



Viewing and Responding to Alarms

Cisco MGX switches display alarm information about the switch cards and store this information inside the switch. This chapter describes how to interpret the alarm LEDs on the switch and how to obtain alarm reports through the CLI.

Viewing and Responding to Alarms Using Physical Switch Controls

All cards have LEDs for viewing alarm status and switches for responding to alarms. The “Illustrated Card List” chapter in the *Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.1* describes the LEDs for all cards that can be installed in the MGX 8850 (PXM1E/PXM45), MGX 8950, and MGX 8830 switches.



Note

Although there are LEDs for critical, major, and minor alarms on the PXM45 and PXM1E cards, only one of these LEDs is set to “on” when multiple alarms are active. The switch always displays the status of the most severe alarm. Critical alarms are the most severe, and minor alarms are the least severe. If there were 2 major alarms and 10 minor alarms, the switch would set the major alarm LED to on.

Displaying Alarm Reports in the CLI

You can use a CLI session to view the status of node alarms. Alarms are reported in the following categories:

- Node alarms
- Clock alarms
- Switching alarms (on MGX 8850 (PXM45) and MGX 8950 switches only)
- Environment alarms
- Card alarms
- License alarms

The sections that follow describe how to display the different types of alarm reports.

**Note**

The procedures in the following sections can be completed by users at all access levels.

Displaying Node Alarms

A node alarm report displays a summary report of all alarms on the node. To display node alarms, enter the following command:

```
M8830_CH.1.PXM.a > dspndalms
```

The following example shows the node alarm report display.

```
M8830_CH.1.PXM.a > dspndalms
Node Alarm Summary
```

Alarm Type	Critical	Major	Minor
-----	-----	-----	-----
Clock Alarms	0	0	0
Switching Alarms	0	0	0
Environment Alarms	0	0	0
Card Alarms	3	2	0
Node License Alarm	0	0	0

Typically, you would start investigating alarms by displaying the node alarms. Once you have identified the area that is producing the alarms, you would enter additional commands to display detailed information on those alarms. The following sections describe how to display these detailed reports.

Displaying Clock Alarms

Cisco MGX switches monitor the quality of the clock sources. If the timing for a clock source strays beyond the tolerance thresholds, an alarm is reported. To view the clock alarms, enter the following command:

```
mgx8850a.2.PXM.a> dspclkalms
```

The following is an example clock alarm report:

```
mgx8850a.2.PXM.a> dspclkalms
mgx8850a                               System Rev: 03.00   May. 06, 2002 22:47:36 GMT
MGX8830                               Node Alarm: MINOR
Clock Manager Alarm Summary
-----
NETWORK CLOCK ALARM : STANDBY LOST PRIMARY REFERENCE : MINOR
NETWORK CLOCK ALARM : STANDBY LOST SECONDARY REFERENCE : MINOR
Critical      Major      Minor
000           000           002
```

Displaying Switching Alarms

Switching alarms identify problems with the switching components within the switch. MGX 8850 (PXM45) and MGX 8950 support several commands that allow you to display switching alarms.

**Note**

PXM1E do not support switching alarms. Therefore, the commands in this section do not apply to MGX 8850 (PXM1E) and MGX 8830 switches.

To display a report of all switching alarms, enter the following command:

```
M8850_LA.8.PXM.a > dspswalms
```

The following example is a sample report showing no switching alarms.

```
M8850_LA.8.PXM.a > dspswalms
```

```

XBAR SWITCHING FABRIC ALARMS SUMMARY

Slot No.      Xbar Core Alarm      Xbar Port Alarm      Xbar Slot B/W alarm
              Critical Major Minor  Critical Major Minor  Critical Major Minor
-----
01             0         0         0           0         0         0           0         0         0
02             0         0         0           0         0         0           0         0         0
03             0         0         0           0         0         0           0         0         0
04             0         0         0           0         0         0           0         0         0
05             0         0         0           0         0         0           0         0         0
06             0         0         0           0         0         0           0         0         0
07            --         --         --          --         --         --          --         --         --
08             0         0         0           0         0         0           0         0         0
09            --         --         --          --         --         --          --         --         --
10             0         0         0           0         0         0           0         0         0
11             0         0         0           0         0         0           0         0         0
12             0         0         0           0         0         0           0         0         0
13            --         --         --          --         --         --          --         --         --
14            --         --         --          --         --         --          --         --         --

```

To display additional information on switch alarms, enter the following commands:

- **dspXbarPlaneAlms**
- **dspxbarslotbwalms**

To display a report for xbar alarms, enter the following command:

```
M8850_NY.7.PXM.a > dspdevalms XBARCORE -pslot *
```

The following display is an example xbar alarm report.

```
M8850_LA.8.PXM.a > dspdevalms XBARCORE -pslot *
M8850_LA                      System Rev: 05.00   Apr. 13, 2004 18:24:37 GMT
MGX8850                        Node Alarm: MAJOR
```

```

                XBAR CORE ALARM SEVERITY INFO SUMMARY
                Fabric Slot / Plane
Slot   7/0   7/1   7/2   8/0   8/1   8/2
-----
01    --    --    --    --    --    --
02    --    --    --    --    --    --
03    --    --    --    --    --    --
04    --    --    --    --    --    --
05    --    --    --    --    --    --
06    --    --    --    --    --    --
07    --    --    --    --    --    --
08    --    --    --    --    --    --
09    --    --    --    --    --    --
10    --    --    --    --    --    --
11    --    --    --    --    --    --
12    --    --    --    --    --    --
13    --    --    --    --    --    --
14    --    --    --    --    --    --

```

When the switch reports xbar alarms, you can use the troubleshooting commands in [Table 11-1](#) to collect more information.

Table 11-1 Crossbar Alarm Troubleshooting Commands

Command	Purpose
<code>dspxbar <slot> <plane></code>	<p>Displays the following general information about the configuration of a switch plane (or switching fabric or crossbar):</p> <ul style="list-style-type: none"> • Number of the slot where the crossbar ASIC resides (7 or 8 for a MGX 8850 (PXM1E) node, 9, 10, 25, or 26 for a MGX 8950 node). • Selected switch plane or ASIC number. The range is 0 to 3. If you do not specify a plane with this command, the default value of 0 is used. • Revision number of the ASIC. • Status of the ASIC. The status is either failed or OK. If the status is failed, the other ASICs must carry the switching load, and the throughput of the switch falls below the maximum. In this case, Cisco Systems recommends you replace the card. The cell grant mode is always “Multicast Preferred.” • The “Resent Sframe Tic” is the rising edge of the clock. “Sframe” refers to a switch frame.
<code>dspdeverrhist XBARCORE -pslot *</code>	Displays a historical count of errors.
<code>dspdeverr XBARCORE -pslot *</code>	Displays the current count of errors.

Table 11-1 Crossbar Alarm Troubleshooting Commands (continued)

Command	Purpose
<code>dspxbarerrthresh</code>	<p>Displays the thresholds for crossbar errors. The following items that make up a threshold are as follows:</p> <ul style="list-style-type: none"> • Duration of the error state • Number of errors during that time period • Upper and lower error counts within a particular alarm severity (minor, major, and critical) <p>Thresholds are displayed for the following errors:</p> <ul style="list-style-type: none"> • Loss of synchronization (LossOfSync) • Transceiver error (TranscieverErr) • DisparityErr—an accumulation of five ASIC-level errors • ParityErr—a parity error in the switch frame as a whole • HeaderCRCErr—a CRC error for the switch frame header • PayloadCRCErr—a CRC error for the switch frame payload • RemapTwiceErr • RemapRecurrErr • Backpressure parity error (B.P.ParityErr)—a parity error in the signaling for backpressure
<code>dspxbarmgmt</code>	Displays details about the load sharing configuration for the node.
<code>dspxbarstatus</code>	Displays status of each slot for a crossbar.

For more information on these commands, refer to the *Cisco MGX 8800/8900 Series Command Reference, Release 5.1*.

Displaying Environment Alarms

An environmental alarm report displays the alarm status and operating statistics for the switch power supplies and cooling fans. To display the environmental alarm report, enter the `dspevalms` command as shown in the following example:

```
mgx8830a.2.PXM.a > dspevalms

Type <CR> to continue, Q<CR> to stop:
mgx8830a                System Rev: 03.00    May 06, 2002 23:40:57 GMT
MGX8830                 Node Alarm: MINOR
ENVIRONMENTAL ALARM STATE INFO  ^Notification Disabled
  Alarm Type      Unit  Threshold  DataType  Value  State
-----
Top Fan Tray     6    >= 2000   RPM       3654   Normal
Top Fan Tray     7    >= 2000   RPM       3576   Normal
Top Fan Tray     8    >= 2000   RPM       3468   Normal
Top Fan Tray     9    >= 2000   RPM       3492   Normal
```

■ Displaying Alarm Reports in the CLI

```

Bottom Fan Tray 1 >= 2000 RPM 0 Missing
Bottom Fan Tray 2 >= 2000 RPM 0 Missing
Bottom Fan Tray 3 >= 2000 RPM 0 Missing
Bottom Fan Tray 4 >= 2000 RPM 0 Missing
Bottom Fan Tray 5 >= 2000 RPM 0 Missing
Bottom Fan Tray 6 >= 2000 RPM 0 Missing
Bottom Fan Tray 7 >= 2000 RPM 0 Missing
Bottom Fan Tray 8 >= 2000 RPM 0 Missing
Bottom Fan Tray 9 >= 2000 RPM 0 Missing

+5V Input 4.850^ to 5.150^ VoltsDC 5.036 Informational
+3.3V Input 3.200^ to 3.400^ VoltsDC 3.298 Informational

```

Type <CR> to continue, Q<CR> to stop:

MGX8830

Node Alarm: MINOR

ENVIRONMENTAL ALARM STATE INFO ^Notification Disabled

Alarm Type	Unit	Threshold	DataType	Value	State
Fan Tray	6	>= 2000	RPM	2766	Normal
Fan Tray	7	>= 2000	RPM	2676	Normal
Fan Tray	8	>= 2000	RPM	2610	Normal
+5V Input		4.850^ to 5.150^	VoltsDC	4.997	Informational
+3.3V Input		3.200^ to 3.400^	VoltsDC	3.259	Informational
Calibration VDC		0x7e^ to 0x82^	Other	0x80	Informational

Displaying Card Alarms

A card alarm report can display the alarm status of all the cards within the node or the alarm status of a single card. To display card alarms, enter the following command at the PXM45 or PXM1E switch prompt:

```
mgx8830a.2.PXM.a> dspcdalms [slot]
```

Replace *[slot]* with the number of the card for which you want to display alarms. If you omit the slot number, the switch displays the alarms for all cards in the node as shown in the following example:

```
M8830_CH.1.PXM.a > dspcdalms
```

Card Alarm Summary

Slot	Critical	Major	Minor	Slot	Critical	Major	Minor
1	1	0	0	8	0	0	0
2	0	0	0	9	0	0	0
3	0	0	0	10	0	0	0
4	0	0	0	11	0	0	0
5	0	0	0	12	2	2	0
6	0	0	0	13	0	0	0
7	0	0	0	14	0	0	0

Use `dspcdalms <slot>` to see more detail.

The next example shows a card alarm report for an MPSM-T3E3-155 card in slot 12:

```
M8830_CH.1.PXM.a > dspcdalms 12
Card Alarm Summary
```

Alarm Type	Critical	Major	Minor
Hardware Alarm	0	0	0
Card State Alarm	0	0	0
Disk Alarm	0	0	0
Diag Alarm	0	0	0
License Alarm	0	0	0
Resource Alarm	0	0	0
SRM Alarm	0	0	0
IMA Alarm	0	0	0
MFR Alarm	1	0	0
Line Alarm	0	0	0
Path Alarm	2	0	0
Port Alarm	0	0	0
LMI Alarm	0	0	0
Channel Alarm	0	2	0
SAR Alarm	0	0	0

Table 11-2 lists commands that you can enter to display additional information about alarms that appear in the `dspcdalms` report.

Table 11-2 Card Alarm Information Commands

Alarm Type	Commands
Hardware	<code>dspHwAlms</code>
Card state	<code>dspcd <slot></code>
License	<code>dsplicalms</code>
Resource	<code>dspmalms</code>
IMA	<code>dspimagrpalms</code> <code>dspimalnkalms</code>
Feeder	<code>dspfdrs</code> <code>dspfdr</code>
Line	<code>dspalms</code> <code>dsplns</code> <code>dspln</code> <code>dspapslns</code> <code>dspapsln</code>
Port	<code>dspports</code> <code>dspnports</code>
Channel or Connection	<code>dspconalarms</code> <code>dspcons</code> <code>dspcon</code>
SAR	<code>dpsaralms</code>

Displaying Line Alarms on Service Modules

The service modules generate line alarms when a loss of signal (LOS) alarm occurs.

[Table 11-3](#) lists commands that you can enter to display information about line alarms on service modules.

Table 11-3 Line Alarm Information Commands

Alarm Type	Description
dspalm	Display the active alarms associated with a specific line on the current service module. Enter the command without parameters to view the command syntax.
dspalcnf	Display the alarm configuration and thresholds for a specific line on the current service module. Enter the command without parameters to view the command syntax.
dspalcnt	Display the alarm counters for a line on the current service module. The alarm counters indicate how many times each type of active alarm has occurred since the counters were last reset. Enter the command without parameters to view the command syntax.
dspalms	Display a summary of the active line alarms on the current service module. This command does not require parameters.

For detailed information about line alarms on specific service modules, refer to that service module's configuration guide. The service module configuration guides are listed in [Table 1-1](#).

Displaying IMA Alarms

Enter the **dspimagrpalms** command to display alarm state information for all IMA groups on the current PXM1E-16-T1E1 or AXSM-32-T1E1-E, as shown in the following example:

```
Unknown, 7.PXM.a > dspimagrpalms

Group Number           : 2.1
Alarm State             : StartUp Fe

Group Number           : 2.2
Alarm State             : Other Failure
```

Enter the **dspimagrpalms <bay.group>** command to display alarm state information for a specific IMA group. Replace bay with the number 1 to specify the lower bay, or 2 to specify the lower bay. Replace group with the IMA group whose alarm status you want to view.

In the following example, the user displays alarm information for the IMA group 2 in the lower bay.

```
Unknown, 7.PXM.a > dspimagrpalms 2.2

Group Number           : 2.2
Alarm State             : Other Failure
```


Enter the **dspimalnkalms** command to display alarm state information for all IMA links on the current PXM1E-16-T1E1 or AXSM-32-T1E1-E, as shown in the following example.

```
Unknown.7.PXM.a > dspimalnkalms

Link Number      : 2.5
Alarm State      : Lif Fail
```

Enter the **dspimalnkalm <bay.line>** command to display alarm state information for a specific IMA link. Replace bay with the 2 to specify the lower bay. Replace *line* with number of the line whose alarm status you want to view.

Note On the PXM1E, the bay number is always 2.

In the following example, the user displays alarm information for the IMA group 5 in the lower bay.

```
Unknown.7.PXM.a > dspimalnkalm 2.5

Link Number      : 2.5
Alarm State      : Lif Fail
```



Note

The commands in this section apply to the AXSM-32-T1E1-E and the PXM1E-16-T1E1 only. For information on the commands used to display alarms on AUSM-8-T1E1/B cards, refer to the *Cisco ATM Services (AUSM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.1*.

Displaying License Alarms

Enter the **dspicalms** command to display alarm state information for MPSM feature licenses. For example:

```
M8850_SF.8.PXM.a > dspicalms
M8850_SF                      System Rev: 05.00    Oct. 14, 2004 20:15:08 GMT
MGX8850                      Node Alarm: CRITICAL

Slot  Critical  Major  Minor  || Slot  Critical  Major  Minor
----  -
1      0          0      0     || 17     0          0      0
2      0          0      0     || 18     0          0      0
3      0          0      1     || 19     0          0      0
4      0          0      0     || 20     0          0      0
5      0          0      0     || 21     0          0      0
6      0          0      0     || 22     0          0      0
7      0          0      0     || 23     0          0      0
8      0          0      0     || 24     0          0      0
9      0          0      1     || 25     0          0      0
10     0          0      0     || 26     0          0      0
11     0          0      0     || 27     0          0      0
12     0          0      1     || 28     0          0      0
13     0          0      0     || 29     0          0      0
14     0          0      0     || 30     0          0      0
15     0          0      0     || 31     0          0      0
16     0          0      0     || 32     0          0      0

M8850_SF.8.PXM.a >
```

To display license information on all cards, enter the **dspllicds** command as shown in the following example:

```
M8830_CH.1.PXM.a > dspllicds
M8830_CH                      System Rev: 04.09   Mar. 08, 2004 09:33:59 GMT
MGX8830                        Node Alarm: CRITICAL
```

Slot	Card Type	Card Lic Alarm	Prov Allowed	License Type	Allocated Licenses
3	--	--	--	--	0
4	--	--	--	--	0
5	--	--	--	--	0
6	--	--	--	--	0
7	--	--	--	--	0
8	--	--	--	--	0
9	--	--	--	--	0
10	--	--	--	--	0
11	--	--	--	--	0
12	MPSM-T3E3-155	No	Yes	MultiSrvc Channelize RateControl	1 1 1
13	--	--	--	--	0
14	--	--	--	--	0

To display license information on a specific card, enter the **dspllicd** command as shown in the following example:

```
M8830_CH.1.PXM.a > dspllicd 12
M8830_CH                      System Rev: 04.09   Mar. 08, 2004 09:34:12 GMT
MGX8830                        Node Alarm: CRITICAL
Card License Alarm:            None
Service Module Type:          MPSM-T3E3-155
Service Module Serial Number: SAD073504CT
Provisioning Allowed:         Yes
```

```
=====
Allocated License Type      Quantity
-----
MultiSrvc                   1
Channelize                   1
RateControl                  1
=====

Programmed License Type      Quantity
-----

=====
Programmed License Registered : N/A
License Registration Node     : --
License Registration Chassis Serial No: --
```

Displaying Log File Information

Log files record switch events such as operator login and command entry. To view the contents of the current log, enter the following command at the PXM1E or PXM45 switch prompt:

```
mgx8830a.2.PXM.a> dspllog [-log <number>] [-mod moduleName] [-sev <number>] [-sl <slot>]  
[-task <taskName>] [-tge <MM/DD/YYYY-HH:MM:SS>] [-tle <MM/DD/YYYY-HH:MM:SS>]
```

To display a list of archived log files, enter the following command:

```
mgx8830a.2.PXM.a> dspllogs
```

The log files are stored in the **C:/LOG** directory.

