

Cisco System Message Format

```
000037: Jan  2 12:54:32.031: %LINK-5-CHANGED: Interface GigabitEthernet0/0, changed
state to administratively down
000038: Jan  2 12:54:33.031: %LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0, changed state to down
Sequence number (Optional. Default off)—37 and 38
Timestamp
Which router facility generated the message—%LINK or %LINEPROTO
Message Severity Level—5
Message Mnemonic—CHANGED or UPDOWN
Message Description—The rest of the line
```

Severity Levels—0-4 could seriously impact the device, 5-7 less so. *Note: some of Mr. Odom's keywords in figure 33-3 on page 783 are singular. I'm using the exact spelling that IOS uses, with added capitals.*

LEVEL	KEYWORD	LEVEL	KEYWORD
0	Emergencies	4	Warnings
1	Alerts	5	Notifications
2	Critical	6	Informational
3	Errors	7	Debugging

Options—You can control whether the current system time and a sequential number are included.

```
R1 (config)# [no] service timestamps
R1 (config)# [no] service sequence-numbers
```

Logging Destinations & Maximum Severity Level per Destination—For every logging destination except the Syslog server, how much information to send (keyword or number) can be included at the end of the enabling command. Sending to an external Syslog server is slightly different, using the separate "trap" command to set severity levels. By default, all severity levels go to the console and nowhere else.

DESTINATION	CONFIGURATION
Console	R5 (config)# [no] logging console [3] <i>Message levels 0-3 will be sent to console. The keyword "errors" could have been used instead with no change in meaning. Default 7.</i>
Telnet / SSH	R5 (config)# [no] logging monitor [warnings]
RAM	R5 (config)# [no] logging buffered [6] <i>Any number from 0-7 is a severity to log.</i> R5 (config)# logging buffered 4096 <i>Any number 4096 or above is the size in bytes for message storage</i>
Syslog Server	R5 (config)# [no] logging [host] 10.0.0.1 <i>The "host" keyword is optional with IPv4 and changes nothing</i> R5 (config)# [no] logging host ipv6 2001:db8::1 R5 (config)# logging trap 7

R1# **show logging**

```
Syslog logging: enabled (11 messages dropped, 1 messages rate-limited,
                  0 flushes, 0 overruns, xml disabled, filtering disabled)
  Console logging: level debugging, 38 messages logged, xml disabled,
                  filtering disabled
  Monitor logging: level debugging, 0 messages logged, xml disabled,
                  filtering disabled
  Buffer logging: level debugging, 4 messages logged, xml disabled,
                  filtering disabled
  Logging Exception size (4096 bytes)
  Count and timestamp logging messages: disabled
```

No active filter modules.

```
Trap logging: level informational, 42 message lines logged
```

Log Buffer (4096 bytes):

Because log buffering was turned on, this command also displays the messages in that historical buffer.

```
%SYS-5-CONFIG_I: Configured from console by console
```

```
%LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
```

```
%SYS-5-CONFIG_I: Configured from console by console
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

R1# **clear logging**

Flush buffered log messages. Not mentioned by Odom.

Debug Command—The Cisco device can produce detailed logging messages for troubleshooting specific areas of operation, at the expense of CPU load.

R5# **debug ip icmp**

ICMP packet debugging is on

The messages show up as level 7 and you can keep an eye on the effect you're having on the CPU.

R5# **show process cpu**

CPU utilization for five seconds: 0%/0%; one minute: 0%; five minutes: 0%

PID	Runtime(ms)	Invoked	uSecs	5Sec	1Min	5Min	TTY	Process
1	4	46	86	0.00%	0.00%	0.00%	0	Chunk Manager
2	48	15970	3	0.07%	0.03%	0.02%	0	Load Meter
3	4	1	4000	0.00%	0.00%	0.00%	0	LICENSE AGENT

The process list can go on for many pages