Preparing Narrowband Service Modules for Communication

This chapter describes how to prepare the following narrowband service modules for standalone or redundant operation in switches with PXM1E controllers:

- AUSM
- CESM
- FRSM
- VISM

This chapter provides a quickstart procedure for configuring service module cards and describes how to do the following procedures:

- manage firmware version levels for narrowband service modules
- establish redundancy between two narrowband service modules

Configuration Quickstart

The quickstart procedure in this section provides a summary of the tasks required to prepare service modules and lines to enable Frame Relay communications. This procedure is a quick reference for those who already have configured narrowband service modules.

	Command	Purpose
Step 1	*username*	Start a configuration session.
	<password>	**Note** To perform all the procedures in this quickstart procedure, you must log in as a user with GROUP1 privileges or higher.

	Command	Purpose
Step 2	**setrev** <*slot*> <*version*> Related commands: **dspcds**	Initialize service module cards by setting the firmware version level for each card. Run the **setrev** command from the PXM1E. See the "Managing Firmware Version Levels for Service Modules" section later in this chapter.
Step 3	**addred** <*options*> Related commands: **dspred**	Define which cards are operating as redundant cards. See the "Establishing Redundancy Between Two Service Modules" section later in this chapter.

Managing Firmware Version Levels for Service Modules

The service modules within the switch run two types of firmware: boot firmware and runtime firmware. The boot firmware provides the startup information the card needs. The boot firmware is installed on the card at the factory. The runtime firmware controls the operation of the card after startup. The runtime firmware file is stored on the PXM1E hard disk.

After the service modules are installed, you must specify the correct runtime firmware version for each card before the switch can begin using the card. The following sections explain how to

- Locate the cards that need to have the firmware version level set
- Set the firmware version levels for cards in the switch
- Verify the firmware version levels being used by cards

Locating Cards that Need the Firmware Version Set

When a service module is installed and the firmware version needs to be set, the System Status LED on the front of the card blinks red. The **dspcds** command shows that the card status is Failed. Other events can cause a failed status, but if the service module is new, the problem is probably that the firmware version number has not been set. To locate the cards that need to have the firmware version set, use the following procedure.

Step 1 Establish a CLI management session at any access level.

Step 2 To display a list of all the cards in the switch, enter the **dspcds** command.

```
mgx8830b.1.PXM.a > dspcds
```

The following example shows the display for this command. The card state for the card in slot 4 is listed as Failed/Active. This is how a card appears when the runtime firmware version is not selected.

```
mgx8830b.1.PXM.a > dspcds

    mgx8830b                          System Rev: 03.00   Apr. 25, 2002 23:20:16 GMT
    Chassis Serial No:   SCA053000KM Chassis Rev: A0      GMT Offset: 0
                                                          Node Alarm: MAJOR
    Card  Front/Back          Card           Alarm      Redundant   Redundancy
    Slot  Card State          Type           Status     Slot        Type
    ---   ----------          --------       --------   -------     -----

    01    Active/Active       PXM1E-4-155    MAJOR      02          PRIMARY SLOT
    02    Standby/Active      PXM1E-4-155    NONE       01          SECONDARY SLOT
    03    Active/Empty        RPM            NONE       NA          NO REDUNDANCY
    04    Failed/Active       FRSM_2CT3      MINOR      05          PRIMARY SLOT
    05    Standby/Active      FRSM_2CT3      NONE       04          SECONDARY SLOT
    06    Active/Active       CESM_8T1       NONE       NA          NO REDUNDANCY
    07    Active/Active       SRM_3T3        NONE       14          PRIMARY SLOT
    11    Active/Active       FRSM_8T1       NONE       NA          NO REDUNDANCY
    12    Empty               ---            ---        ---         ---
    13    Standby/Active      FRSM_8T1       NONE       NA          NO REDUNDANCY
    14    Standby/Active      SRM_3T3        NONE       07          SECONDARY SLOT
```

Note the slot number, card type, and redundancy type for each card that needs to have the firmware version set. You will need this information to activate these cards as described in the next section, "Initializing Service Modules."

Note If any service module displays the Active/Active card state, you do not have to set the runtime firmware version for that card.

Initializing Service Modules

Before a service module can operate, it must be initialized in a switch slot. The initialization process defines the service module runtime software version that will run on the card and identifies the slot in which the card operates. To initialize a service module, use the following procedure.

Note The PXM1E card supports a maximum of 99 lines on the switch. As you add service modules, verify that the line count for all service modules does not exceed this number.

Step 1 If you have not already done so, determine the software version number for the card by referring to the *Release Notes for Cisco MGX 8850 and MGX 8830 Software Version 3 (PXM45/B and PXM1E)*.

Tips If you have trouble locating the runtime firmware version level, use the filenames on the PXM1E hard disk. To see how to derive a version number from a file name, see the "Determining the Software Version Number from Filenames" section in Chapter 9, "Switch Operating Procedures."

Step 2 Establish a configuration session using a user name with SERVICE_GP privileges or higher.

Step 3 To set the firmware revision level for a card, enter the **setrev** command.

```
mgx8830b.1.PXM.a > setrev <slot> <version>
```

Note Each card should be initialized only once with the **setrev** command. The only other time you should enter the **setrev** command is to initialize cards after the configuration has been cleared with the **clrallcnf**, **clrcnf**, or **clrsmcnf** commands.

Replace <*slot*> with the card slot number and replace <*version*> with the software version number. For example:

```
mgx8830b.1.PXM.a > setrev 4 3.0(0)
```

After you enter the **setrev** command, the System status LED blinks red until the firmware load is complete, then it changes to non-blinking green.

Step 4 To verify the activation of a card for which the status was previously listed as Failed/Empty, enter the **dspcds** command. The status should change to Active/Active.

Verifying Card Firmware Version Levels

When you are having problems with your switch, or when you have taken delivery of a new switch but delayed installation, it is wise to verify the firmware versions installed on the switch. If newer versions of this firmware are available, installing the updated firmware can prevent switch problems.

To see the firmware version numbers in use on your switch, use the following procedure.

Step 1 To display the software revision status of all the cards in a switch, enter the **dsprevs** command as follows:

```
hsfrnd6.8.PXM.a > dsprevs
```

Step 2 To see the software revision levels for a single card, enter the **dspversion** command as follows:

```
hsfrnd6.4.pxm.a > dspversion
```

Step 3 Another way to see the software revision levels for a single card is to enter the **dspcd** command as follows:

```
hsfrnd6.4.FRSM12.a > dspcd
```

Step 4 Using the **dsprevs** and **dspcd** commands, complete the hardware and software configuration worksheet in Table 2-10, which is in the "Verifying the Hardware Configuration" section in Chapter 2, "Configuring General Switch Features."

Step 5 Compare the versions you noted in Table 2-10 with the latest versions listed in the *Release Notes for Cisco MGX 8850 and MGX 8830 Software Version 3 (PXM45/B and PXM1E)*.

Step 6 If the switch requires software updates, upgrade the software using the instructions in Appendix A, "Downloading and Installing Software Upgrades."

Establishing Redundancy Between Two Service Modules

To establish redundancy between two service modules of the same type, use the following procedure.

Step 1 Establish a configuration session using a user name with SUPER_GP privileges or higher.

Step 2 Enter the **dspcds** command to verify that both service modules are in the Active state.

Step 3 Enter the **addred** command as follows:

```
pop20one.7.PXM.a > addred <redPrimarySlotNum> <redSecondarySlotNum> <redType>
```

Replace <*redPrimarySlotNum*> with the slot number of the card that will be the primary card, and replace <*redSecondarySlotNum*> with the slot number of the secondary card. Replace <*redType*> with the number 1, which selects Y-cable redundancy. Although the online help lists other redundancy types, Y-cable redundancy is the only type supported on service modules in this release.

Note One of the two cards can be configured before redundancy is established. If this is the case, the configured card should be specified as the primary card. Redundancy cannot be established if the secondary card has active lines. If the secondary card has active lines, you must delete all ports and down all lines before it can be specified as a secondary card. You clear the configuration on a single service module with the **clrsmcnf** command.

Tips If the switch displays the message, `ERR: Secondary cd is already reserved`, then lines are already in use on the specified secondary card. Enter the **dnln** command to bring down these lines before re-entering the **addred** command, or enter the **clrsmcnf** command for the secondary card.

Step 4 To verify that the redundancy relationship is established, enter the **dspred** command as shown in the following example:

```
pop20two.7.PXM.a > dspred
```

The secondary state for the card in the secondary slot changes to *Standby* only when the secondary card is ready to take over as active card. After you enter the **addred** command, the switch resets the secondary card. When you first view the redundancy status, the state may be *Empty Resvd* or *Init*. The secondary card may require one or two minutes to transition to standby.

Note The **dspcds** command also shows the redundancy relationship between two cards.

For information on managing redundant cards, refer to the "Managing Redundant Cards" section in Chapter 9, "Switch Operating Procedures."