A P P E N D I X   **B**

PXM1E Backup Boot Procedures

When a PXM1E card starts up, it first loads the boot software on the card. If the PXM1E cannot load the runtime firmware, the card continues to run the boot software in what is called *backup boot* mode. The backup boot prompt is as follows:

```
PXM1Ebkup>
```

Some switch procedures, such as PXM1E card initialization and boot software upgrades, must be performed in backup boot mode. This appendix describes the following procedures:

- Changing to PXM1E Backup Boot Mode
- Browsing the File System in Backup Boot Mode
- Locating Software Updates
- Transferring Software Files to and from the Switch
- Clearing the Switch Configuration
- Initializing the PXM1E Hard Disk

Changing to PXM1E Backup Boot Mode

You must enter PXM1E backup boot mode to perform certain configuration procedures such as burning boot software. The following procedure describes how to switch to backup boot mode.

Step 1 If you have not done so already, establish a CLI session with the PXM1E card using the CP port on the UI-S3 back card and a user name with CISCO_GP privileges.

✎
Note A CP port session is required because you will be resetting the node and entering commands in "Backup Boot mode," which is not accessible through other connection methods.

Step 2 At the switch prompt, enter the **sh** command to switch to the PXM1E shell mode.

```
mgx8850a.7.PXM.s > sh
```

The switch will display the following shell mode prompt:

```
PXM1E>
```

Step 3   At the shell prompt, enter the **sysBackupBoot** command

```
PXM1E> sysBackupBoot
```

> ✎
> **Note**   This command and all commands that you enter in shell mode are case sensitive.

The PXM1E card reboots after you enter this command.

> 🔎
> **Tip**   If you are accessing the CP port through a terminal server, rebooting the PXM1E may disrupt your connection. Random characters may appear on the display or the display may appear to "hang." If this happens, use your terminal software command to reset the terminal connection. After a successful reset, switch status messages should start appearing on the display.

When the reboot is complete, a PXM1E Backup Boot banner appears.

Step 4   When the PXM1E Backup Boot banner appears, press return to display the backup boot prompt:

```
PXM1Ebkup>
```

When the backup boot prompt appears, you are in backup boot mode.

> ⚠
> **Caution**   Some backup boot mode commands, such as debug commands, can consume switch resources and reduce switch performance. Cisco Systems, Inc., recommends that you only execute backup boot commands described in the product documentation. Experimenting with some commands can degrade switch performance or interrupt switch operation completely.

Step 5   If the PXM1E you restarted is the standby card for an active PXM1E card in the same switch, enter the **sysPxmRemove** command to prevent the active card from restarting the card you on which you are working.

> 🔎
> **Tip**   To display a list of commands available in backup boot mode, enter the **help** command.

Browsing the File System in Backup Boot Mode

The PXM1E hard disk stores log files, configuration files, and boot and runtime software. The switch operating system supports a set of UNIX-like commands that you can use to locate log files or manage software updates. Many of the commands are the same commands that operate at the switch prompt, however, in backup boot mode you must enclose the file path in quotation marks. Table B-1 lists commands that you can use to browse the file system.

> ✎
> **Note**   File and directory names in the switch file system are case sensitive.

Table B-1   File System Commands at Backup Boot Prompt

Command	Description
cd	Change directories. Syntax: **cd** "*<path>*" Example: **cd** "C:FW"
copy	Copies a file from one location to another. Syntax: **copy** "*<source file name>*", "*<destination file name>*" Example: **copy** "C:FW/PXM1E_002.001.000.000_bt.fw", "C:FW/test"
remove	Deletes a file. Syntax: **remove** "*<file name>*" Example: **remove** "test"
ll	List directory contents using long format, which includes the name, size, modification date, and modification time for each file. This command also displays the total disk space and free disk space. Syntax: **ll** ["*path*"] Example: **ll** "C:FW" **Note** When you first start a session in backup boot mode, the present working directory is a directory on a remote server as specified by the runtime software **bootchange** command. If you enter the **ll** command and the remote server is unavailable or does not exist, the switch appears to hang as the switch attempts to access the remote server. To avoid this, select a directory on the C: drive with the **cd** command first or specify a path with the **ll** command. To reboot the PXM1E card when it is searching for a remote server, press **Control-X**.
ls	List directory contents using the short format, which displays filenames, total disk space, and free disk space. Syntax: **ls** ["*path*"] Example: **ls**
pwd	Display the present working directory. When you first start a session in backup boot mode, the present working directory is a directory on a remote server as specified by the runtime software **bootchange** command. To change to a directory on the C: drive, enter the **cd** command. Syntax: **pwd** Example: **pwd**
rename	Renames a file. Syntax: **rename** "*<old file name>*", "*<new file name>*" Example: **rename** "test", "deleteme"
whoami	Lists the login name for the current session. Since there is no user login procedure for backup boot mode, the username reported by the **whoami** command is the username configured by the runtime software **bootchange** command for remote server access. Syntax: **whoami** Example: **whoami**

Locating Software Updates

For information on locating software updates, refer to the *Release Notes for Cisco MGX 8850 and MGX 8830 Software Version 3 (PXM45/B and PXM1E).*

Transferring Software Files to and from the Switch

This section describes how to copy software files between the switch and another computer when the switch is in backup boot mode. In most cases, you will use this procedure because the switch cannot completely load the runtime software and ends start up in either backup boot mode or shell mode.

Note   When the switch displays the switch prompt (which includes the switch name), copy files to the switch using the procedure described in "Copying Software Files to the Switch" in Appendix A, "Downloading and Installing Software Upgrades."

The Cisco MGX 8850 and Cisco MGX 8830 switches provide a File Transfer Protocol (FTP) service to support file transfers between the switch and other computers. If you have FTP client software and network connectivity to both the switch and the server where the software files are stored, you can FTP files directly from the server to the switch. You can also use this FTP service to recover log files. boot and runtime files, or saved configuration files before replacing the hard disk.

To transfer files with the FTP service, use the following procedure.

Step 1   If you are copying software files to the switch, refer to the *Release Notes for Cisco MGX 8850 and MGX 8830 Software Version 3 (PXM45/B and PXM1E)* to locate a server from which you can download the files.

Step 2   Using a workstation with FTP client software, establish connections to the server where the files are stored and to the switch.

The procedure you use for transferring the files depends on the FTP client software you are using. When initiating the FTP connection, remember the following statements:

- Select the switch by entering its IP address.
- When prompted for a username and password, the username for backup boot mode access is *cisco* and the password is *ciscoinc*.

Step 3   For all transfers to or from the switch, select binary mode for the file transfer. The files are located in the following directories:

- PXM1E, SRM, and service module files are in the directory C:FW.
- Log files are in the directory C:LOG.
- Configuration files are in the directory C:CNF.

Step 4   To verify that files have been transferred to the switch, use the directory commands listed in the "Browsing the File System in Backup Boot Mode" section earlier in this appendix.

Clearing the Switch Configuration

To clear the entire switch configuration, use the **sysClrallcnf** command. This command clears all the provisioning data and most of the general switch configuration parameters, such as the switch name and SNMP configuration.

Initializing the PXM1E Hard Disk

If the switch troubleshooting process indicates that the PXM1E hard disk is not operating correctly, you can try to correct the problem by re initializing the hard disk as described in the following procedure.

Step 1   Establish a backup boot session on the PXM1E that connects to the affected hard disk as described in the "Changing to PXM1E Backup Boot Mode" section earlier in this chapter.

Step 2   Start a disk format by entering the **diskFormat** command as shown in the following example:

```
PXM1Ebkup>diskFormat "C:"
IDE: format in progress. This takes a while  ........
```

When the format is complete, a message similar to the following example appears:

```
Disk format complete. Reboot the system  .....
"C:" formatted.
value = 0 = 0x0
```

Step 3   Enter the **reboot** command to restart the card.

Step 4   When the *stop auto-boot* prompt appears, press **return** to enter backup boot mode. The following example shows the prompt and the message that appears when a newly formatted hard disk is detected.

```
Press Return key to stop auto-boot...2

To avoid reset from the Active card, use sysPxmRemove()
Use sysFWLoad() for FW download from active PXM.
*********************************************************
*    Disk does not have valid configuration.        *
*    Please run sysDiskCfgCreate(), and then reboot.   *
*********************************************************
PXM1Ebkup>
```

Step 5   If the PXM1E you restarted is the standby card for an active PXM1E card in the same switch, enter the **sysPxmRemove** command to prevent the active card from restarting the card you are working on.

Step 6   Enter the **sysDiskCfgCreate** command to set up the PXM1E hard disk.

Step 7   If this is a standalone PXM1E card, copy the runtime and boot software files to the switch as described in the "Transferring Software Files to and from the Switch" section earlier in this appendix.

Step 8   Enter the **reboot** command to restart the card.

Step 9   If this is a standalone PXM1E card, set up the switch as if it were a new switch as described in the "Configuration Quickstart" section in Chapter 2, "Configuring General Switch Features."

Step 10   If this is a standby PXM1E card, the active PXM1E card will update the newly-formatted hard disk with the active configuration. When the update is complete, the card will enter standby mode and the switch prompts you for a user name and password. Enter the user name and password to log in. After login, the switch prompt should include the letter s, indicating the card is operating in standby mode. For example:

```
pop20one.8.PXM.s >
```

Note   The switch prompt might initially display the letter i for initialization. Press **Return** to display an updated switch prompt or enter the **dspcds** command several times until the switch prompt or the **dspcds** command display shows the card is operating in standby mode. The card must complete initialization before entering standby mode.