

Introduction to System Messages

This chapter describes system messages, as defined by the syslog protocol (RFC 3164). It describes how to understand the syslog message format and how to capture system messages for review.



Note

The Error Message Decoder (EMD) tool does not support the system messages contained in this book. For the most current information about system messages, refer to the messages in [Chapter 2, “System Messages and Recovery Procedures.”](#)

This chapter includes the following sections:

- [System Log Message Format, page 1-1](#)
- [Capturing System Messages and History, page 1-5](#)
- [Displaying Information about System Errors, page 1-5](#)

System Log Message Format

System log messages begin with a percent sign (%) and are displayed in the following formats:

- [syslog Format on a Resident Device, page 1-1](#)
- [syslog Format on a Remote-Logging Server, page 1-3](#)

syslog Format on a Resident Device

The format for a resident syslog is as follows:

```
month dd hh:mm:ss switchname FACILITY-severity-MNEMONIC description
or
month dd hh:mm:ss switchname FACILITY-SLOTnumber-severity-MNEMONIC description
or
month dd hh:mm:ss switchname FACILITY-STANDBY-severity-MNEMONIC description
```

For example:

```
Nov 1 14:07:58 excal-113 %MODULE-5-MOD_OK: Module 1 is online
Nov 1 14:07:58 excal-113 %PORT-3-IF_UNSUPPORTED_TRANSCEIVER: Transceiver for interface
fc1/13 is not supported
.
```

[Table 1-1](#) describes the syslog elements.

Send document comments to nexus7k-feedback-doc@cisco.com

Table 1-1 *syslog Element Descriptions for a Resident Device*

Element	Description
month dd	Date and month of the error or event
hh:mm:ss	Time of the error or event
switchname	Name of the switch
FACILITY	Facility of the error or event (daemon, kernel, VSHD, or other facility)
severity	Single-digit code from 0 to 7 that indicates the severity of the message
MNEMONIC	Text string that uniquely describes the system message
;%\$VDC #%%\$	Optional virtual device context (VDC) ID that appears in the description for messages requiring VDC IDs
;%\$VRF #%%\$	Optional virtual routing and forwarding (VRF) ID that appears in the description for messages requiring VRF IDs
description	Text string that contains detailed information about the reported event

FACILITY is a code consisting of two or more uppercase letters that indicates the facility to which the system message refers. A facility is a hardware device, a protocol, a feature, or a module of the system software.

System message SEVERITY codes range from 0 to 7 and reflect the severity of the condition. The lower the number, the more serious the situation. [Table 1-2](#) lists the severity levels.

Table 1-2 *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
5 – notification	Normal but significant condition
6 – informational	Informational message only
7 – debugging	Appears during debugging only

MNEMONIC is a code that uniquely identifies the system message.

Message-text is a text string that describes the condition. This portion of the message might contain detailed information about the event, including terminal port numbers, network addresses, or addresses that correspond to locations in the system memory address space. Because the information in these variable fields changes from message to message, it is represented here by short strings enclosed in square brackets ([]). A decimal number, for example, is represented as [dec].

[Table 1-3](#) lists the representations of variable fields and the type of information in the fields.

Send document comments to nexus7k-feedback-doc@cisco.com

Table 1-3 Representation of Variable Fields in System Messages

Representation	Type of Information
[dec]	Decimal number
[hex]	Hexadecimal number
[char]	Single character
[chars]	Character string

The following example system message shows how the variable field might be used:

```
%MODULE-5-MOD_MINORSWFAIL: Module [dec] reported a failure in service [chars]
```

In this example,

Facility code =MODULE (indicating that it is a module-specific error)

Severity =5 (notification)

Alarm/event code= MOD_MINORSWFAIL

Description of the problem= Module [dec] reported a failure in service [chars]

[dec] is the module slot number associated with this message.

[chars] is the service name that experienced this failure.

System log messages begin with a percent sign (%) and are displayed in the following format (see [Table 1-4](#)).

syslog Format on a Remote-Logging Server

The syslog format on a remote-logging server is as follows:

```
month dd hh:mm:ss IP-addr-switch : year month day hh:mm:ss Timezone: FACILITY-severity-MNEMONIC  
description
```

or

```
month dd hh:mm:ss IP-addr-switch : year month day hh:mm:ss Timezone:  
facility-SLOTnumber-severity-MNEMONIC description
```

or

```
month dd hh:mm:ss IP-addr-switch : year month day hh:mm:ss Timezone: FACILITY-STANDBY-severity-MNEMONIC  
description
```

For example:

```
sep 21 11:09:50 172.22.22.45 : 2005 Sep 04 18:18:22 UTC: %AUTHPRIV-3-SYSTEM_MSG: ttyS1:  
togetattr: Input/output error - getty[28224]  
switch resident syslog 2005 Sep 4 18:18:22 switch %AUTHPRIV-3-SYSTEM_MSG: ttyS1:  
togetattr: Input/output error - getty[28224]  
time on switch : 2005 Sep 4 18:18:22 time on Logging Server : Sep 21 11:09:50  
fc1/13 is not supported  
.
```

Table 1-4 syslog Element Descriptions for a Remote-Logging Server

Element	Description
month dd	Date and month of the error or event
hh:mm:ss	Time of the error or event

Send document comments to nexus7k-feedback-doc@cisco.com

Table 1-4 *syslog Element Descriptions for a Remote-Logging Server (continued)*

Element	Description
IP-addr-switch	IP address of the switch
FACILITY	Facility of the error or event (daemon, kernel, VSHD, or other facility)
severity	Single-digit code from 0 to 3 that indicates the severity of the message
MNEMONIC	Text string that uniquely describes the system message
;%\$VDC #%%\$	Optional virtual device context (VDC) ID that appears in the description for messages requiring VDC IDs
;%\$VRF #%%\$	Optional virtual routing and forwarding (VRF) ID that appears in the description for messages requiring VRF IDs
description	Text string that contains detailed information about the reported event

FACILITY is a code consisting of two or more uppercase letters that indicate the facility to which the system message refers. A facility is a hardware device, a protocol, a feature, or a module of the system software.

System message SEVERITY codes range from 0 to 3 and reflect the severity of the condition. The lower the number, the more serious the situation. Table 1-5 lists the severity levels.

Table 1-5 *System Log Message Severity Level Descriptions*

Level	Description
0 – emergency	System unusable
1 – alert	Immediate action needed
2 – critical	Critical condition
3 – notification	Normal but significant condition

MNEMONIC is a code that uniquely identifies the system message.

Message-text is a text string that describes the condition. This portion of the message might contain detailed information about the event, including terminal port numbers, network addresses, or addresses that correspond to locations in the system memory address space. Because the information in these variable fields changes from message to message, it is represented here by short strings enclosed in square brackets ([]). A decimal number, for example, is represented as [dec].

Table 1-6 lists the representations of variable fields and the type of information in the fields.

Table 1-6 *Representation of Variable Fields in System Messages*

Representation	Type of Information
[dec]	Decimal number
[hex]	Hexadecimal number
[char]	Single character
[chars]	Character string

The following example system message shows how the variable field might be used:

Send document comments to nexus7k-feedback-doc@cisco.com

```
%AUTHPRIV-3-SYSTEM_MSG: AUTHPRIV [dec] reported a failure in service [chars]
```

This example shows the following:

- Facility code is AUTHPRIV (indicating that it is a authpriv-specific error).
- Severity is 3 (notification).
- Alarm or event code is SYSTEM_MSG.
- Description of the problem is Authpriv [dec] reported a failure in service [chars].
- [dec] is the module slot number associated with this message.
- [chars] is the service name that experienced this failure.

Capturing System Messages and History

The system messages are displayed instantly on the console, by default, or are redirected to an internal log file, or a syslog server. System message severity levels correspond to the keywords assigned by the **logging** global configuration commands. These keywords define where and at what level these messages appear. Only system messages that correspond to the configured logging level or higher severity messages are logged. As an example, if you set the logging level to 3 (error), then you get error, critical, alerts, and emergency system messages, but you do not get warning, notification, informational, or debugging system messages.

For complete information about handling system messages, see the *Cisco Nexus 7000 Series NX-OS System Management Configuration Guide, Release 4.1*.

Saving the System Messages Log

The **logging logfile** global configuration command enables copying of system messages to an internal log file and optionally sets the size of the file. To display the messages that are logged in the file, use the **show logging EXEC** command. The first message displayed is the oldest message in the buffer. To clear the current contents of the buffer, use the **clear debug-logfile** command.

Logging System Messages to a syslog Server

The **logging host-name** command identifies a syslog server host to receive logging messages. The *host-name* argument is the name or Internet address of the host. By using this command more than once, you build a list of syslog servers that receive logging messages. The **no logging host-name** command deletes the syslog server with the specified address from the list of syslog servers.

Displaying Information about System Errors

System errors may be generated by processes running on the device. System errors have an ID that ranges from 0x0 to 0xffffffff. You can use the **show system error-id** command to display the facility and description of a system error. To get a list of descriptions for all error IDs, use the **show system error-id list** command.

The following example displays information about the specified error ID.

```
switch# show system error-id 0x401D0019
```

Send document comments to nexus7k-feedback-doc@cisco.com

```
Error Facility: module
Error Description: Failed to stop Linecard Async Notification.
switch#
```