# Cisco IOS XR System Error Message Reference Guide

## Cisco IOS XR System Error Messages Reference Guide

System Error Messages (SEM) for the supported platforms are available for each release in the Cisco Feature Navigator Error Messages Tool.

Supported platforms running Cisco IOS XR are:

- Cisco 8000 Series Routers
- Cisco Network Convergence System 5500 Series Routers
- Cisco ASR 9000 Series Aggregation Service Routers
- Cisco Network Convergence System 540 Routers
- Cisco Network Convergence System 560 Routers
- Cisco Network Convergence System 6000 Series Routers
- Cisco Network Convergence System 5000 Series Routers
- Cisco CRS Routers
- Cisco IOS XRv 9000 Routers

## How to Read System Messages

The system software sends system error messages to the console (and, optionally, to a logging server on another system) during operation and when the system crashes. Not all system error messages indicate problems with your system. Some are purely informational, and others may help diagnose problems with communications lines, internal hardware, or the system software.

The messages are organized according to the particular system category that produces the messages. The category sections appear in alphabetical order, and within each category section, messages are listed alphabetically by group code. Each message is followed by an explanation and a recommended action.

For alphabetizing purposes, lowercase and uppercase letters are treated the same.

### System Error Message Format

System messages begin with a percent sign (%) and are structured as follows.

**%CATEGORY-GROUP-SEVERITY-MNEMONIC: Message-text**

CATEGORY is a code consisting of two or more uppercase letters that indicate the category to which the message refers. Table 1: Category Codes lists the system category codes for the Cisco Routers.

GROUP is a code consisting of two or more uppercase letters that indicate the group to which the message refers. A group can be a hardware device, a protocol, or a module of the system software.

SEVERITY is a single-digit code from 0 to 7 that reflects the severity of the condition. The lower the number, the more serious the situation. Table 2: Error Message Severity Levels lists the severity levels.

MNEMONIC is a code that uniquely identifies the error message.

Message-text is a text string describing the condition. This portion of the message sometimes contains 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 3: Representation of Variable Fields in Messages lists the representations of variable fields and the type of information in them.

The following is a sample system error message:

```
%ACL-IP_ACL_PARSE-2-ALLOC Unable to allocate memory for [chars]
```

***Table 1: Category Codes***

| Code | Description of Category |
|---|---|
| ACL | All Access Control List (ACL) related messages. |
| APP_INFRA | All Application infrastructure related messages. |
| DIAG | All Diagnostic related messages. |
| FABRIC | All Fabric (HW and SW both) related messages. |
| FORWARDING | All CEF and FIB related messages. |
| HA | All High Availability (HA) related messages. |
| INSTALL | All Installation related messages. |
| IP | All Internet Protocol (IP) related messages. |
| L1 | All Layer 1 (L1) related messages. |
| L2 | All Layer 2 (L2) related messages, for instance ethernet drivers, PoS, SONET, PLIMS, and so forth. |
| L3 | All Layer 3 (L3) related messages. |
| LIBRARY | All Library related messages. |
| LICENSE | All License related messages. |
| MEDIA | All Media related messages, including disk, nvram, flash, and so forth. |
| MGBL | All Management Plane and Manageability related messages, for instance, config, cli, sml, pm, and so forth. |

| Code | Description of Category |
|---|---|
| OS | All Operating System (OS) and OS infrastructure related messages. |
| PKT_INFRA | All Packet Infrastructure related messages, such as ifmgr, tunnels, bundlemgr, pakman, and so forth. |
| PLATFORM | All Platform related commands, for instance, shelf mgr, chassis, env ctrl, and so forth. |
| QOS | All Quality of Service (QoS) related messages. |
| ROUTING | All routing related messages, such as MPLS, OSPF, BGP, Multicast, MRIB, RIB, and so forth. |
| SECURITY | All security related messages, such as AAA, IPSec and related protocols, and so forth. |
| SERVICES | All service related messages, such as RSPP, and SD. |
| SNMP | All Simple Network Management Protocol (SNMP) related messages, such as BGP MIB, CONFIG MIB, SNMP agent. MIB location does not matter. |
| SYSDB | All system database related messages. |

***Table 2: Error 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 |

Message severity levels correspond to the keywords assigned by the **logging console** and **logging monitor** global configuration commands that define where and at what level these messages appear. In general, the default is to log messages from level 0 (emergencies) to level 7 (debugging). However, the default level varies by platform.

Level 4 severity messages should be monitored and if the warning affects your router, investigate and take the necessary action. Levels 5 to 7 are only informational and TAC should not be contacted.

For more information, see the system configuration chapter and descriptions of the **logging console** and **logging monitor** commands in the appropriate Cisco IOS configuration guide and command reference publications.

***Table 3: Representation of Variable Fields in Messages***

| Representation | Type of Information |
|---|---|
| [atalk_address] | AppleTalk address |
| [atalk_net] | AppleTalk network, either 600 or 600-601 |
| [char] | Single character |
| [chars] | Character string |
| [dec] | Decimal number |
| [enet] | Ethernet address (for example, 0000.FEED.00C0) |
| [hex] | Hexadecimal number |
| [inet] | Internet address (for example, 10.0.2.16) |
| [int] | Integer |
| [ipv6_addr] | IP version 6 (IPv6) address |
| [node] | Address or node name |
| [p] | Packet |
| [sci_notation] | Scientific notation |
| [t-line] | Terminal line number in octal (or decimal if the decimal-TTY service is enabled) |
| [v-name] | VINES name; or number (hex or decimal) |

# Message Traceback Reports

Some messages describe internal errors and contain traceback information. This information is very important and should be included when you report a problem to your technical support representative.

The following sample message includes traceback information:

```
-Process= "Exec", level= 0, pid= 17
-Traceback= 1A82 1AB4 6378 A072 1054 1860
```

# Obtaining Technical Assistance

When the recommended action of an error message advises that you contact Cisco technical support, submit a Cisco Technical Assistance Center (TAC) service request.

Before contacting TAC, you should perform the following tasks to assist TAC in troubleshooting your service request:

- Capture system logs for the past two days.
- Execute the **show tech-support** command.
- Obtain crash dumps from the router.