



Viewing and Responding to Alarms

MGX 8850 and MGX 8950 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

The PXM45, AXSM, and RPM cards have LEDs for viewing alarm status and switches for responding to alarms. The following sections describe these controls.

PXM45 Card Controls

[Figure 9-1](#) shows the LEDs and switches available on the front of the PXM45 card. [Table 9-1](#) describes these controls.



Note

Although there are LEDs for critical, major, and minor alarms on the PXM45, 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.

Figure 9-1 PXM45 Front Card Controls

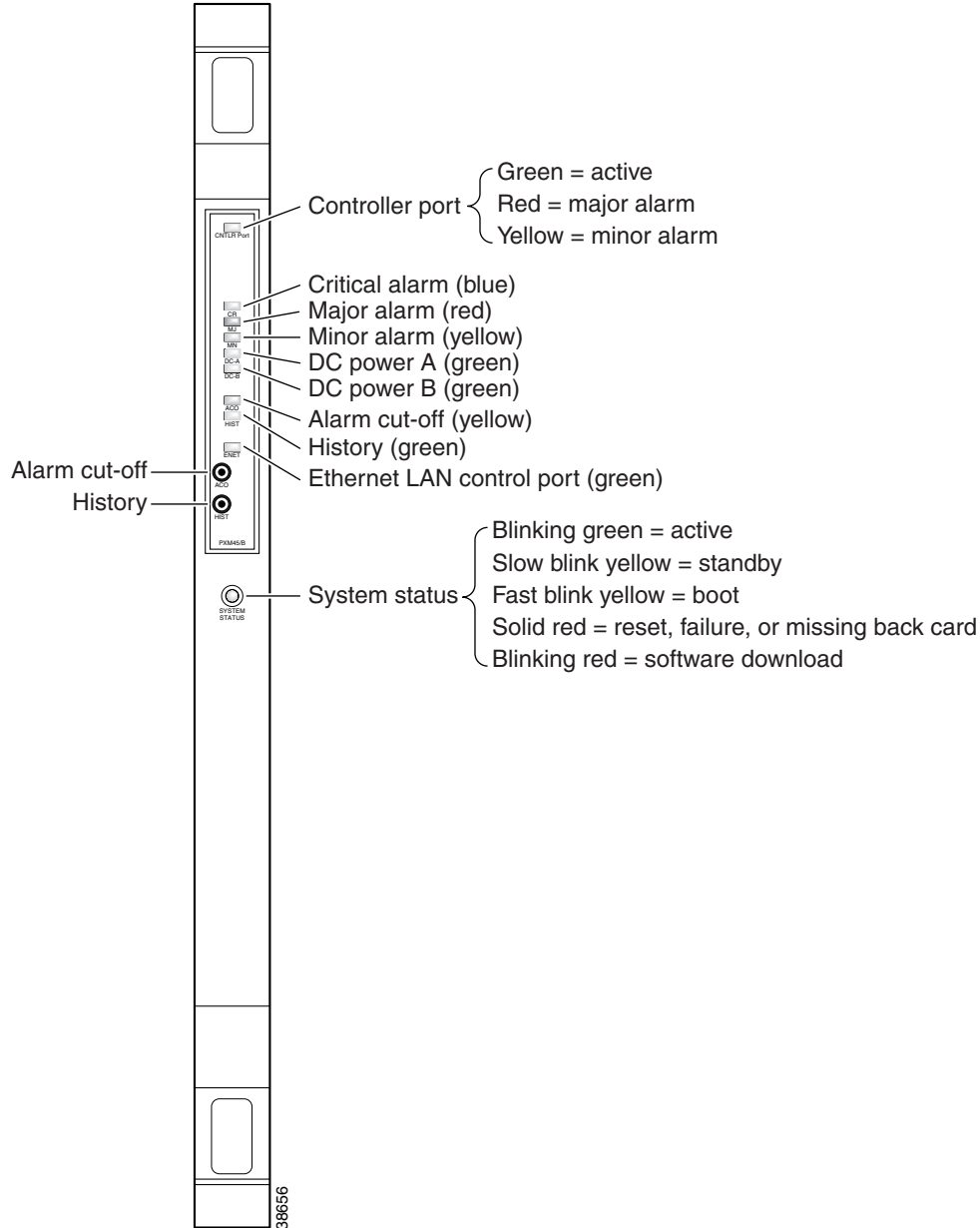


Table 9-1 LED Indicators for PXM45

LED Label	Color	Meaning
CNTRLR Port (Controller Port)	Green	The Controller port is active.
	Red	Major alarm on the controller port.
	Yellow	Minor alarm on the controller port.
	None	No light indicates the port has not been activated (upped).

Table 9-1 LED Indicators for PXM45 (continued)

LED Label	Color	Meaning
System Status	Green	Blinking green indicates that the card is in the active state.
	Yellow	Slow blinking yellow indicates that the card is in the standby state.
		Fast blinking yellow indicates that the card is in the boot state.
	Red	Solid red indicates that the card is in the Reset state, the card has failed, or a back card is missing.
Blinking red indicates that the card is downloading new software.		
CR (Critical alarm)	Blue	A critical alarm indicates a condition that results in a loss of service for which the switch cannot correct. For example, when APS redundancy is not present, a broken trunk cable generates a critical alarm. Immediate action is required.
MJ (Major alarm)	Red	A major alarm indicates a component or service failure that currently has minimal impact on service. For example, if one card in a redundant AXSM configuration fails, the good card takes over and the switch displays a major alarm. Urgent action is required to recover the failed component or service.
MN (Minor alarm)	Yellow	A minor alarm indicates a non-service affecting condition that should be corrected. Minor alarms can indicate internal switch failures, such as the failure of a single fan, or external failures that cannot be corrected at the switch.
HIST (History)	Green	Green indicates that a network alarm occurred. Critical and major alarms clear automatically when the problem is resolved. Minor alarms remain lit until cleared with the history button. If there are critical or major alarms in progress, you cannot reset the HIST light. If the card indicates a minor alarm, press the HIST button once to see if the alarm condition has passed. When all alarms are cleared, press the HIST button to turn off the HIST LED.
ACO (Alarm cut-off)	Yellow	Yellow indicates that the ACO switch was pushed to clear the audible alarm indicator, but the alarm condition still exists.
DC-A	Green	Green indicates that the power supplies in tray "A" are functioning.
	None	No light indicates that power supply tray "A" is empty (no power modules).
DC-B	Green	Green indicates that the power supplies in tray "B" are functioning.
	None	No light indicates that power supply tray "B" is empty (no power modules).
ENET (Ethernet)	Green	Blinking green indicates that there is activity on the LAN Control Port.

AXSM Card Controls

Figure 9-2 shows the LEDs available on the front of the AXSM card. Table 9-2 describes these LEDs.

Figure 9-2 AXSM Card Controls (MGX-AXSM-4-622)

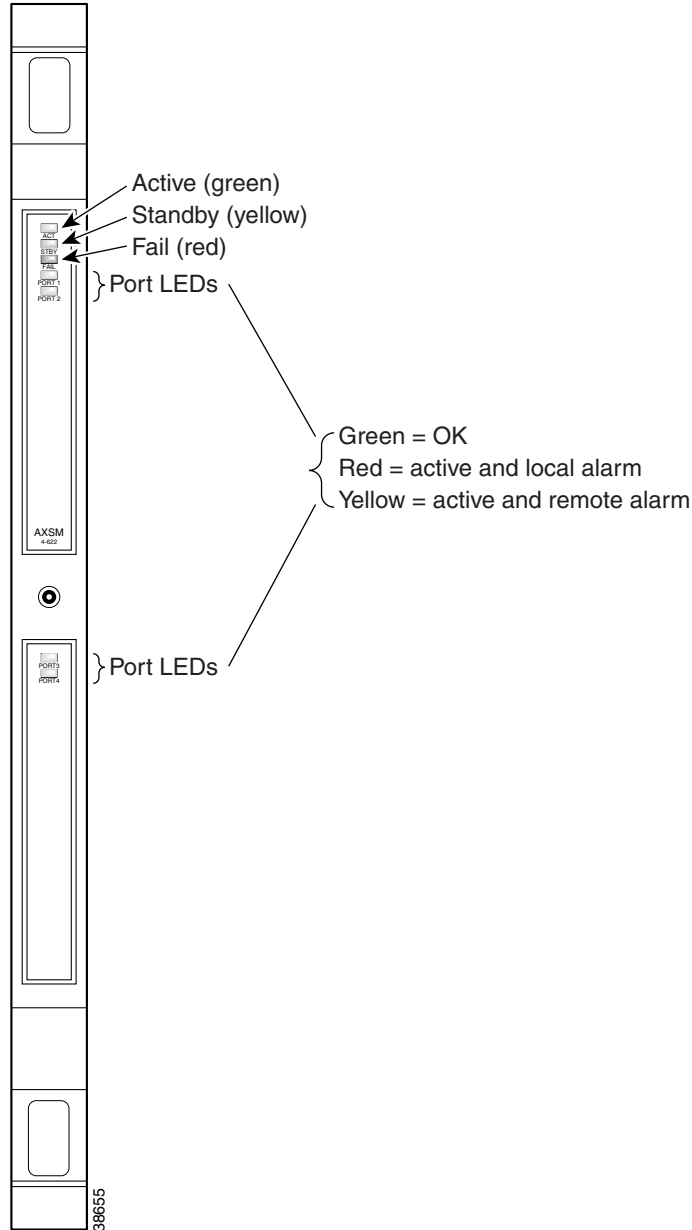


Table 9-2 LED Indicators for AXSM Card

LED	Color	Description
Active	Green	Card is active.
Standby	Yellow	Card is in standby mode.
Fail	Red	Failure detected on card.
Line	Green	The line is active and there are no alarms.
	Red	The line is active, but a local alarm has been detected.
	Yellow	The line is active, and a remote alarm has been detected.

RPM-PR Card Controls

Figure 9-3 shows the LEDs available on the front of the RPM-PR card. Table 9-3 describes these LEDs.

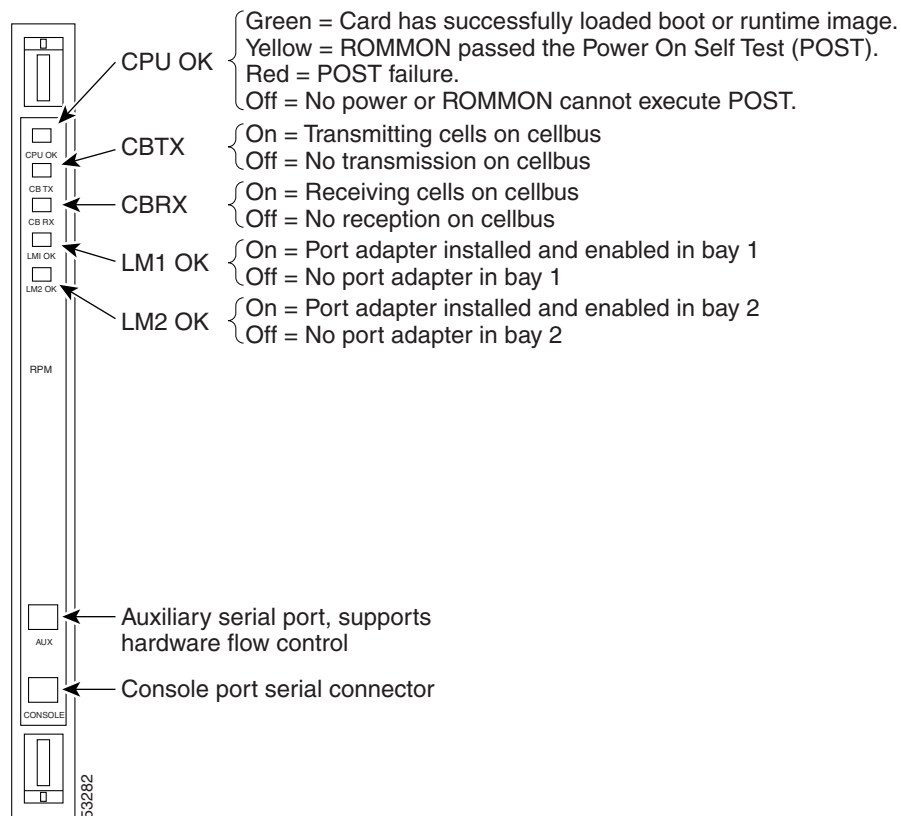
Figure 9-3 RPM-PR Card Controls

Table 9-3 LED Indicators for RPM-PR Card

LED	Color	Description
CPU OK	Green	RPM-PR has successfully loaded the boot or runtime software.
	Yellow	ROMMON passed the Power On Self Test (POST).
	Red	POST failure.
	Off	No power or ROMMON cannot execute POST.
CB TX	On	Transmitting cells on cellbus.
	Off	Not transmitting cells on cellbus.
CB RX	On	Receiving cells from cellbus. This light stays on solid when downloading software.
	Off	Not receiving cells from cellbus.
LM1	On	Port adapter installed and enabled in bay 1.
	Off	No port adapter installed in bay 1.
LM2	On	Port adapter installed and enabled in bay 2.
	Off	No port adapter installed in bay 2.

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
- Environment alarms
- Card alarms

This section describes 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:

```
pop20two.7.PXM.a > dsnda1ms
```

The following is an example of the node alarm report.

```
M8850_LA.7.PXM.a > dspndalms
Node Alarm Summary
```

Alarm Type	Critical	Major	Minor
-----	-----	-----	-----
Clock Alarms	0	0	0
Switching Alarms	0	0	3
Environment Alarms	0	0	0
Card Alarms	1	4	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

MGX 8850 and MGX 8950 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:

```
pop20two.7.PXM.a > dspclkalrms
```

The following is an example clock alarm report:

```
pop20two.7.PXM.a > dspclkalrms
pop20two                System Rev: 02.00   Sep. 02, 2000 23:39:22 GMT
MGX8850                 Shelf Alarm: NONE
Clock Manager Alarm Summary
-----
Critical      Major      Minor
000           000       000
```

Displaying Switching Alarms

Switching alarms identify problems with the switching components within the switch. To display a report of all switching alarms, enter the following command:

```
pop20two.7.PXM.a > dspswalms
```

The following is a sample report showing no switching alarms.

```
pop20two.7.PXM.a > dspswalms
Node Switching Alarm Summary

Card Crossbar           Critical 0   Major 0   Minor 0
Crossbar Fabric         Critical 0   Major 0   Minor 0
Humvee Alarm            Critical 0   Major 0   Minor 0
```

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

- **dspswalm** <slot>
- **dspxbaralms**
- **dspxbarerrent**

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

```
M8850_NY.7.PXM.a > dspxbaralm
```

The following is a sample xbar alarm report.

```
M8850_NY.7.PXM.a > dspxbaralm
M8850_NY                System Rev: 02.01   Sep. 18, 2001 07:12:43 PST
MGX8850                Node Alarm: NONE

   Slot   Plane   Severity
   ----   -
       7     0     None
       7     1     None
       7     2     None
       8     0     None
       8     1     None
       8     2     None
```

When the switch reports xbar alarms, you can use the troubleshooting commands in [Table 9-4](#) to collect more information.

Table 9-4 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 an MGX 8850 node, 9, 10, 25 or 26 for an 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>dspxbaralm</code>	Shows whether a crossbar alarm is minor, major, or critical. The display shows status on both the active and standby PXM-45.

Table 9-4 Crossbar Alarm Troubleshooting Commands (continued)

Command	Purpose
dspxbarerrcnt	<p>Displays the following types of slot-link errors:</p> <ul style="list-style-type: none"> • Loss of synchronization between the ASIC and the queuing circuitry on the service module. The synchronization in this case applies to the timing of the internal switching frames (Sframes). Loss of synchronization is a very serious error. • Receiver code violations (Rx Cv column in the display). • Receiver disparity errors (Rx Disp column in the display). A disparity error is a summary of five ASIC-specific alarms. • Transmitter parity errors. • CRC failures for the header or the payload of the 60-byte Sframe. • Failures to remap between slots as needed or excessive remapping between slots (Slot Remap and Slot Recur columns in the display). • Parity errors in back-pressure messages.
dspxbarerrthresh	<p>Displays the thresholds for crossbar errors. The following items that make up a threshold are the:</p> <ul style="list-style-type: none"> • Duration of the errored 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
dspxbarmgmt	Displays details about the load sharing configuration for the node.
dspxbarstatus	Displays status of each slot for a crossbar.

For more information on these commands, refer to the *Cisco MGX 8850 and MGX 8950 Switch Command Reference*.

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 **dspenvalms** command as shown in the following example:

```
pop20two.7.PXM.a > dspenvalms
pop20two                System Rev: 02.00   Sep. 02, 2000 23:40:57 GMT
MGX8850                Shelf Alarm: NONE
ENVIRONMENTAL ALARM STATE INFO ^Notification Disabled
  Alarm Type      Unit  Threshold      DataType  Value      State
-----
Temperature      <= 50          Celsius    29         Normal

Power Supply     A1  none           None       none       Missing
Power Supply     A2  none           None       none       Missing
Power Supply     A3  none           None       none       Missing
DC Voltage       A   42 to 54       VoltsDC    0          Normal

Power Supply     B1  none           None       none       Missing
Power Supply     B2  none           None       none       Missing
Power Supply     B3  none           None       none       Missing
DC Voltage       B   42 to 54       VoltsDC    0          Normal

Top Fan Tray     1   >= 2000        RPM        3642       Normal
Top Fan Tray     2   >= 2000        RPM        3618       Normal
Top Fan Tray     3   >= 2000        RPM        3714       Normal
Top Fan Tray     4   >= 2000        RPM        3642       Normal
Top Fan Tray     5   >= 2000        RPM        3474       Normal
```

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

```
pop20two                System Rev: 02.00   Sep. 02, 2000 23:40:57 GMT
MGX8850                Shelf Alarm: NONE
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

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:

```
pop20two                System Rev: 02.00   Sep. 02, 2000 23:40:57 GMT
MGX8850                Shelf Alarm: NONE
ENVIRONMENTAL ALARM STATE INFO ^Notification Disabled
  Alarm Type      Unit  Threshold      DataType  Value      State
-----
+2.5V Input      2.425^ to 2.575^ VoltsDC    2.479     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:

```
pop20two.7.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:

```
M8850_LA.7.PXM.a > dspcdalms
Card Alarm Summary
```

Slot	Critical	Major	Minor	Slot	Critical	Major	Minor
1	1	0	0	17	0	0	0
2	0	0	0	18	0	0	0
3	0	0	0	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	0	25	0	0	0
10	0	0	0	26	0	0	0
11	0	0	0	27	0	0	0
12	0	0	0	28	0	0	0
13	0	0	0	29	0	0	0
14	0	0	0	30	0	0	0
15	0	1	0	31	0	1	0
16	0	1	0	32	0	1	0

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

The next example shows a card alarm report for an AXSM card in slot 1:

```
M8850_LA.7.PXM.a > dspcdalms 1
Card Alarm Summary
```

Alarm Type	Critical	Major	Minor
Hardware Alarm	0	0	0
Card State Alarm	0	0	0
Disk Alarm	0	0	0
SRM Alarm	0	0	0
Line Alarm	1	0	0
Port Alarm	0	0	0
Feeder Alarm	0	0	0
Channel Alarm	0	0	0

[Table 9-5](#) lists commands that you can use to display additional information about alarms that appear in the `dspcdalms` report.

Table 9-5 Card Alarm Information Commands

Alarm Type	Commands
Card state	dspcd <slot>
Channel or Connection	dspconalarms dspcons dspcon
Feeder	dspfdrs dspfdr
Line	dspalms dsplns dspln dspapslns dspapsln
Port	dspports dspnpports

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:

```
pop20two.7.PXM.a > dsplog [-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:

```
pop20two.7.PXM.a > dsplogs
```

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