 – critical • 3 – error • 4 – warning • 5 – notification • 6 – informational • 7 – debugging <p>To apply the same severity level to all facilities, use the all facility. For defaults, see the show logging level command.</p>
Step 4	switch(config)# no logging module [<i>severity-level</i>]	(Optional) Disables module log messages.
Step 5	switch(config)# no logging level [<i>facility</i> <i>severity-level</i>]	(Optional) Resets the logging severity level for the specified facility to its default level. If you do not specify a facility and severity level, the switch resets all facilities to their default levels.
Step 6	switch# show logging module	(Optional) Displays the module logging configuration.

	Command or Action	Purpose
Step 7	switch# show logging level [<i>facility</i>]	(Optional) Displays the logging level configuration and the system default level by facility. If you do not specify a facility, the switch displays levels for all facilities.
Step 8	switch# copy running-config startup-config	(Optional) Copies the running configuration to the startup configuration.

The following example shows how to configure the severity level of module and specific facility messages:

```
switch# configure terminal
switch(config)# logging module 3
switch(config)# logging level aaa 2
```

Configuring Logging Timestamps

You can configure the time-stamp units of messages logged by the Cisco Nexus 5000 Series switch.

SUMMARY STEPS

1. switch# **configure terminal**
2. switch(config)# **logging timestamp** {microseconds | milliseconds | seconds}
3. (Optional) switch(config)# **no logging timestamp** {microseconds | milliseconds | seconds}
4. (Optional) switch# **show logging timestamp**
5. (Optional) switch# **copy running-config startup-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters configuration mode.
Step 2	switch(config)# logging timestamp {microseconds milliseconds seconds}	Sets the logging time-stamp units. By default, the units are seconds.
Step 3	switch(config)# no logging timestamp {microseconds milliseconds seconds}	(Optional) Resets the logging time-stamp units to the default of seconds.
Step 4	switch# show logging timestamp	(Optional) Displays the logging time-stamp units configured.
Step 5	switch# copy running-config startup-config	(Optional) Copies the running configuration to the startup configuration.

The following example shows how to configure the time-stamp units of messages:

```
switch# configure terminal
switch(config)# logging timestamp milliseconds
switch(config)# exit
switch# show logging timestamp
Logging timestamp: Milliseconds
```

Configuring syslog Servers

You can configure up to three syslog servers that reference remote systems where you want to log system messages.

SUMMARY STEPS

1. switch# **configure terminal**
2. switch(config)# **logging server host** [*severity-level* [**use-vrf vrf-name** [*facility facility*]]]
3. (Optional) switch(config)# **no logging server host**
4. (Optional) switch# **show logging server**
5. (Optional) switch# **copy running-config startup-config**

DETAILED STEPS

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters configuration mode.
Step 2	switch(config)# logging server host [<i>severity-level</i> [use-vrf vrf-name [<i>facility facility</i>]]]	<p>Configures a host to receive syslog messages.</p> <ul style="list-style-type: none"> • The <i>host</i> argument identifies the host name or the IPv4 or IPv6 address of the syslog server host. • The <i>severity-level</i> argument limits the logging of messages to the syslog server to a specified level. Severity levels range from 0 to 7. Refer to Table 1: System Message Severity Levels, page 1 • The use vrf vrf-name keyword argument identifies the <i>default</i> or <i>management</i> values for the VRF name. If a specific VRF is not identified, management is the default. However, if management is configured, it will not be listed in the output of the show-running command because it is the default. If a specific VRF is configured, the show-running command output will list the VRF for each server. <ul style="list-style-type: none"> Note The current CFS distribution does not support VRF. If CFS distribution is enabled, then the logging server configured with the default VRF will be distributed as the management VRF. • The <i>facility</i> argument names the syslog facility type. The facilities are listed in the Cisco Nexus 5000 Series Command Reference. The default outgoing facility is local7.

	Command or Action	Purpose
Step 3	switch(config)# no logging server <i>host</i>	(Optional) Removes the logging server for the specified host.
Step 4	switch# show logging server	(Optional) Displays the syslog server configuration.
Step 5	switch# copy running-config startup-config	(Optional) Copies the running configuration to the startup configuration.

The following examples show how to configure a syslog server:

```
switch# configure terminal
switch(config)# logging server 172.28.254.254 5
use-vrf default facility local3

switch# configure terminal
switch(config)# logging server 172.28.254.254 5
use-vrf mgmt0 facility local3
```

Table 2: Related Commands

Command	Descriptions
show logging server	Displays the configured syslog servers.

Configuring syslog on a UNIX or Linux System

You can configure a syslog server on a UNIX or Linux system by adding the following line to the /etc/syslog.conf file:

```
facility.level <five tab characters> action
```

The following table describes the syslog fields that you can configure.

Table 3: syslog Fields in syslog.conf

Field	Description
Facility	Creator of the message, which can be auth, authpriv, cron, daemon, kern, lpr, mail, mark, news, syslog, user, local0 through local7, or an asterisk (*) for all. These facility designators allow you to control the destination of messages based on their origin. Note Check your configuration before using a local facility.
Level	Minimum severity level at which messages are logged, which can be debug, info, notice, warning, err, crit, alert, emerg, or an asterisk (*) for all. You can use none to disable a facility.

Field	Description
Action	Destination for messages, which can be a filename, a host name preceded by the at sign (@), or a comma-separated list of users or an asterisk (*) for all logged-in users.

SUMMARY STEPS

1. Log debug messages with the local7 facility in the file /var/log/myfile.log by adding the following line to the /etc/syslog.conf file:
2. Create the log file by entering these commands at the shell prompt:
3. Make sure the system message logging daemon reads the new changes by checking myfile.log after entering this command:

DETAILED STEPS

-
- Step 1** Log debug messages with the local7 facility in the file /var/log/myfile.log by adding the following line to the /etc/syslog.conf file:
- ```
debug.local7 /var/log/myfile.log
```
- Step 2** Create the log file by entering these commands at the shell prompt:
- ```
$ touch /var/log/myfile.log
$ chmod 666 /var/log/myfile.log
```
- Step 3** Make sure the system message logging daemon reads the new changes by checking myfile.log after entering this command:
- ```
$ kill -HUP ~cat /etc/syslog.pid~
```
- 

## Configuring syslog Server Configuration Distribution

You can distribute the syslog server configuration to other switches in the network by using the Cisco Fabric Services (CFS) infrastructure.

After you enable syslog server configuration distribution, you can modify the syslog server configuration and view the pending changes before committing the configuration for distribution. As long as distribution is enabled, the switch maintains pending changes to the syslog server configuration.



### Note

If the switch is restarted, the syslog server configuration changes that are kept in volatile memory may be lost.

### Before You Begin

You must have configured one or more syslog servers.

## SUMMARY STEPS

1. switch# **configure terminal**
2. switch(config)# **logging distribute**
3. switch(config)# **logging commit**
4. switch(config)# **logging abort**
5. (Optional) switch(config)# **no logging distribute**
6. (Optional) switch# **show logging pending**
7. (Optional) switch# **show logging pending-diff**
8. (Optional) switch# **show logging internal info**
9. (Optional) switch# **copy running-config startup-config**

## DETAILED STEPS

|               | Command or Action                                 | Purpose                                                                                                                                                                                                                                                                                             |
|---------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | switch# <b>configure terminal</b>                 | Enters configuration mode.                                                                                                                                                                                                                                                                          |
| <b>Step 2</b> | switch(config)# <b>logging distribute</b>         | Enables distribution of syslog server configuration to network switches using the CFS infrastructure. By default, distribution is disabled.                                                                                                                                                         |
| <b>Step 3</b> | switch(config)# <b>logging commit</b>             | Commits the pending changes to the syslog server configuration for distribution to the switches in the fabric.                                                                                                                                                                                      |
| <b>Step 4</b> | switch(config)# <b>logging abort</b>              | Cancels the pending changes to the syslog server configuration.                                                                                                                                                                                                                                     |
| <b>Step 5</b> | switch(config)# <b>no logging distribute</b>      | (Optional)<br>Disables distribution of syslog server configuration to network switches using the CFS infrastructure. You cannot disable distribution when configuration changes are pending. See the <b>logging commit</b> and <b>logging abort</b> commands. By default, distribution is disabled. |
| <b>Step 6</b> | switch# <b>show logging pending</b>               | (Optional)<br>Displays the pending changes to the syslog server configuration.                                                                                                                                                                                                                      |
| <b>Step 7</b> | switch# <b>show logging pending-diff</b>          | (Optional)<br>Displays the differences from the current syslog server configuration to the pending changes of the syslog server configuration.                                                                                                                                                      |
| <b>Step 8</b> | switch# <b>show logging internal info</b>         | (Optional)<br>Displays information about the current state of syslog server distribution and the last action taken.                                                                                                                                                                                 |
| <b>Step 9</b> | switch# <b>copy running-config startup-config</b> | (Optional)<br>Copies the running configuration to the startup configuration.                                                                                                                                                                                                                        |

### Related Topics

- [Information About CFS](#)

## Displaying and Clearing Log Files

You can display or clear messages in the log file and the NVRAM.

### SUMMARY STEPS

1. switch# **show logging last** *number-lines*
2. switch# **show logging logfile** [**start-time** *yyyy mmm dd hh:mm:ss*] [**end-time** *yyyy mmm dd hh:mm:ss*]
3. switch# **show logging nvram** [**last** *number-lines*]
4. switch# **clear logging logfile**
5. switch# **clear logging nvram**

### DETAILED STEPS

|        | Command or Action                                                                                                                     | Purpose                                                                                                                                                                                                                                            |
|--------|---------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | switch# <b>show logging last</b> <i>number-lines</i>                                                                                  | Displays the last number of lines in the logging file. You can specify from 1 to 9999 for the last number of lines.                                                                                                                                |
| Step 2 | switch# <b>show logging logfile</b> [ <b>start-time</b> <i>yyyy mmm dd hh:mm:ss</i> ] [ <b>end-time</b> <i>yyyy mmm dd hh:mm:ss</i> ] | Displays the messages in the log file that have a time stamp within the span entered. If you do not enter an end time, the current time is used. You enter three characters for the month time field, and digits for the year and day time fields. |
| Step 3 | switch# <b>show logging nvram</b> [ <b>last</b> <i>number-lines</i> ]                                                                 | Displays the messages in the NVRAM. To limit the number of lines displayed, you can enter the last number of lines to display. You can specify from 1 to 100 for the last number of lines.                                                         |
| Step 4 | switch# <b>clear logging logfile</b>                                                                                                  | Clears the contents of the log file.                                                                                                                                                                                                               |
| Step 5 | switch# <b>clear logging nvram</b>                                                                                                    | Clears the logged messages in NVRAM.                                                                                                                                                                                                               |

The following example shows how to display messages in a log file:

```
switch# show logging last 40
switch# show logging logfile start-time 2007 nov 1 15:10:0
switch# show logging nvram last 10
```

The following example shows how to clear messages in a log file:

```
switch# clear logging logfile
switch# clear logging nvram
```

## Verifying System Message Logging Configuration

To display system message logging configuration information, perform one of the following tasks:

| Command                             | Purpose                                     |
|-------------------------------------|---------------------------------------------|
| switch# <b>show logging console</b> | Displays the console logging configuration. |

| Command                                                                                                                               | Purpose                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| switch# <b>show logging info</b>                                                                                                      | Displays the logging configuration.                                        |
| switch# <b>show logging internal info</b>                                                                                             | Displays the syslog distribution information.                              |
| switch# <b>show logging last</b> <i>number-lines</i>                                                                                  | Displays the last number of lines of the log file.                         |
| switch# <b>show logging level</b> [ <i>facility</i> ]                                                                                 | Displays the facility logging severity level configuration.                |
| switch# <b>show logging logfile</b> [ <b>start-time</b> <i>yyyy mmm dd hh:mm:ss</i> ] [ <b>end-time</b> <i>yyyy mmm dd hh:mm:ss</i> ] | Displays the messages in the log file.                                     |
| switch# <b>show logging module</b>                                                                                                    | Displays the module logging configuration.                                 |
| switch# <b>show logging monitor</b>                                                                                                   | Displays the monitor logging configuration.                                |
| switch# <b>show logging nvram</b> [ <b>last</b> <i>number-lines</i> ]                                                                 | Displays the messages in the NVRAM log.                                    |
| switch# <b>show logging pending</b>                                                                                                   | Displays the syslog server pending distribution configuration.             |
| switch# <b>show logging pending-diff</b>                                                                                              | Displays the syslog server pending distribution configuration differences. |
| switch# <b>show logging server</b>                                                                                                    | Displays the syslog server configuration.                                  |
| switch# <b>show logging session</b>                                                                                                   | Displays the logging session status.                                       |
| switch# <b>show logging status</b>                                                                                                    | Displays the logging status.                                               |
| switch# <b>show logging timestamp</b>                                                                                                 | Displays the logging time-stamp units configuration.                       |

## Default System Message Logging Settings

The following table lists the default settings for system message logging parameters.

**Table 4: Default System Message Logging Parameters**

| Parameters       | Default                                     |
|------------------|---------------------------------------------|
| Console logging  | Enabled at severity level 2                 |
| Monitor logging  | Enabled at severity level 2                 |
| Log file logging | Enabled to log:messages at severity level 5 |
| Module logging   | Enabled at severity level 5                 |

| <b>Parameters</b>                        | <b>Default</b> |
|------------------------------------------|----------------|
| Facility logging                         | Enabled;       |
| Time-stamp units                         | Seconds        |
| syslog server logging                    | Disabled       |
| syslog server configuration distribution | Disabled       |

