



## Downloading and Installing Software Upgrades

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This appendix describes how to locate, download, and install software updates for the switch. Because software updates are stored in the switch file system, this appendix includes a section on browsing the file system. This appendix includes the following sections:

- [Upgrade Process Overview](#)
- [Quickstart Procedures for Software Upgrades](#)
- [Quickstart Procedures for Software Downgrades](#)
- [Browsing the File System](#)
- [Locating Software Updates](#)
- [Copying Software Files to the Switch](#)
- [Upgrade Procedures for PXM1E Cards](#)
- [Installing SCT Files](#)
- [Upgrading SCT Files](#)
- [Upgrade Procedures for RPM-PR Cards](#)
- [Troubleshooting Upgrade Problems](#)

### Upgrade Process Overview

This appendix provides a series of quickstart procedures that describe how to perform graceful and non-graceful upgrades to the switch. To perform a graceful upgrade on a switch card, the card must be operating in redundant mode with another switch card of the same type. When performed properly, graceful upgrades have minimal impact on connections in progress and do not interrupt any established connections.



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**Note**

Graceful upgrades to release 3 are supported from release 2.1.76 or 2.1.80.

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**Caution**

A direct upgrade from release 2.0.16 or below to release 3 is not supported. You must upgrade to release 2.1.76 or 2.1.80 first before going to release 3.

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When a card to be upgraded is not operating in redundant mode, you must complete a non-graceful upgrade, which disrupts all traffic that passes through the card. For PXM1E cards, an ungraceful upgrade interrupts all traffic passing through the switch. For all other types of cards, an ungraceful upgrade affects only the traffic that passes through that card.

When you upgrade the software in a switch, you should refer to the *Release Notes for Cisco MGX 8850 and MGX 8830 Software Version 3 (PXM45/B and PXM1E)* for the latest information. Each type of switch card runs boot and runtime software. The recommended sequence for upgrading the software on switch cards is as follows:

1. PXM1E boot software
2. PXM1E runtime software

**Note**

If you plan to upgrade PXM1E cards and SRM cards, upgrade the PXM1E cards first. Wait until the PXM1E cards are operating in active and standby modes with the correct software before upgrading service modules.

Typically, the boot software requires less frequent upgrades. Some upgrades might only require updates to one type of switch card. The *Release Notes for Cisco MGX 8850 and MGX 8830 Software Version 3 (PXM45/B and PXM1E)* should explain which software components require upgrading.

When you upgrade the software on a switch card, proceed as follows:

- Decide whether you are performing a graceful or non-graceful upgrade
- Follow the appropriate quickstart procedure for that type of upgrade
- For additional information on a task within a quickstart procedure, see the appendix section to which the procedure refers

The next section presents the quickstart procedure for switch card software upgrades.

## Quickstart Procedures for Software Upgrades

The following sections provide quickstart procedures for the following upgrades:

- [Graceful PXM1E Boot Upgrades](#)
- [Non-Graceful PXM1E Boot Upgrades](#)
- [Graceful PXM1E Runtime Software Upgrades](#)
- [Non-Graceful PXM1E Runtime Software Upgrades](#)
- [Graceful RPM-PR Boot Software Upgrades](#)
- [Graceful RPM-PR Runtime Software Upgrades](#)
- [Non-Graceful RPM-PR Boot Software Upgrades](#)
- [Non-Graceful RPM-PR Runtime Software Upgrades](#)
- [Installing SCT Files](#)

## Graceful PXM1E Boot Upgrades

When performed properly, graceful upgrades have minimal impact on connections in progress and do not interrupt any established connections.

When a boot software upgrade is required, the procedure for upgrading redundant PXM1E cards is as follows:

1. Manually upgrade the boot software on the standby PXM1E.
2. Switch cards to make the upgraded standby card active.
3. After the standby card becomes the active card, manually upgrade the non-active card.

This process ensures a smooth transition to the new software and preserves all established calls. During the short period when the roles of the active and standby cards are switched, all calls that are not established are lost.


**Caution**

Avoid making configuration changes while upgrading PXM1E software. Configuration changes can be lost when the PXM1E is reset during the upgrade.

To upgrade the runtime software, use the following procedure.

	Command	Purpose
Step 1	<b>ftp</b>	Copy the boot and runtime files you want to use to the switch. See the <a href="#">“Copying Software Files to the Switch”</a> section later in this appendix.
Step 2	<i>username</i> <i>password</i>	Establish a CLI session with the <i>standby</i> PXM1E card using the CP port on the UI-S3 back card and a user name with CISCO_GP privileges.
Step 3	<b>saveallcnf</b>	This optional step saves the current configuration to the hard disk. see the <a href="#">“Saving a Configuration”</a> section in <a href="#">Chapter 9, “Switch Operating Procedures.”</a>
Step 4	<b>sh</b> <b>sysBackupBoot</b> <Return> (2.0.11 and earlier)	Change to the PXM1E Backup Boot mode. Note that the software versions 2.0.11 and earlier require you to press <b>Return</b> during the reboot sequence to enter backup boot mode. See the <a href="#">“Changing to PXM1E Backup Boot Mode”</a> section in <a href="#">Appendix B, “PXM1E Backup Boot Procedures.”</a>
Step 5	<b>sysPxmRemove</b>	At the backup boot prompt, enter the <b>sysPxmRemove</b> command: This step prevents the active card from resetting the standby card while you are working with it.
Step 6	<b>sysFlashBootBurn</b> “Filename” <b>reboot</b> <i>username</i> <i>password</i> <b>dspcd</b>	Burn the boot code. Remember to enter quotation marks before and after the boot software filename. For example: <b>sysFlashBootBurn</b> "C:FW/PXM1E_002.001.000.000_bt.fw" See the <a href="#">“Upgrading PXM1E Boot Software”</a> section later in this appendix.
Step 7	<i>username</i> <i>password</i>	Establish a CLI session with the <i>active</i> PXM1E card (which is the non-upgraded card) using the CP port on the UI-S3 back card and a user name with CISCO_GP privileges.

	Command	Purpose
Step 8	<b>switchcc</b> <b>y</b>	Switch the roles of the active and standby cards so you can upgrade the non-upgraded card in standby mode.
Step 9	<b>sh</b> <b>sysBackupBoot</b> <Return> (2.0.11 and earlier)	Change to the PXM1E Backup Boot mode.  Note that the software versions 2.0.11 and earlier require you to press <b>Return</b> during the reboot sequence to enter backup boot mode.  See the “ <a href="#">Changing to PXM1E Backup Boot Mode</a> ” section in <a href="#">Appendix B, “PXM1E Backup Boot Procedures.”</a>
Step 10	<b>sysPxmRemove</b>	At the backup boot prompt, enter the <b>sysPxmRemove</b> command. This step prevents the active card from resetting the standby card while you are working with it.
Step 11	<b>sysFlashBootBurn</b> “ <i>Filename</i> ” <b>reboot</b> <i>username</i> <i>password</i> <b>dspcd</b>	Burn the boot code. For example,  <b>sysFlashBootBurn</b> "C:FW/PXM1E_002.001.000.000_bt.fw"  <b>Note</b> Remember to enter quotation marks before and after the boot software filename.  See the “ <a href="#">Upgrading PXM1E Boot Software</a> ” section later in this appendix.  Both active and standby cards should now be upgraded. The card that was active before the upgrade is now operating in standby mode.

## Non-Graceful PXM1E Boot Upgrades

Ungraceful upgrades disrupt all switch traffic and are usually used in lab installations where the use of standalone cards provides no opportunity for a graceful upgrade. The quickstart procedure is provided as an overview and as a quick reference for those who have already performed ungraceful upgrades on the switch.



**Note** Avoid making configuration changes while upgrading PXM1E software. Configuration changes can be lost when the PXM1E is reset during the upgrade.

	Command	Purpose
Step 1	<b>ftp</b>	Copy the boot and runtime files you want to use to the switch.  See the “ <a href="#">Copying Software Files to the Switch</a> ” section later in this appendix.
Step 2	<i>username</i> <i>password</i>	Establish a CLI session with the active PXM1E card using the CP port on the UI-S3 back card and a user name with CISCO_GP privileges.
Step 3	<b>saveallcnf</b>	This optional step saves the current configuration to the hard disk.  see the “ <a href="#">Saving a Configuration</a> ” section in <a href="#">Chapter 9, “Switch Operating Procedures.”</a>

	Command	Purpose
Step 4	<b>sh</b> <b>sysBackupBoot</b> <Return> (2.0.11 and earlier)	Change to the PXM1E Backup Boot mode.  Note that the software versions 2.0.11 and earlier require you to press <b>Return</b> during the reboot sequence to enter backup boot mode.  See the “ <a href="#">Changing to PXM1E Backup Boot Mode</a> ” section in <a href="#">Appendix B, “PXM1E Backup Boot Procedures.”</a>
Step 5	<b>sysPxmRemove</b>	If the switch has two PXM1E cards installed in it, enter the <b>sysPxmRemove</b> command, which prevents the active card from resetting the standby card while you are working with it.
Step 6	<b>sysFlashBootBurn</b> “ <i>Filename</i> ” <b>reboot</b> <i>username</i> <i>password</i> <b>dspcd</b>	Burn the boot code. For example, <b>sysFlashBootBurn</b> "C:FW/PXM1E_002.001.000.000_bt_fw"  <b>Note</b> Remember to enter quotation marks before and after the boot software filename.  See the “ <a href="#">Upgrading PXM1E Boot Software</a> ” section which appears later in this appendix.

## Graceful PXM1E Runtime Software Upgrades

When performed properly, graceful upgrades have minimal impact on connections in progress and do not interrupt any established connections.

1. Loads the new software on the standby PXM1E card
2. Makes the standby card active
3. Loads the new software on the formerly active (now standby) card



### Note

Upgrade the PXM1E cards before you upgrade SRM cards or service modules. Wait until the PXM1E cards are operating in active and standby modes with the correct software before upgrading other cards. The software version used by the PXM1E cards should be equal to or later than the version used on the SRM cards or service modules. When service module or SRM boot software is to be upgraded, it should be upgraded before upgrading the runtime software.



### Caution

Avoid making configuration changes while upgrading PXM1E software. Configuration changes can be lost when the PXM1E is reset during the upgrade. While graceful upgrades can be aborted with the **abortrev** command, the **abortrev** command does reset both active and standby cards, so reverting back to an earlier software release is non-graceful.



### Note

Cisco Systems recommends that you upgrade software on one SRM card or service module at a time within a switch. Wait until each card upgrade is complete before starting an upgrade on another card.

To upgrade the runtime software, use the following procedure.

	Command	Purpose
Step 1	<b>ftp</b>	Copy the boot and runtime files you want to use to the switch. See the “ <a href="#">Copying Software Files to the Switch</a> ” section later in this appendix.
Step 2	—	If the <i>Release Notes for Cisco MGX 8850 and MGX 8830 Software Version 3 (PXM45/B and PXM1E)</i> call for a boot software upgrade, upgrade the boot software for the card you are upgrading.  PXM1E cards should be upgraded first. See the “ <a href="#">Graceful PXM1E Boot Upgrades</a> ” section earlier in this appendix.
Step 3	<i>username</i> <i>password</i>	Establish a CLI session with the active PXM1E card using a user name with SERVICE_GP privileges.
Step 4	<b>saveallcnf</b>	This optional step saves the current configuration to the hard disk. see the “ <a href="#">Saving a Configuration</a> ” section in <a href="#">Chapter 9, “Switch Operating Procedures.”</a>
Step 5	<b>dspcd</b> <b>commitrev &lt;slot&gt; &lt;revision&gt;</b>	Verify that all previous upgrades have been committed.  If a previous upgrade has not been committed, commit to the new upgrade.  See the “ <a href="#">Committing to a Runtime Software Upgrade</a> ” section later in this appendix.
Step 6	<b>loadrev &lt;slot&gt; &lt;revision&gt;</b> <b>dspcd</b>	Load the new runtime software on the standby PXM1E.
Step 7	<b>runrev &lt;slot&gt; &lt;revision&gt;</b> <b>dspcd</b> <b>dspcd &lt;slot&gt;</b>	Switch over to the standby PXM1E card and load the new runtime software on the new standby (non-upgraded) PXM1E.
Step 8	<b>commitrev &lt;slot&gt; &lt;revision&gt;</b>	This command prevents an accidental switch back to a previous software revision if someone enters the <b>abortrev</b> command. Enter the <b>commitrev</b> command after the former active PXM1E comes up in the standby-U state. Cisco Systems recommends that you avoid configuration changes until after you have run the <b>commitrev</b> or <b>abortrev</b> commands.  See the “ <a href="#">Aborting a Runtime Software Upgrade</a> ” and “ <a href="#">Committing to a Runtime Software Upgrade</a> ” sections that appear later in this appendix.

## Non-Graceful PXM1E Runtime Software Upgrades

Ungraceful upgrades disrupt all switch traffic and are usually used in lab installations where the use of standalone cards provides no opportunity for a graceful upgrade. The quickstart procedure is provided as an overview and as a quick reference for those who have already performed ungraceful upgrades on the switch.

**Note**

Upgrade the PXM1E cards before you upgrade SRM cards or service modules. Wait until the PXM1E cards are operating in active and standby modes with the correct software before upgrading other cards. The software version used by the PXM1E cards should be equal to or later than the version used on the SRM cards or service modules. When service module or SRM boot software is to be upgraded, it should be upgraded before upgrading the runtime software.

**Caution**

Avoid making configuration changes while upgrading PXM1E software. Configuration changes can be lost when the PXM1E is reset during the upgrade. While graceful upgrades can be aborted with the **abortrev** command, the **abortrev** command does reset both active and standby cards, so reverting back to an earlier software release is non-graceful.

**Note**

Cisco Systems recommends that you upgrade software on one SRM card or service module at a time within a switch. Wait until each card upgrade is complete before starting an upgrade on another card.

	<b>Command</b>	<b>Purpose</b>
<b>Step 1</b>	<b>ftp</b>	Copy the boot and runtime files you want to use to the switch. See the “ <a href="#">Copying Software Files to the Switch</a> ” section later in this appendix.
<b>Step 2</b>	—	If the <i>Release Notes for Cisco MGX 8850 and MGX 8830 Software Version 3 (PXM45/B and PXM1E)</i> call for a boot software upgrade, upgrade the boot software as described in the “ <a href="#">Non-Graceful PXM1E Boot Upgrades</a> ” section earlier in this appendix.
<b>Step 3</b>	<i>username</i> <i>password</i>	Establish a CLI session with the active PXM1E card using a user name with SERVICE_GP privileges.
<b>Step 4</b>	<b>saveallcnf</b>	This optional step saves the current configuration to the hard disk. see the “ <a href="#">Saving a Configuration</a> ” section in <a href="#">Chapter 9, “Switch Operating Procedures.”</a>
<b>Step 5</b>	<b>dspcd</b> <b>commitrev &lt;slot&gt; &lt;revision&gt;</b>	Verify that all previous upgrades have been committed. If a previous upgrade has not been committed, commit to the new upgrade. See the “ <a href="#">Committing to a Runtime Software Upgrade</a> ” section later in this appendix.
<b>Step 6</b>	<b>loadrev &lt;slot&gt; &lt;revision&gt;</b> <b>dspcd</b>	Define the new software version to be used.

	Command	Purpose
Step 7	<b>runrev</b> <slot> <revision> <b>dspcd</b>	Reset the card and run the new software version.
Step 8	<b>commitrev</b> <slot> <revision>	This command prevents an accidental switch back to a previous software revision if someone enters the <b>abortrev</b> command. Enter the <b>commitrev</b> command after the former active PXM1E comes up in the standby-U state. Cisco Systems recommends that you avoid configuration changes until after you have run the <b>commitrev</b> or <b>abortrev</b> commands.  See the “ <a href="#">Aborting a Runtime Software Upgrade</a> ” and “ <a href="#">Committing to a Runtime Software Upgrade</a> ” sections later in this appendix.

## Graceful RPM-PR Boot Software Upgrades

The RPM-PR card supports graceful boot software upgrades when 1:N redundancy is established in the switch between RPM-PR cards. Boot software is generally upgraded less often than runtime software, so be sure to compare the recommended boot software version with the boot software running on your RPMs before starting an upgrade. The correct boot software might already be installed.

The following quickstart procedure describes how to upgrade redundant RPM-PR cards.




### Note

Redundancy must be established before you use this procedure. If redundancy has not been configured between two RPM-PR cards, upgrade each RPM-PR card using the procedure in the “[Non-Graceful RPM-PR Boot Software Upgrades](#)” section later in this chapter. To add redundancy to an RPM-PR card, see the “[Establishing Redundancy Between Two RPM-PR Cards](#)” section in [Chapter 6, “Preparing RPM-PR Cards for Operation.”](#)”

	Command	Purpose
Step 1	<b>ftp</b>	Copy the boot and runtime files you want to use to the switch (E:RPM).  See the “ <a href="#">Copying Software Files to the Switch</a> ” section later in this appendix.
Step 2	<i>username</i> <i>password</i>	Establish a CLI session with the <i>active</i> PXM1E card using a user name at any access level.
Step 3	<b>cc</b> <primarySlot>	Select the slot in which the primary RPM-PR card is installed.
Step 4	<b>enable</b> <i>password</i>	Enter Enable mode for the router.
Step 5	<b>dir e:</b>	Verify router access to the PXM1E hard disk and the boot upgrade software.
Step 6	<b>show flash:</b>	Display current contents of bootflash.
Step 7	<b>copy filename bootflash:</b> <b>dir bootflash:</b>	Copy the upgrade boot software to flash. For example:  copy e:rpm-boot-mz_002.001.060.000 bootflash:



	Command	Purpose
Step 8	<pre>config terminal boot bootldr bootflash:filename ^Z show bootvar</pre>	Configure the BOOTLDR variable to specify the new boot software.
Step 9	<pre>copy bootflash:filename c:filename del bootflash:filename show flash: squeeze flash:</pre>	<p>Reorganize files in bootflash. The switch always attempts to load the first bootable file in bootflash. If the BOOTLDR variable is not set, the new boot software must be the first file listed in the <b>show flash:</b> display. Copy files you want to save to the c: directory and delete all files that appear before the new boot software. Files are marked with the <b>del</b> command and actually deleted with the <b>squeeze flash:</b> command.</p> <p> <b>Caution</b> Verify that at least one valid boot or runtime image will not be deleted. If all boot and runtime images are deleted from bootflash, the RPM-PR card must be returned to the factory for repair.</p>
Step 10	<pre>switchredcd &lt;primarySlot&gt; &lt;secondarySlot&gt;</pre>	This step makes the secondary card active and resets the primary RPM-PR card. When the primary card resets, it loads the upgraded boot software from bootflash.
Step 11	<pre>cc &lt;secondarySlot&gt;</pre>	Select the slot in which the secondary RPM-PR card is installed.
Step 12	<pre>enable password dir e: show flash: copy filename bootflash: dir bootflash:  config terminal boot bootldr bootflash:filename ^Z show bootvar  copy bootflash:filename c:filename del bootflash:filename show flash: squeeze flash:</pre>	Repeat Steps 4 through 9 to move the upgraded boot software into bootflash.

	Command	Purpose
Step 13	<code>switchredcd &lt;secondarySlot&gt; &lt;primarySlot&gt;</code>	This step makes the upgraded primary card active and resets the secondary RPM-PR card. When the secondary card resets, it loads the upgraded boot software from bootflash. Both primary and secondary cards should now be using upgraded boot software.
Step 14	—	If there are other primary RPM-PR cards that need upgrading, repeat the part of this procedure that upgrades the primary card, then enter the <b>switchredcd</b> command once to reload the primary card. Finally, enter the <b>switchredcd</b> command a second time to make the upgraded primary card active.

## Graceful RPM-PR Runtime Software Upgrades

The RPM-PR card supports graceful upgrades when 1:N redundancy is established in the switch between RPM-PR cards.

The following quickstart procedure describes how to gracefully upgrade redundant RPM-PR cards.



### Note

Redundancy must be established before you use this procedure. If redundancy has not been configured between two RPM-PR cards, upgrade each RPM-PR card as described in the “[Non-Graceful RPM-PR Runtime Software Upgrades](#)” section later in this chapter. To add redundancy to an RPM-PR card, see the “[Establishing Redundancy Between Two RPM-PR Cards](#)” section in [Chapter 6](#), “[Preparing RPM-PR Cards for Operation](#).”

	Command	Purpose
Step 1	<code>ftp</code>	Copy the boot and runtime files you want to use to the switch (E:RPM).  See the “ <a href="#">Copying Software Files to the Switch</a> ” section later in this appendix.
Step 2	<code>copy</code>	Optional: Copy and rename the runtime file to a generic name for easy updates.  See the “ <a href="#">Non-Graceful RPM-PR Runtime Software Upgrades</a> ” section later in this chapter.  <b>Note</b> If you have already configured the RPM-PR to use a generic name, you can skip to Step 12.
Step 3	<code>username password</code>	Establish a CLI session with the <i>active</i> PXM1E card using a user name at any access level.
Step 4	<code>cc &lt;primarySlot&gt;</code>	Select the slot in which the primary RPM-PR card is installed.
Step 5	<code>enable password</code>	Enter Enable mode for the router.
Step 6	<code>show bootvar</code>	Display the current runtime software filename.
Step 7	<code>config terminal</code>	Enter the router global configuration mode.

	Command	Purpose
Step 8	<b>no boot system</b>	Remove the entire boot list. To remove a single file from the boot list, include a filename. For example:  Router(config)# no boot system c:rpm-js-mz_122-4.T
Step 9	<b>boot system e:filename</b>	Add the new router runtime image to the boot list. For example:  Router(config)# boot system c:rpm-js-mz_122-4.T
Step 10	<b>boot config</b> <b>e:auto_config_RPM-PR_slot#</b>	Configure the RPM-PR card to store its configuration on the PXM1E hard disk.  <b>Note</b> This step only needs to be performed once. If this command is already in the startup configuration file, you do not need to enter it again.
Step 11	<b>^Z</b>	Exit global configuration mode.
Step 12	<b>copy run start</b>	Save the new configuration.  <b>Note</b> If you omit this step, the RPM-PR card will continue to use the previous version of software.
Step 13	<b>show bootvar</b>	Verify the change in the runtime software filename.
Step 14	<b>switchredcd &lt;primarySlot&gt;</b> <b>&lt;secondarySlot&gt;</b>	This step makes the secondary card active and resets the primary RPM-PR card. When the primary card resets, it loads the upgraded boot software from bootflash.
Step 15	<b>switchredcd &lt;secondarySlot&gt;</b> <b>&lt;primarySlot&gt;</b>	This step makes the upgraded primary card active and resets the secondary RPM-PR card. When the secondary card resets, it loads the upgraded boot software from bootflash. Both primary and secondary cards should now be using upgraded runtime software.
Step 16		If there are other primary RPM-PR cards that need upgrading, repeat the part of this procedure that upgrades the primary card, and then enter the <b>switchredcd</b> command once to reload the primary card. Finally, enter the <b>switchredcd</b> command a second time to make the upgraded primary card active.

## Non-Graceful RPM-PR Boot Software Upgrades


Use the non-graceful upgrade procedure in this section when you need to upgrade RPM-PR boot software and the RPM-PR is operating in standalone mode. Non-graceful upgrades terminate all connections and disrupt service until the upgrade procedure is complete.



### Note

If the RPM-PR is operating in 1:N redundancy mode with another RPM-PR, upgrade the cards as described in the “[Graceful RPM-PR Boot Software Upgrades](#)” section earlier in this chapter.

The following quickstart procedure is provided as an overview and as a quick reference for those who have already performed RPM-PR upgrades on the switch. For detailed instructions, see the “[Upgrade Procedures for RPM-PR Cards](#)” section which appears later in this appendix.

	Command	Purpose
Step 1	<b>ftp</b>	Copy the boot and runtime files you want to use to the switch (E:RPM).  See the “ <a href="#">Copying Software Files to the Switch</a> ” section later in this appendix.
Step 2	<i>username</i> <i>password</i>	Establish a CLI session with the <i>active</i> PXM1E card using a user name at any access level.
Step 3	<b>cc</b> <RPM_Slot>	Select the slot in which the RPM-PR card is installed.
Step 4	<b>enable</b> <i>password</i>	Enter Enable mode for the router.
Step 5	<b>dir e:</b>	Verify router access to the hard disk and the boot upgrade software.
Step 6	<b>show flash:</b>	Display current contents of bootflash.
Step 7	<b>copy filename bootflash:</b> <b>dir bootflash:</b>	Copy the upgrade boot software to flash. For example: <code>copy e:rpm-boot-mz_002.001.000.000 bootflash:</code>
Step 8	<b>config terminal</b> <b>boot bootldr bootflash:filename</b> <b>^Z</b> <b>show bootvar</b>	Configure the BOOTLDR variable to specify the new boot software.
Step 9	<b>copy bootflash:filename</b> <b>c:filename</b> <b>del bootflash:filename</b> <b>show flash:</b> <b>squeeze flash:</b>	Reorganize files in bootflash. The switch always attempts to load the first bootable file in bootflash. If the BOOTLDR variable is not set, the new boot software must be the first file listed in the <b>show flash:</b> display. Copy files you want to save to the c: directory and delete all files that appear before the new boot software. Files are marked with the <b>del</b> command and actually deleted with the <b>squeeze flash:</b> command.   <b>Caution</b> Verify that at least one valid boot or runtime image will not be deleted. If all boot and runtime images are deleted from bootflash and the card is reset, the RPM-PR card must be returned to the factory for repair.
Step 10	<b>cc</b> <active_PXM_slot> <b>resetcd</b> <RPM_Slot>	This command sequence restarts the RPM-PR card with the new boot image.

## Non-Graceful RPM-PR Runtime Software Upgrades

Use the non-graceful upgrade procedure in this section when you need to upgrade RPM-PR runtime software and the RPM-PR is operating in standalone mode. Non-graceful upgrades terminate all connections and disrupt service until the upgrade procedure is complete.


**Note**

If the RPM-PR is operating in 1:N redundancy mode with another RPM-PR, upgrade the cards as described in “[Graceful RPM-PR Runtime Software Upgrades](#),” which appears earlier in this chapter.

The following quickstart procedure is provided as an overview and as a quick reference for those who have already performed RPM-PR upgrades on the switch. For detailed instructions, see “[Upgrade Procedures for RPM-PR Cards](#),” which appears later in this appendix.

	Command	Purpose
Step 1	<b>ftp</b>	Copy the boot and runtime files you want to use to the switch (E:RPM).  See the “ <a href="#">Copying Software Files to the Switch</a> ” section later in this appendix.
Step 2	<b>copy</b>	Copy and rename the runtime file to a generic name for easy updates.  See the “ <a href="#">Non-Graceful RPM-PR Runtime Software Upgrades</a> ” section later in this chapter.  <b>Note</b> If you have already configured the RPM-PR to use a generic name, you can skip to Step 12.
Step 3	<i>username</i> <i>password</i>	Establish a CLI session with the <i>active</i> PXM1E card using a user name at any access level.
Step 4	<b>cc &lt;RPM_Slot&gt;</b>	Select the slot in which the RPM-PR card is installed.
Step 5	<b>enable</b> <i>password</i>	Enter Enable mode for the router.
Step 6	<b>show bootvar</b>	Display the current runtime software filename.
Step 7	<b>config terminal</b>	Enter the router global configuration mode.
Step 8	<b>no boot system</b>	Remove the entire boot list. To remove a single file from the boot list, include a filename. For example:  Router(config)# no boot system c:rpm-js-mz_122-4.T
Step 9	<b>boot system e:filename</b>	Add the new router runtime image to the boot list. For example:  Router(config)# boot system e:rpm-js-mz.122-4.T
Step 10	<b>boot config</b> <b>e:auto_config_RPM_slot#</b>	Configure the RPM-PR card to store its configuration on the PXM1E hard disk.  <b>Note</b> This step only needs to be performed once. If this command is already in the startup configuration file, you do not need to enter it again.
Step 11	<b>^Z</b> <b>copy run start</b>	Exit global configuration mode and save the new configuration.

	Command	Purpose
Step 12	<code>show bootvar</code>	Verify the change in the runtime software filename.
Step 13	<code>cc &lt;active_PXM_slot&gt;</code> <code>resetcd &lt;RPM_Slot&gt;</code>	This command sequence selects the active PXM1E card and restarts the RPM-PR card with the new runtime image.
Step 14	<code>dspcds</code> <code>dspcd &lt;RPMR_Slot&gt;</code> <code>cc &lt;RPM_Slot&gt;</code>	Verify router reboot is complete.

## Installing SCT Files

Use the procedure in this section when you need to manually install or upgrade SCT files.

If you are using CWM to install or upgrade SCT files in your network, see the *Cisco WAN Manager User's Guide, Release 11*.



### Note

The following quickstart procedure is provided as an overview and as a quick reference for those who have already performed SCT upgrades on the switch. For detailed instructions, see the “[Downloading and Installing SCT Files](#)” section later in this appendix.

	Command	Purpose
Step 1	<code>ftp</code>	Copy the new SCT files you want to use to the appropriate C:SCT\<card_type> directory. For example, copy new PXM1E SCT files to the C:SCT\PXM directory.  See the “ <a href="#">Copying SCT Files to the Switch</a> ” section later in this appendix.
Step 2	<code>username</code> <code>password</code>	Establish a CLI session with the <i>active</i> PXM1E card using a user name at any access level.
Step 3	<code>addset &lt;options&gt;</code>	Select the slot in which the RPM-PR card is installed.
Step 4	<code>switchcc</code> or <code>reboot</code>	Switch the roles of the active and standby cards so you can upgrade the non-upgraded card in standby mode.  If you are working on a stand alone card, reboot the card.
Step 5	<code>dspsects</code>	Verify router reboot is complete.

## Quickstart Procedures for Software Downgrades

Cisco Systems, Inc., recommends that you avoid software downgrades, which replace a current software release with another that has a lower version number. However, there are some situations in which you might want to downgrade the software. For example, if you have been testing pre-release software in a lab, the software version number can be higher than a later official software release. Any time the software version number to which you are changing is lower than the current software version, the change is a downgrade, regardless of when the software versions are released.

The following sections provide quickstart procedures for the following downgrades:

- [PXM1E Boot Downgrades](#)
- [Non-Graceful 1E Runtime Software Downgrades](#)

## PXM1E Boot Downgrades

When redundant cards are used and the downgrade software is compatible with the existing runtime software, boot software downgrades can be graceful. To perform a graceful downgrade of boot software, follow the instructions for the appropriate graceful software upgrade:

- [Graceful PXM1E Boot Upgrades](#)
- [Installing SCT Files](#)



### Caution

Cisco Systems, Inc., does not guarantee that any software downgrade is graceful, so assume that the downgrade is non-graceful and time the downgrade accordingly. The advantage to following the graceful upgrade procedures listed above is that you might be able to delay traffic interruption until the runtime software is downgraded.

When upgrading a standalone card, the downgrade is non-graceful, and you should follow the following [Non-Graceful PXM1E Boot Upgrades](#) procedures.

## Non-Graceful 1E Runtime Software Downgrades

To downgrade PXM45 runtime software, you must clear the entire switch configuration. All traffic is disrupted until the switch downgrade is complete and the configuration has been re-entered. The following quickstart procedure is provided as an overview for PXM45 runtime software downgrades.



### Note

The switch does not support a configuration restore to a downgraded software version. When you downgrade the PXM45 runtime software, you must re-enter the configuration.

	Command	Purpose
Step 1	<i>username</i> <i>password</i>	Establish a CLI session with the active PXM45 card using a user name with SERVICE_GP privileges.
Step 2	<b>saveallcnf</b>  <b>y</b>	Save the current switch configuration.  See the “ <a href="#">Saving a Configuration</a> ” section in <a href="#">Chapter 9, “Switch Operating Procedures.”</a>  This step gives you the option to upgrade to the software version from which you are downgrading and use the former configuration.

	Command	Purpose
Step 3	ftp	Copy the boot and runtime files you want to use to the switch. Also copy the saved configuration file from the C:CNF directory to a remote workstation so you have a backup file if something happens to the hard disk.  See the “ <a href="#">Copying Software Files to the Switch</a> ” section later in this appendix.
Step 4	clrallcnf y	Clear the current configuration.  See the “ <a href="#">Clearing a Switch Configuration</a> ” section in <a href="#">Chapter 9</a> , “ <a href="#">Switch Operating Procedures</a> .”
Step 5	sysVersionSet <i>“version”</i> reboot	Select the runtime firmware version the switch will use on the PXM1E card and restart the switch with that firmware. For example:  <code>sysVersionSet "002.001.000.000"</code>  Note that these commands must be entered at the PXM1E backup boot prompt: pxmbkup>.  See the “ <a href="#">Initializing the Switch</a> ” section in <a href="#">Chapter 2</a> , “ <a href="#">Configuring General Switch Features</a> .”
Step 6		Reconfigure the PXM1E cards as described in the “ <a href="#">Configuration Quickstart</a> ” section in <a href="#">Chapter 2</a> , “ <a href="#">Configuring General Switch Features</a> .”

## Browsing the File System

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. [Table A-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. Also, some of the commands listed in [Table A-1](#) are not available at all administrator access levels.

**Table A-1 File System Commands at Switch Prompt**

Command	Description
cd	Change directories. Access level required: ANYUSER or above.
copy	Copies a file from one location to another. Syntax: <b>copy</b> <source file name> <destination file name> Access level required: GROUP1 or above.
del	Deletes a file. Syntax: <b>del</b> <file name> Access level required: GROUP1 or above.



**Table A-1 File System Commands at Switch Prompt (continued)**

Command	Description
<b>ll</b>	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: <b>ll</b> Access level required: ANYUSER or above.
<b>ls</b>	List directory contents using the short format, which displays filenames, total disk space, and free disk space. Syntax: <b>ls</b> Access level required: ANYUSER or above.
<b>pwd</b>	Display the present working directory. Syntax: <b>pwd</b> Access level required: ANYUSER or above.
<b>rename</b>	Renames a file. Syntax: <b>rename</b> <old file name> <new file name> Access level required: GROUP1 or above.
<b>whoami</b>	Lists the login name for the current session. Syntax: <b>whoami</b> Access level required: ANYUSER or above.

## Locating Software Updates

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

## Copying Software Files to the Switch

This section describes how to copy software files to a Cisco MGX 8850 or Cisco MGX 8830 switch. The switch cards use boot software and runtime software. Each card uses the boot software to define communications between the card components and to enable cards to start up. The runtime software defines how the card operates after startup. RPM-PR cards function on the runtime software and use the boot software only when they cannot load the runtime software.



### Note

The boot and runtime software are installed on the switch at the factory. Before you copy new files to the switch, verify that you need to update them by comparing the file versions on the disk to those recommended in the *Release Notes for Cisco MGX 8850 and MGX 8830 Software Version 3 (PXM45/B and PXM1E)*.

Cisco MGX 8850 and Cisco MGX 8830 switches provide a File Transfer Protocol (FTP) service to support file transfers to the switch. If you have FTP client software and network connectivity to both the switch and the server where the software files are stored, you can use FTP to transfer files directly from the server to the switch.

**Note**

The following procedure describes how to copy files to the switch when the runtime software is up and running (showing the node name switch prompt). When the runtime software cannot load, copy the software files to the switch as described in the “[Transferring Software Files to and from the Switch](#)” section in [Appendix B, “PXM1E Backup Boot Procedures.”](#)

- 
- Step 1** 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, transfer PXM1E files from the server to the switch directory C:/FW.
- 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:
- Select the switch by entering its IP address.
  - When prompted for a username and password, enter the username and password you use when managing the switch.
  - When configuring file transfer options, select binary mode for the file transfer.
- Step 3** To verify that the new PXM1E files have been transferred to the switch, log into the switch and display the contents of the C:/FW directory.
- Step 4** Using a workstation with FTP client software, transfer RPM-PR files from the server to the switch directory E:/RPM.

**Note**

You must use a capital E when referencing the E drive in switch commands.

- Step 5** To verify that the new RPM-PR files have been transferred to the switch, log into the switch and display the contents of the E:/RPM directory.
- For more information on browsing the switch file system, see the “[Browsing the File System](#)” section earlier in this appendix.
- 

## Upgrade Procedures for PXM1E Cards

The following sections describe procedures that support upgrades to PXM1E cards. For complete upgrade procedures, see the “[Quickstart Procedures for Software Upgrades](#)” section earlier in this appendix. The procedures in this section detail some of the tasks listed in the quickstart procedures.

## Upgrading PXM1E Boot Software

This section describes how to upgrade the PXM1E boot software on a single PXM1E card. If you are performing a graceful upgrade, use the quickstart procedure described in the “[Graceful PXM1E Boot Upgrades](#)” section earlier in this appendix. The following procedure provides detailed information on the upgrade task within the quickstart procedure.

**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.

**Step 2** If you have not done so already, change to PXM1E Backup Boot mode as described in the “[Changing to PXM1E Backup Boot Mode](#)” section in [Appendix B, “PXM1E Backup Boot Procedures.”](#)

**Step 3** To burn the boot software on the PXM1E, enter the **sysFlashBootBurn** command as follows:

```
pxmbkup> sysFlashBootBurn "filename"
```

Replace *filename* with the complete path to the boot file on the PXM1E hard drive. For example,

```
PXM1Ebkup> sysFlashBootBurn "C:FW/PXM1E_002.001.000.000_bt_fw"
```

**Step 4** When the switch prompts you to confirm this action, type **y** and press **Return**.

When the boot code burning process is complete, the switch displays a message similar to the following example:

```
Flash download completed ...  
value = 0 = 0x0
```

**Step 5** When the boot code has been burned, reset the card with the **reboot** command. For example,

```
pxmbkup> reboot
```

Be patient and wait for the Login prompt to appear.

**Step 6** When the Login prompt appears, log in to the switch as you do at the beginning of a CLI session. The switch prompt should appear.

**Step 7** To confirm that the PXM1E card is now using the correct boot code, enter the **dspecd** command.

The Boot FW Rev row in the display should show the new revision as shown in the following example:

```
8850_NY.7.PXM.a > dspcd
8850_NY                      System Rev: 02.01   Mar. 04, 2001 22:47:23 PST
MGX8850                      Node Alarm: NONE
Slot Number      7      Redundant Slot:  8

                          Front Card      Upper Card      Lower Card
                          -----
Inserted Card:         PXM1E                UI Stratum3      PXM HardDiskDrive
Reserved Card:         PXM1E                UI Stratum3      PXM HardDiskDrive
State:                 Active              Active           Active
Serial Number:         SBK050302AF          SBK045203PJ      SBK044602HJ
Prim SW Rev:           3.0(0.0)              ---             ---
Sec SW Rev:            3.0(0.0)              ---             ---
Cur SW Rev:           3.0(0.0)              ---             ---
Boot FW Rev:           3.0(0.0)              ---             ---
800-level Rev:         A0                    A0              A0
800-level Part#:      800-06147-08          800-05787-02    800-05052-04
CLEI Code:             BAA670YCAA          BA7IBCLAAA      BA7IADNAAA
Reset Reason:         On Power up
Card Alarm:           NONE
Failed Reason:        None
Miscellaneous Information:
```

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

After you confirm the upgrade to the first PXM1E card, the boot software upgrade for that card is complete.

## Loading the Runtime Upgrade Software

This section describes how to load the runtime upgrade software in preparation for running it. Production switches should have redundant cards installed, so that upgrades can occur without interrupting traffic. For graceful upgrades, the upgrade software is loaded on the standby card first, and then the control is switched to upgraded card so that the other card can be upgraded. The best way to assess the upgrade status of a card is to enter the **dspcd** <slot> command. For example:

```
8850_NY.7.PXM.a > dspcd
8850_NY                      System Rev: 02.01   Mar. 04, 2001 22:47:23 PST
MGX8850                      Node Alarm: NONE
Slot Number      7      Redundant Slot:  8

                          Front Card          Upper Card          Lower Card
                          -----
Inserted Card:          PXM1E                UI Stratum3         PXM HardDiskDrive
Reserved Card:          PXM1E                UI Stratum3         PXM HardDiskDrive
State:                  Active              Active              Active
Serial Number:          SBK050302AF          SBK045203PJ         SBK044602HJ
Prim SW Rev:            3.0(0.0)           ---                ---
Sec SW Rev:             3.0(0.0)           ---                ---
Cur SW Rev:            3.0(0.0)           ---                ---
Boot FW Rev:           3.0(0.0)           ---                ---
800-level Rev:         A0                A0                 A0
800-level Part#:       800-06147-08          800-05787-02       800-05052-04
CLEI Code:              BAA670YCAA          BA7IBCLAAA         BA7IADNAAA
Reset Reason:           On Power up
Card Alarm:             NONE
Failed Reason:          None
Miscellaneous Information:
```

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

The primary (Prim SW Rev), secondary (Sec SW Rev), and current (Cur SW Rev) software revision labels indicate the status of an upgrade. In this example, these numbers match because the runtime software upgrade has not started. (Note that the boot software has been upgraded as indicated by the Boot FW Rev label.)

The primary software revision indicates which revision a card will run if it becomes active, and the secondary revision indicates an alternate revision that the card will use if the abortrev command is entered. (For more information on aborting an upgrade, see the “[Aborting a Runtime Software Upgrade](#)” section later in this appendix.) The current software revision represents the software the active card is using.

The normal sequence of commands for a runtime software upgrade is **loadrev**, **runrev**, and **commitrev**. [Table A-2](#) shows how the software revision levels change during a graceful runtime software upgrade.

Table A-2 Software Versions Reported During Graceful Upgrades

Software Revision		Before Upgrade		After loadrev		After runrev		After commitrev	
	MGX 8850	Slot 7	Slot 8	Slot 7	Slot 8	Slot 7	Slot 8	Slot 7	Slot 8
	MGX 8830	Slot 1	Slot 2	Slot 1	Slot 2	Slot 1	Slot 2	Slot 1	Slot 2
		Active	Standby	Active	Standby	Standby	Active	Active	Standby
Primary		2.1(0)	2.1(0)	2.1(0)	2.1(0)	3.0(0.0)	3.0(0.0)	3.0(0.0)	3.0(0.0)
Secondary		2.1(0)	2.1(0)	3.0(0.0)	3.0(0.0)	2.1(0)	2.1(0)	3.0(0.0)	3.0(0.0)
Current		2.1(0)	2.1(0)	2.1(0)	3.0(0.0)	3.0(0.0)	3.0(0.0)	3.0(0.0)	3.0(0.0)

For non-graceful upgrades, the load process defines the software version to which the switch is about to be upgraded. Table A-3 shows how the revision levels change during a non-graceful upgrade.

Table A-3 Software Versions Reported During Non-Graceful Upgrades

Software Revision	Before Upgrade	After loadrev	After runrev	After commitrev
Primary	2.1(0)	2.1(0)	3.0(0.0)	3.0(0.0)
Secondary	2.1(0)	3.0(0.0)	2.1(0)	3.0(0.0)
Current	2.1(0)	2.1(0)	3.0(0.0)	3.0(0.0)

If you are performing a graceful upgrade, use the quickstart procedure described in the “[Graceful PXM1E Runtime Software Upgrades](#)” section earlier in this appendix. The following procedure provides detailed information on the load task within the quickstart procedure.

**Step 1** To load the upgrade runtime software version on a PXM1E card, SRM card, or service module, enter the following command:

```
mgx8850a.7.PXM.a > loadrev <slot> <revision>
```

Replace *<slot>* with the card slot number for the card to be upgraded, and replace *<revision>* with the software version number for the update. For graceful upgrades, you can specify either the active or the standby card. The switch software will automatically load the upgrade software on the standby card when it is installed. The following example shows how to enter this command:

```
mgx8850a.7.PXM.a > loadrev 7 3.0(0.0)
```

After you enter the loadrev command, the standby card comes up in the standby-U state.

You can find the software version number in the *Release Notes for Cisco MGX 8850 and MGX 8830 Software Version 3 (PXM45/B and PXM1E)*. You can also determine the version number from the runtime software filename as described in the “[Determining the Software Version Number from Filenames](#)” section in [Chapter 9, “Switch Operating Procedures.”](#)

**Step 2** When prompted to confirm the command, type **y** and press **Return** to continue.

**Step 3** To verify that the load command was processed correctly, enter the **dspecd <slot>** command and check the status of the software revision levels. You can also view the revision levels with the **dsprevs** command.

**Note**

In a standalone configuration, the switch does not start the upgraded software until the **runrev** command is entered. In a redundant configuration, the switch starts the upgraded software on the standby card. The standby card does not become active until the **runrev** command is entered.

## Starting the Upgrade Software

After you load the runtime upgrade software for a PXM1E card, enter the **runrev** command to start using the software. The version levels for graceful and non-graceful upgrades change as shown earlier in [Table A-2](#) and [Table A-3](#). The following procedure describes how to start the upgrade software.

- Step 1** To start using the new runtime software version on a PXM1E card, SRM card, or service module card, enter the following command:

```
mgx8850a.7.PXM.a > runrev <slot> <revision>
```

Replace *<slot>* with the card slot number, and replace *<revision>* with the software version number specified with the **loadrev** command. For graceful upgrades, you can specify either the active or the standby card. The switch software will automatically run the upgrade software on the standby card when it is installed. The following example shows how to enter this command:

```
mgx8850a.7.PXM.a > runrev 7 3.0(0.0)
```

The active card is reset, and the former standby card comes up in the active-U state.

- Step 2** When prompted to confirm the command, type **y** and press **Return** to continue.
- Step 3** To verify that the load command was processed correctly, enter the **dspcd** *<slot>* command and check the status of the software revision levels. You can also view the revision levels with the **dsprevs** command.
- Step 4** When the former active card comes up in the standby-U state, enter the **commitrev** command to commit to that software version. This step is optional.

After the **runrev** command is entered, the switch starts running the new software revision. The secondary software revision shows that a previous revision is still available. Whenever the secondary software revision is different from the primary and current software revisions, you can revert back to the secondary software revision as described in the “[Aborting a Runtime Software Upgrade](#)” section later in this appendix.


## Aborting a Runtime Software Upgrade

After upgrading PXM1E card, SRM card, or service module runtime software, you can revert to the previously used version of software at any time, as long as you have not committed to the new software version with the **commitrev** command (which is described in the next section).

**Caution**

Reverting to the previously used version of runtime software resets both PXM1E cards and terminates all calls in progress.

To revert to the previously used runtime software version, use the following procedure.

- 
- Step 1** Establish a configuration session using a user name with SERVICE\_GP privileges or higher.
- Step 2** To display the software revisions known to the switch, enter the **dspcd <slot>** command. (You can also view the revision levels with the **dsprevs** command.)
- Replace *slot* with the slot number of the active card. To complete the next step, you need to know the secondary software revision shown in the display.
- 
-  **Note** If the primary and secondary software revisions are the same, there is no other revision level to revert back to.
- 
- Step 3** To abort use of the primary software revision and revert back to the secondary software revision, enter the following command:
- ```
mgx8850a.7.PXM.a > abortrev <slot> <revision>
```
- Replace *<slot>* with the card slot number for the active card, and replace *<revision>* with the software version number for the secondary software revision.
- Step 4** To verify that the standby card is running the previously used software version, enter the **dspcd <slot>** command to view the software version in use. You can also view the revision levels with the **dsprevs** command.
- 

## Committing to a Runtime Software Upgrade

Committing to an upgrade does the following:

- Disables use of the **abortrev** command to revert back to the previously used version of software
- Enables upgrading of the current version of software

Once you are sure that an upgrade is stable, you can use the **commitrev** command commit to that software version. Committing to the current software version prevents other administrators from inadvertently reverting to the previous version. You must also commit to the current software version before you can upgrade to another software version.

To commit to the currently running runtime software version, use the following procedure.

- 
- Step 1** Establish a configuration session using a user name with SERVICE\_GP privileges or higher.
- Step 2** Determine if there is an unfinished upgrade by doing the following:
- a. If necessary, use the **cc** command to select the active PXM1E card.
  - b. Enter the **dspcd <slot>** command.
  - c. Check the **dspcd** command report to see if the same software revision is listed for the Primary Software Revision (Prim SW Rev), Secondary Software Revision (Sec SW Rev), and Current Software Revision (Curr SW Rev).
- If all version numbers are identical, the runtime software can be upgraded. There is no need to commit to the current software revision.



**Step 3** To commit to the software version, enter the following command:

```
mgx8850a.7.PXM.a > commitrev <slot> <revision>
```

Replace *<slot>* with the card slot number for the active card, and replace *<revision>* with the software version number for the currently used software version. To display the software version number, use the **dspcd <slot>** command to view the software version in use. You can also view the revision levels with the **dsprevs** command.



**Note**

Cisco Systems recommends that you avoid configuration changes until after you have run the **commitrev** or **abortrev** commands.

## Installing SCT Files

Manual installation of SCTs is a three-step process:

1. FTP the new SCT files onto your switch.
2. Move the new SCT files to the F directory.
3. Load the SCT files onto the network.

The following procedure describes in detail how to install SCT files onto your network through the CLI.

**Step 1** FTP the new SCT file to the C:SCT/TEMP folder, as described in the “[Copying Software Files to the Switch](#)” section earlier in this appendix.

**Step 2** Establish a CLI management session at any user access level.

**Step 3** At the PXM1E prompt, enter the **addstc** command:

```
D1.8.PXM.a > addstc <card type> <sct type> <sct id> <major ver> <checksum> <sct description>
```

The required parameters for this command are as follows:

**Table A-4** *addstc* Command Parameters

| Option    | Description                                                                                                                                                                                        |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| card type | Identifies the type of card the SCT runs on. The possible cards are AXSM, XSME, PXM (for PXM1E only), or HSMR.<br><b>Note</b> MGX 8850 (PXM1E) and MGX 8830 switches support only PXM (for PXM1E). |
| sct type  | Determines whether the SCT is a port SCT or a card SCT.                                                                                                                                            |
| sct id    | Number between 1 and 65335 which identifies an SCT.                                                                                                                                                |
| major ver | Major version number of a file. This number changes when a new parameter is added to a MIB. Only Cisco can generate a new major version of a file.                                                 |

**Table A-4** *addstct Command Parameters (continued)*

|                 |                                                                                                                                                                                  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| checksum        | SCT identification number that comes from Cisco and is published in the release notes. The checksum number can be from 1 to 132 characters, but cannot include space characters. |
| sct description | Describes the SCT file.                                                                                                                                                          |

The **addstct** command moves the SCT files from the C:SCT/TEMP directory to the F:SCT/<card\_type> directory. In the following example, the user adds a PXM1E card SCT to the network.

```
D1.8.PXM.a > addstct 3 2 00003 00001 0x46f6c566 default_upgrade
```

You must enter this command once for each new SCT, or for each new major and minor version of a pre-existing SCT.

**Step 4** Enter the **dspsctcs** command to ensure that the latest SCT version was registered on your network.

The status of the SCT would be marked as “failed” if the file does not exist or does not match the major and minor versions.

## Upgrading SCT Files

Once you have installed the SCT files on your network, you can enter the **cnfstct** command to overwrite them with new files with the same major version. To replace an SCT file with a new file of the same major version, use the following procedure:

- Step 1** FTP the new SCT file to the C:SCT/TEMP folder, as described in the “[Copying Software Files to the Switch](#)” section earlier in this appendix.
- Step 2** Establish a configuration session at any user access level.
- Step 3** At the active PXM switch prompt, enter the command **dspsctchksum** <absolute path of file> command to display the checksum number of the SCT you want to upgrade to. Replace <absolute path of file> with the path of the latest SCT file.

```
8850_NY.7.PXM.a > dspsctchksum "C:SCT/PXM/PXM_SCT.port.5.V1"
Stored checksum is 0xe84c696a (3897321834)
Computed checksum is 0xe84c696a (3897321834)
```



**Note** You will need the checksum for the **cnfstct** command in Step 4.

- Step 4** Enter the **cnfstct** <options> command at the active PXM switch prompt.

```
M8850_LA.1.pxm.a > cnfstct <card type> <sct type> <sct id> <major ver> <checksum> <sct
description>
```

The required parameters for this command are described in [Table A-5](#).

**Table A-5** *cnfsct Command Parameters*

| Parameter   | Description                                                                                                                                                                                         |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| card type   | Identifies the type of card the SCT runs on. The possible cards are AXSM, AXSME, PXM (for PXM1E only), or HSMR.<br><b>Note</b> MGX 8850 (PXM1E) and MGX 8830 switches support only PXM (for PXM1E). |
| SCT type    | Determines whether the SCT is a port SCT or a card SCT.                                                                                                                                             |
| SCT id      | Number between 1 and 65335 which identifies an SCT.                                                                                                                                                 |
| major ver   | Major version number of a file. This number changes when a new parameter is added to a MIB. Only Cisco can generate a new major version of a file.                                                  |
| checksum    | SCT identification number that comes from Cisco and is published in the release notes. The checksum number can be from 1 to 132 characters, but cannot include space characters.                    |
| description | Describes the SCT file.                                                                                                                                                                             |

In the following example, the user overwrites an old PXM1E card SCT with a new one:

```
M8850_LA.1.PXM.a > cnfsct PXM CARD 00122 00001 0x6fae1018 feb_1stSCT
```

- Step 5** Enter the **dspsects** command to ensure that the latest SCT version was registered on your network. The status of the SCT would be marked as “failed” if the file does not exist or does not match the major and minor versions.

## Upgrade Procedures for RPM-PR Cards

The following sections describe how to upgrade boot and runtime software on RPM-PR cards.

### Upgrading RPM-PR Boot Software

At the factory, a boot file is installed in the bootflash on the RPM-PR card and is used to boot the card. The runtime software is updated more frequently than the boot software. However, the boot software is updated occasionally. When you are updating runtime software, check the release notes that accompany the runtime software to see if a boot software upgrade is required.

The boot software is stored in bootflash memory on the RPM-PR card. To manage the software in bootflash, you access it as if it were a hard disk. For example, in copy and delete file commands, files are identified as `bootflash:filename` (which is similar to `e:filename`).

The following example shows a directory of bootflash contents:

```
Router (boot) #show flash:
-#- ED --type-- --crc--- -seek-- nlen -length- ----date/time----- name
1  .D config  D4F7352A  40330  18      686 Jan 30 2001 18:18:41 auto_config_slot09
2  .D config  CBF007C1  40660  9      688 Feb 22 2001 15:33:11 slot9.cnf
3  .. image   F596869A  2973E8  27  2452744 Feb 28 2001 03:16:05
rpm-boot-mz_002.001.000.000
```


**Note**

Although you can display directory contents with the **dir bootflash:** command, the **show flash:** command provides more detail. Although bootflash and flash are separate entities on other Cisco Routers, both terms refer to the same entity on the RPM.

In the example above, the numbers in the left column indicate the order in which the RPM-PR will try to load software. The second column shows that the first two files are marked for deletion (D). The last column lists the names of the files stored in bootflash.

When managing the bootflash, consider the following facts:

- If the BOOTLDR variable is set and the RPM-PR card is reset, the RPM-PR card attempts to load the boot software specified.
- If the BOOTLDR variable is *not* set and the RPM-PR card is reset, the RPM-PR card tries to load the first bootable image in bootflash. The first bootable image is the image that appears first in the **show flash:** command display, and this is usually the oldest file in bootflash. Therefore, if you do not use the BOOTLDR variable, the bootflash contents must be reorganized each time you upgrade boot software.
- The RPM-PR card will not attempt to boot from automatic configuration files, which are named using the format *auto\_config\_slotnn*, where nn represents a slot in which an RPM-PR card is installed.
- If the image that RPM-PR tries to load does not load, you can reset the RPM-PR from the active PXM1E card using the **resetd <slot>** command.
- Files are not removed from bootflash until the **squeeze flash:** command is entered. If you delete a file and do not enter **squeeze flash:**, the RPM-PR card will still attempt to boot from the first image it finds, whether it is marked for deletion or not.


**Caution**

If all bootable images are deleted from bootflash, the card must be returned to the factory to be reprogrammed.

If you do need to upgrade the boot software, you can copy the new boot file to the PXM1E disk, and then copy it to the bootflash. The following procedure describes how to upgrade the boot software.

**Step 1** Copy the new boot software file for the RPM-PR card to the switch (E:RPM) as described in the “[Copying Software Files to the Switch](#)” section earlier in this appendix.

**Step 2** Establish a configuration session using any valid user name.

**Step 3** Enter the **cc** command to select the RPM-PR card to update.

```
pop20two.7.PXM.a > cc 9
```

```
(session redirected)
```

```
Router>
```

The switch displays the Cisco IOS prompt for the router on the RPM-PR card. From this point on, all commands are Cisco IOS commands.



**Note** This procedure assumes that you are familiar with Cisco IOS commands (which is a topic that is beyond the scope of this book). This procedure details only those commands that are unique to setting up RPM-PR on the switch. For general Cisco IOS commands, examples are given to show how to complete the task.

**Step 4** Enter Enable mode for the router.

```
Router>enable
Password:
Router#
```

**Step 5** To verify router access to the PXM1E hard disk and display the boot file name, enter **dir e:** command.

```
Router#dir e:
Directory of c:/

65539  -rw-          815   Sep 13 2001 23:51:10  auto_config_slot09
65540  -rw-       2588780   May 22 2001 19:06:54  rpm-boot-mz_002.001.000.000
84611  -rw-       2452768   Apr 05 2001 05:34:44  rpm-boot-mz.122-4.T
66805  -rw-       8529104   May 22 2001 19:09:00  rpm-js-mz_002.001.000.000
85809  -rw-       7936012   Apr 05 2001 06:28:54  rpm-js-mz.122-4.T

104857600 bytes total (83068928 bytes free)
```

**Step 6** To display the files in the bootflash, enter the **show flash:** command.

```
Router#show flash:
-#- ED --type-- --crc--- -seek-- nlen -length- -----date/time----- name
1  .. image    F596869A 296D88 27 2452744 Feb 28 2001 03:16:05 rpm-boot-mz_122-4.T

30315128 bytes available (2452872 bytes used)
```

**Step 7** To copy new boot software to the bootflash, enter the **copy** command.

```
Router#copy c:rpm-boot-mz_002.001.000.000 bootflash:
Destination filename [rpm-boot-mz_002.001.000.000]?
CC
CCCCCCCCCCCCCCCCCCCC
2334044 bytes copied in 35.768 secs (66686 bytes/sec)
```



**Tip** When prompted for the destination filename, press **enter** to use the source filename shown in the prompt. To change the destination filename, type a new filename after the prompt.

**Step 8** To verify that the file was copied, enter the **show flash:** command.

**Step 9** To set the BOOTLDR variable to specify the new boot software, complete the following steps:

- a. Enter the router global configuration mode

```
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
```

- b. Set the BOOTLDR variable to the new boot image to be loaded

```
Router(config)#boot bootldr bootflash:rpm-boot-mz_002.001.000.000
```

- c. Exit global configuration mode and save the new configuration.

```
Router(config)#^Z
Router#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
```

- d. Verify that the BOOTLDR variable is set

```
RPM-XF#show bootvar
BOOT variable = bootflash:rpmxf-.....
CONFIG_FILE variable =
BOOTLDR variable = bootflash:rpm-boot-mz_002.001.000.000
Configuration register is 0x2
```

**Step 10** To reorganize the bootflash so that the new boot software is loaded first when the BOOTLDR variable is not set, complete the following steps:

- a. Because all files that precede the new boot image in bootflash have to be deleted, copy bootflash files you want to save to the PXM1E hard disk using the following command.

```
Router#copy bootflash:filename c:filename
```

- b. Mark all the files that precede the new boot image in bootflash using the **del bootflash:** command as shown in the following example:

```
Router#del bootflash:
Delete filename []? rpm-js-mz
Delete bootflash:rpm-js-mz? [confirm]
Router#
```



**Tip** To unmark a bootflash file so that it won't be deleted when the **squeeze flash:** command is run, enter the **undelete <number>** command, where *number* is the file number displayed in the left-most column of the **show flash:** command display.

- c. To delete all files that are marked for deletion from bootflash, enter the **squeeze flash:** command as shown in the following example:

```
Router(boot)#squeeze flash:
All deleted files will be removed. Continue? [confirm]
Squeeze operation may take a while. Continue? [confirm]
```

Squeeze of bootflash complete

- d. Copy any previously saved bootflash files you want to use from the PXM1E hard disk using the following command.

```
Router#copy c:filename bootflash:filename
```

You might want to copy previously saved configuration files back to bootflash, or you might want to copy an older boot image to be used if the newer version becomes corrupt.

- e. Enter the **show flash:** command to verify that the bootflash files are as you want them. The preferred boot software should appear first in the list.

**Caution**

If all bootable images are deleted from bootflash and the RPM-PR card is restarted, the card must be returned to the factory to be reprogrammed. When you are done managing the bootflash, the **show flash:** command should display at least one bootable image, and the image you want the card to boot from should be the first bootable image in the list.

**Tip**

If the **show flash:** command does not display a bootable image, copy a bootable image to bootflash as described earlier in this procedure. You can continue to manage the bootflash, even when there are no files in bootflash, until the router is restarted.

**Step 11**

When you are sure the bootflash is ready for use, you can enter the **reload** command to restart the RPM-PR card, or you can upgrade the runtime software as described in the next section.

**Tip**

If the bootflash contains bootable images and the sequence is such that the card will not start, you can enter rommon mode and load the bootable image. To get into rommon mode, establish a console connection to the RPM-PR card, reset the RPM-PR card using the **resetcd <slot>** command from the active PXM1E card, then quickly enter the **CTRL-[, Break** sequence at the RPM-PR console. The command to send a **Break** depends on the computer platform and software you are using. It may take a couple of attempts to successfully get into rommon mode. When you are in rommon mode, the RPM-PR card displays the *rommon 1 >* prompt.

Once in rommon mode, you can enter the **dir bootflash:** command to display the images in bootflash. To boot one of the images, enter a **boot** command using the following format: **boot bootflash:filename.**

## Upgrading RPM-PR Runtime Software

The runtime software on the RPM-PR can be loaded from the following sources:

- The E:RPM directory on the PXM1E hard disk
- Bootflash
- A TFTP server on a LAN to which an RPM-PR back card is connected.

Cisco Systems recommends that you configure the RPM-PR card to load from the E:RPM directory on the PXM1E hard disk. Note that images will load much faster from bootflash, but if you are using multiple RPM-PR cards, it takes longer to complete an upgrade because the runtime software must be copied to each RPM-PR card's bootflash instead of to a single location.

At startup, the RPM-PR card attempts to load the software in the order listed in the startup-config file. The following example shows an excerpt from a startup-config file:

```
!
boot system e:rpm-js-mz_122-4.T
boot system bootflash:rpm-js-mz_122-4.T
boot config c:auto_config_slot09
logging rate-limit console 10 except errors
enable password *****
!
```

In the startup-config file example, the RPM-PR card attempts to load the runtime software from the PXM1E card (e:rpm-js-mz\_122-4.T) first, and if that fails, it attempts to load the image copy stored in bootflash. This configuration takes longer to upgrade, but it assures the card can reboot if someone accidentally removes the file on the PXM1E hard disk.

To configure the RPM-PR to load upgraded runtime software from the PXM1E hard disk, you need to do the following:

- Copy the upgraded file to the PXM1E hard disk
- Update the boot system variable in the router startup-config file to load the new file.
- Reset the RPM-PR card so that it loads the new file.

RPM-PR cards can be configured for 1:N redundancy as well as for non-redundant configurations. The procedures for both types of configuration are in the sections that follow.



**Tip**

To simplify runtime software updates, copy the runtime file in the E:RPM directory and rename it to a generic name such as rpm-js-mz. The production runtime filenames have version numbers appended to them, but you can change this. This approach allows you to perform future upgrades by copying the file to the hard disk, renaming a copy of the file to your generic name, and resetting each card. The approach eliminates the need to reconfigure Cisco IOS commands on each card to recognize the new filename.

## Upgrading RPM-PR Runtime Software for 1:N Redundancy

Redundancy must be established before you use the procedure in this section. If redundancy has not been established, upgrade each RPM-PR card using the procedure in the next section, “Upgrading Without Redundancy”.

To upgrade the RPM-PR runtime software for 1:N redundancy, use the following procedure.

- 
- Step 1** Copy the new runtime software file for the RPM-PR card to the switch (E:RPM) as described in the “[Copying Software Files to the Switch](#)” section earlier in this appendix.
- Step 2** If you are using a generic filename for your runtime images, copy the file on the PXM1E hard disk and rename the copy. For example:

```
8850_LA.8.PXM.a > copy rpm-js-mz_122-4.T rpm-js-mz
```

- Step 3** Establish a configuration session using any valid user name.

- Step 4** If your RPM-PR is already configured to use a file with a generic name, skip to Step 13.

- Step 5** Enter the **cc** command to select the RPM-PR card to update.

```
pop20two.7.PXM.a > cc 9
```

```
(session redirected)
```

```
Router>
```

The switch displays the Cisco IOS prompt for the router on the RPM-PR card. From this point on, all commands are Cisco IOS commands.



**Note**

This procedure assumes that you are familiar with Cisco IOS commands (which is a topic that is beyond the scope of this book). This procedure details only those commands that are unique to setting up RPM-PR on the switch. For general Cisco IOS commands, examples are given to show how to complete the task.

**Step 6** Enter Enable mode for the router.

```
Router>enable
Password:
Router#
```

**Step 7** Display the startup runtime software filename by entering the **show bootvar** command.

```
Router#show bootvar
BOOT variable = c:rpm-js-mz_122-4.T,12;
CONFIG_FILE variable = c:auto_config_slot09
BOOTLDR variable does not exist
Configuration register is 0x2
```

In the example above, the startup runtime software file is c:rpm-js-mz\_122-4.T, and it has a version number attached to it. Another way to view the boot list is to enter the **show startup-config** command and look for the **boot system** commands.

**Step 8** Enter the router global configuration mode.

```
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
```

**Step 9** If you need to change the boot system filenames, remove the existing boot list using the **boot system** command as follows:

```
Router(config)# no boot system
```

**Step 10** Create a new boot list by entering one or more **boot system** commands as follows:

```
Router(config)# boot system e:filename
```

Replace the filename variable with the name of the new runtime file that was previously transferred to the E:RPM directory on the switch. For example:

```
Router(config)# boot system e:rpm-js-mz
```

If you want to enter additional boot system commands, enter them in the order in which you want the RPM-PR card to use them. The following example adds a statement to load from bootflash if the runtime file is not found on the PXM1E hard disk:

```
Router(config)# boot system bootflash:rpm-js-mz_122-4.T
```

**Note**

Before the RPM-PR card can load runtime software from bootflash, you must copy the runtime software to the bootflash. The procedure for copying files from the PXM1E hard disk to bootflash is described in the previous section.

**Step 11** Exit global configuration mode and save the new configuration.

```
Router(config)#^Z
Router#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
```

**Step 12** To verify the change, enter the **show bootvar** or **show run** commands.

**Step 13** Switch to the active PXM1E card and reset the RPM-PR card. For example:

```
Router#cc 8

(session redirected)

8850_LA.8.PXM.a > resetcd 9
The card in slot number 9, will be reset. Please confirm action
resetcd: Do you want to proceed (Yes/No)? y
```

**Step 14** Switch to the secondary card using the **softswitch** command as follows:

```
8850_LA.8.PXM.a > softswitch <fromSlot> <toSlot>
```

Replace *<fromSlot>* with the slot number of the primary card. Replace *<toSlot>* with the slot number of the secondary card.

This step makes the secondary card active and resets the primary RPM-PR card. When the primary card resets, it loads the upgraded software.

**Step 15** Switch back to the primary card using the **softswitch** command as follows:

```
8850_LA.8.PXM.a > softswitch <fromSlot> <toSlot>
```

Replace *<fromSlot>* with the slot number of the secondary card. Replace *<toSlot>* with the slot number of the primary card.

This step makes the primary card active and resets the secondary RPM-PR card. When the reset is complete, the secondary card is ready to run the upgraded software.

**Step 16** To verify that the router reboot is complete, enter the **dspscd** or **dspscd <slot>** commands. The reboot is complete when the card state displays as *Active*. Another way to verify router operation is to enter the **cc** slot command. If you can access the router from the switch prompt, the router reboot is complete.

**Step 17** If there are other primary cards with redundant (secondary) cards, repeat this procedure for each primary card.

## Upgrading RPM-PR Runtime Software for Non-Redundant Cards

To upgrade the RPM-PR runtime software for nonredundant cards, use the following procedure.

**Step 1** Copy the new runtime software file for the RPM-PR card to the switch (E:RPM) as described in the [“Copying Software Files to the Switch”](#) section earlier in this appendix.

**Step 2** If you are using a generic filename for your runtime images, copy the file on the PXM1E hard disk and rename the copy. For example:

```
8850_LA.8.PXM.a > copy rpm-js-mz_122-4.T rpm-js-mz
```

**Step 3** Establish a configuration session using any valid user name.

**Step 4** If your RPM-PR is already configured to use a file with a generic name, skip to Step 13.

**Step 5** Enter the **cc** command to select the RPM-PR card to update.

```
pop20two.7.PXM.a > cc 9
```

```
(session redirected)
```

```
Router>
```

The switch displays the Cisco IOS prompt for the router on the RPM-PR card. From this point on, all commands are Cisco IOS commands.



**Note** This procedure assumes that you are familiar with Cisco IOS commands (which is a topic that is beyond the scope of this book). This procedure details only those commands that are unique to setting up RPM-PR on the switch. For general Cisco IOS commands, examples are given to show how to complete the task.

**Step 6** Configure the RPM-PR card to store its configuration on the PXM1E hard disk by entering the following command:

```
Router> boot config e:auto_config_slot#
```

**Step 7** Enter Enable mode for the router.

```
Router>enable
Password:
Router#
```

**Step 8** Display the startup runtime software filename by entering the **show bootvar** command.

```
Router#show bootvar
BOOT variable = c:rpm-js-mz_122-4.T,12;
CONFIG_FILE variable = c:auto_config_slot09
BOOTLDR variable does not exist
Configuration register is 0x2
```

In the example above, the startup runtime software file is `c:rpm-js-mz_122-4.T`, and it has a version number attached to it. Another way to view the boot list is to enter the **show startup-config** command and look for the **boot system** commands.

**Step 9** Enter the router global configuration mode.

```
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
```

**Step 10** If you need to change the boot system filenames, remove the existing boot list using the **boot system** command as follows:

```
Router(config)# no boot system
```

**Step 11** Create a new boot list by entering one or more **boot system** commands as follows:

```
Router(config)# boot system e:filename
```

Replace the filename variable with the name of the new runtime file that was previously transferred to the E:RPM directory on the switch. For example:

```
Router(config)# boot system e:rpm-js-mz
```

If you want to enter additional boot system commands, enter them in the order in which you want the RPM-PR card to use them. The following example adds a statement to load from bootflash if the runtime file is not found on the PXM1E hard disk:

```
Router(config)# boot system bootflash:rpm-js-mz_122-4.T
```

**Note**

Before the RPM-PR card can load runtime software from bootflash, you must copy the runtime software to the bootflash. The procedure for copying files from the PXM1E hard disk to bootflash is described in the previous section.

**Step 12** Exit global configuration mode and save the new configuration.

```
Router(config)#^Z
Router#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
```

**Step 13** To verify the change, enter the **show bootvar** or **show run** commands.

**Step 14** Switch to the active PXM1E card and reset the RPM-PR card. For example:

```
Router#cc 8

(session redirected)

8850_LA.8.PXM.a > resetcd 9
The card in slot number 9, will be reset. Please confirm action
resetcd: Do you want to proceed (Yes/No)? y
```

## Troubleshooting Upgrade Problems

[Table A-6](#) lists symptoms of upgrade problems and suggestion on how to correct them.

**Tip**

When troubleshooting problems on standby PXM1E cards or cards that do not start up to the active state, establish communications through the boot IP address or through the console port.

Table A-6 Troubleshooting Upgrade Problems

| Primary Symptom                                                                                                   | Secondary Symptom                                                                             | Suggested Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>loadrev</b> or <b>runrev</b> command fails                                                                     | —                                                                                             | <p>The <b>loadrev</b> command is blocked when a previous upgrade has not been completed with the <b>commitrev</b> command. Enter the <b>dsprevs</b> command to locate the cards that are still being upgraded.</p> <p>For more information on a particular card, enter the <b>dspcd &lt;slot&gt;</b> command and verify that the current, primary, and secondary software revision numbers are identical. If the numbers are not identical, issue the <b>commitrev &lt;slot&gt;</b> command.</p> <p>Enter the <b>dspcds</b> and verify that the standby card is in standby state. Also look for a -U or -D in the <b>dspcds</b> command display, which indicates that the card is in the process of being upgraded (-U) or downgraded (-D). The <b>loadrev</b> and <b>runrev</b> commands are blocked whenever the standby card is not in standby state or an upgrade or downgrade is in progress.</p>                                                                     |
| After restart, the switch stops displaying messages and does not display a prompt.                                | —                                                                                             | Press <b>Return</b> to display the prompt.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| After restart, switch stops at backup boot prompt: PXM1Ebkup>.                                                    | The switch displays the following message: <i>Can not open file C:/version.</i>               | The version file is probably missing. Create the version file as described in the “ <a href="#">Initializing the Switch</a> ” section in <a href="#">Chapter 2</a> , “ <a href="#">Configuring General Switch Features</a> .”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (Use a console port connection to see this. If you missed the startup messages, enter the <b>reboot</b> command.) | The switch displays the following message: <i>Unable to determine size of C:/FW/filename.</i> | <p>The version recorded in the version file doesn’t match software installed in the C:FW directory.</p> <p>Enter the <b>sysVersionShow</b> command to see which file the PXM1E is trying to load.</p> <p>Verify that the correct software is installed on the switch using the commands described in the “<a href="#">Browsing the File System in Backup Boot Mode</a>” section in <a href="#">Appendix B</a>, “<a href="#">PXM1E Backup Boot Procedures</a>.”</p> <p>If the runtime software is not on the hard disk, copy it to the hard disk as described in the “<a href="#">Transferring Software Files to and from the Switch</a>” section in <a href="#">Appendix B</a>, “<a href="#">PXM1E Backup Boot Procedures</a>.”</p> <p>If a typo is entered when initializing the switch, re-enter the <b>sysVersionSet</b> command, enter the <b>sysVersionShow</b> command to verify the correct setting, and then reboot the switch with the <b>reboot</b> command.</p> |
|                                                                                                                   | The switch displays the following message: <i>Please run sysDiskCfgCreate.</i>                | The hard disk is formatted, but not ready for operation. Enter the <b>sysDiskCfgCreate</b> command. For more information, see the “ <a href="#">Initializing the PXM1E Hard Disk</a> ” section in <a href="#">Appendix B</a> , “ <a href="#">PXM1E Backup Boot Procedures</a> .”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Table A-6 Troubleshooting Upgrade Problems (continued)

| Primary Symptom                                                                                        | Secondary Symptom                                                | Suggested Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standby PXM1E continually reboots.<br><br>You can view the rebooting process through the console port. | —                                                                | <p>The active PXM1E card cannot bring up the standby card. The following procedure assumes that this card has just been installed in the switch and that you have given the standby card sufficient time to synchronize with the Active card.</p> <p>Interrupt the boot cycle by pressing <b>Return</b>. Timing is important, so you might have to press <b>Return</b> multiple times. When the PXM1Ebkup prompt appears, immediately enter the <b>sysPxmRemove</b> command to prevent the Active card from rebooting the standby card while you are working on it.</p> <p>Enter the <b>sysChangeEnet</b> command and verify that the <i>inet on ethernet (e)</i> and <i>gateway inet (g)</i> values are set to the boot and gateway IP address set with the <b>bootChange</b> command on the active card. Also, verify that the <i>boot device</i> is set to <i>InPci</i>. The <b>sysChangeEnet</b> command works like the <b>bootChange</b> command, which is described in the “<a href="#">Setting the Boot IP Address</a>” section in <a href="#">Chapter 2, “Configuring General Switch Features.”</a></p> <p>Enter the <b>sysClrallcnf</b> command to clear any configuration data on the standby card set. This command does not clear the boot IP address set with the <b>sysChangeEnet</b> command.</p> |
| After restart, the switch stops at backup shell prompt: PXM1E>.                                        | —                                                                | <p>If the <b>Return</b> key is pressed at one of the auto-boot prompts during start up, the switch stops in shell mode. Enter the <b>reboot</b> command to restart the switch and avoid pressing the <b>Return</b> key.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| The non-active PXM1E will not transition out of the active init state.                                 | One or more non-standby PXM1E cards are in a transitional state. | <p>A non-standby PXM1E card is a standalone PXM1E card or the card within a redundant PXM1E pair that is trying to go active. When a non-standby PXM1E card is in a transitional state, such as the init state, the PXM1E cannot transition to the standby state. When all non-standby cards have reached a steady (non-transitional) state, the PXM1E will transition to a steady state. Steady states are as follows: active ready, failed, mismatch, empty, empty reserved, and standby ready.</p> <p><b>Note</b> When either card in a redundant PXM1E pair is active, that PXM1E pair is not preventing the standby PXM1E from transitioning to a steady state. The standby PXM1E is only affected when both cards in a redundant pair are in a transitional state.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |