



Installing the MGX RPM

This chapter describes how to install the Cisco MGX Route Processor Module, and includes the following sections:

- [Inspecting the System](#)
- [Required Tools and Parts](#)
- [Installing and Removing the RPM Cards](#)
- [Installing and Removing Back Cards in the MGX 8850 Midplane](#)
- [Connecting a Console Terminal or PC to the RPM Console Port](#)
- [Connecting a Modem to the Auxiliary Port](#)
- [Upgrading from an RPM/B Card to an RPM-PR Card](#)

Inspecting the System

Do not unpack the RPM until you are ready to install it. If the final installation site is not ready, keep the card in its shipping container to prevent accidental damage. When you have determined where you want the RPM installed, proceed with unpacking it.

The RPM and any optional equipment you ordered might be shipped in more than one container. When you unpack each shipping container, check the packing list to ensure that you received all of the following items:

- Cisco MGX 8850 RPM.



Note

Cisco Systems does not provide 10BaseT, 100BaseT and optical fiber cables required to connect the back cards to external devices. These cables must be ordered from commercial cable vendors. For pinouts to these cables, see [Appendix B, “Cable and Connector Specifications.”](#)

Cisco Systems also does not provide console and auxiliary cables in the RPM kit. Console and auxiliary cables can be ordered as spares from Cisco Systems.

- *Cisco Information Packet* publication.
- Cisco Documentation CD-ROM.
- Optional printed publications, as specified on your order.

Inspect all items for shipping damage. If anything appears to be damaged, or if you encounter problems when installing or configuring your system, contact the Cisco Technical Assistance Center (TAC).

Required Tools and Parts

Installing the RPM requires tools and parts that are not provided as standard equipment. The following tools and equipment are required to install the RPM in the MGX 8850 chassis:

- Number 2 Phillips head screw driver.
- ESD-preventive wrist strap.
- Cables for 4E or 4E/B, FE and FDDI port adapter interfaces.



Note RPM-PR does not support the 4E or FDDI back card. The new version of the 4E is called 4E/B. Other than a new label on the card, changes to the card are transparent to the user. Thus, the cables for the 4E back card work with the 4E/B.

- Console and auxiliary cables
 - Standard RJ-45-to-RJ-45 rollover cable (for more information, see [Appendix B, “Cable and Connector Specifications,”](#) the “[Identifying a Rollover Cable](#)” section.)
 - Cable adapters
 - RJ-45-to-DB-9 female DTE adapter (labeled “Terminal”)
 - RJ-45-to-DB-25 female DTE adapter (labeled “Terminal”)
 - RJ-45-to-DB-25 male DCE adapter (labeled “Modem”)



Note For cable information, see [Chapter 2, “Preparing to Install the MGX RPM,”](#) the “[Preparing to Connect to a Network](#)” section. For cable pinouts, see [Appendix B, “Cable and Connector Specifications.”](#)

- Console terminal (an ASCII terminal or a PC running terminal emulation software) configured for 9600 baud, 8 data bits, no parity, and 2 stop bits.

See the “[Connecting a Console Terminal or PC to the RPM Console Port](#)” section later in this chapter for the procedure to connect a console terminal.
- Modem for remote access (optional).

Installing and Removing the RPM Cards

The following sections describe how to install and remove the RPM in the MGX 8850 midplane.



Note

Installing and removing RPM service modules is similar to installing and removing other service modules, such as FRSM, AUSM, VISM, SRM, which also go into the midplane from the front of the MGX 8850 chassis. However, those service modules are half-height and have only one insertion/extraction lever on their faceplates.


Warning

Only trained and qualified personnel should install or replace this equipment.


Warning

To prevent damage to the cards from static electricity, put on a wrist strap and connect it to any convenient metal contact on the system or card cage before you touch any cards.



Note

It is not necessary to power OFF the MGX 8850 chassis. The RPM can be removed and inserted in the MGX 8850 chassis while the system is up and running.

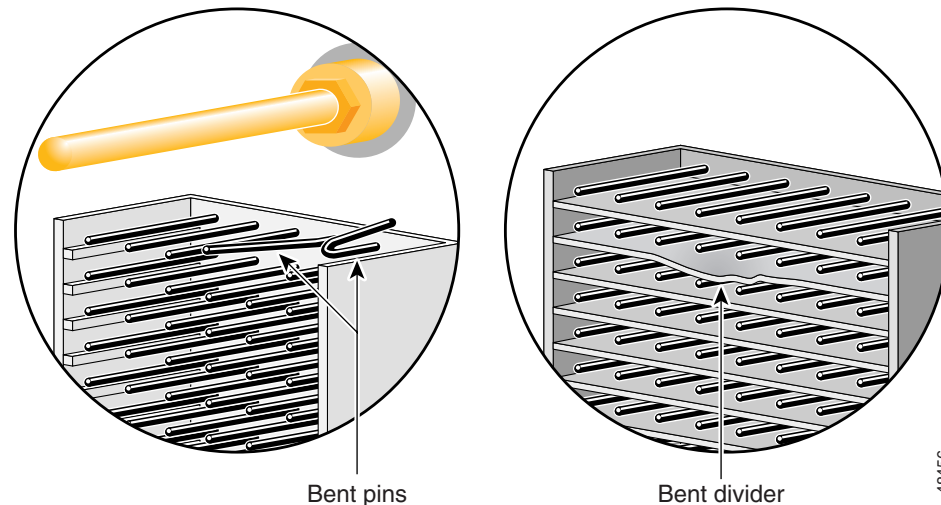
Before Installing Front or Back Cards

Before you install a front or back card, perform the following inspections.

- Inspect the backplane for bent pins or bent dividers between pin rows (see [Figure 3-1](#)).

If the backplane has bent pins, do not install a card in that slot. Installing a card into a damaged backplane slot will damage the connector on the card.

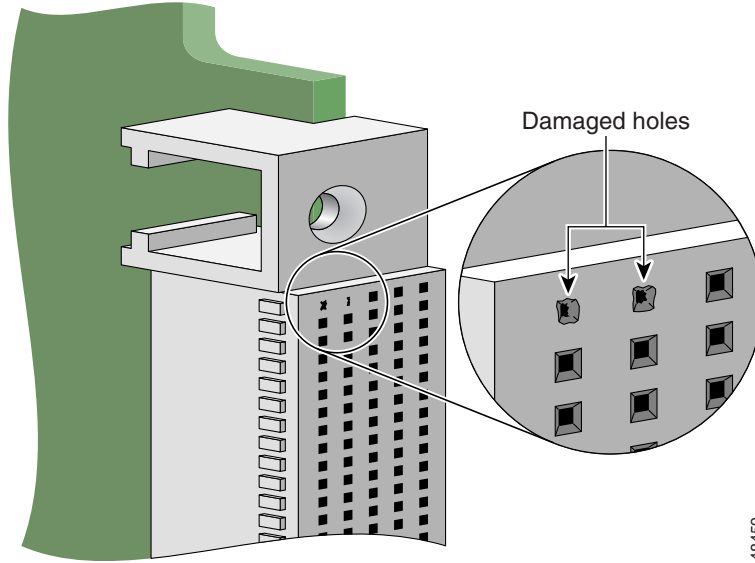
Figure 3-1 Backplane Inspection Check Points



- Inspect the card for damaged holes on the connector (see [Figure 3-2](#)).

If the connector has damaged holes, do not install the card. Installing a card that has a damaged connector will damage the backplane. Return damaged cards to Cisco.

Figure 3-2 Damaged Connectors on the Card



Installing the RPM Front Card

Perform the following steps to install the RPM in the MGX 8850 chassis.

- Step 1** Position the rear edge of the card over the appropriate slot card guide at the top and bottom of the cage.



Note Verify that the intended slot for the card is the correct slot before you install the card.

- Step 2** Carefully slide the RPM card all the way into the slot.

- Step 3** Press both extractor levers until they snap into the vertical position.



Note The RPM should slide in and out with only slight friction on the adjacent board EMI gaskets. Do not use force. Investigate any binding.

Removing the RPM Card

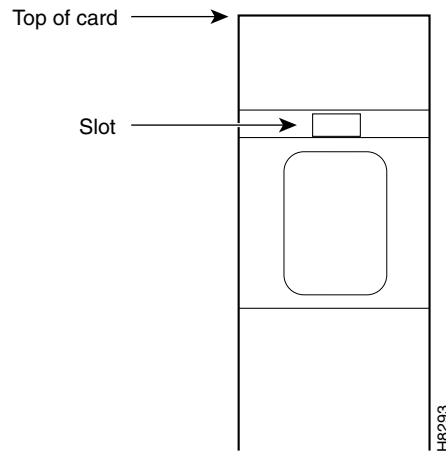
Double-height front cards have a latch on the ejector at both the top and the bottom of the front panel.



Warning

To prevent damage to the cards from static electricity, put on a wrist strap and connect it to any convenient metal contact on the system or card cage before you touch any cards.

Figure 3-3 Front Card Extractor Latch



Perform the following steps to remove an RPM front card from the MGX 8850 chassis.

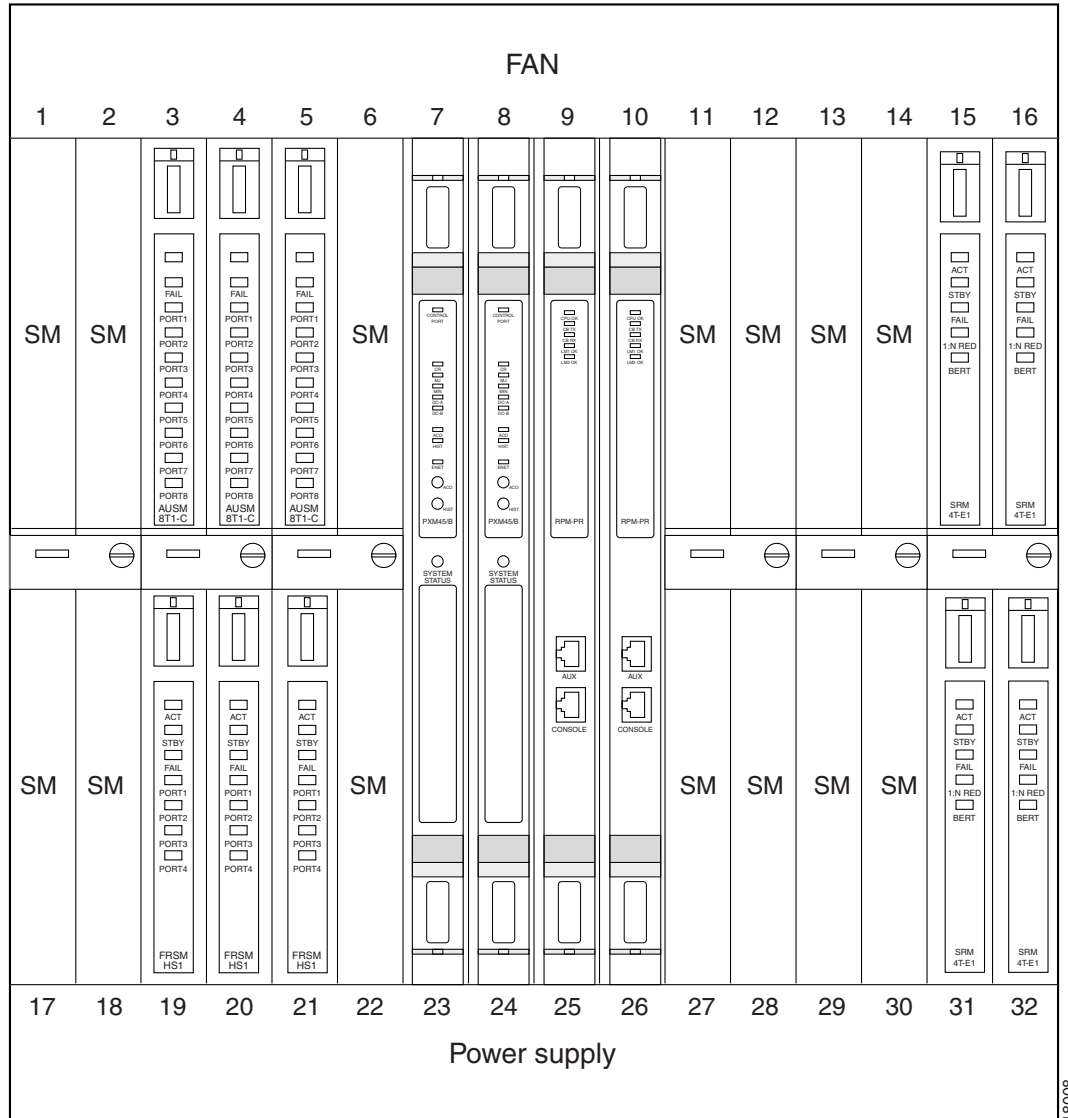
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- Step 1** Detach all cables from the card.
 - Step 2** Press the tip of a small, flat-head screwdriver into the slot of the extractor lever (see [Figure 3-3](#)); press until the latch springs open, to approximately 10°.
 - Step 3** To separate the card from the backplane connector, pull the extractor lever(s) out.
 - Step 4** Gently pull the RPM out along the guides. If it sticks, jiggle it gently.
 - Step 5** Carefully pull the card out of the card cage. Store it in an anti-static bag.
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Note

The RPM slides along plastic guides into the front of the MGX 8850 system (see [Figure 3-4](#)) and connects to the chassis midplane. When removing the RPM, you may feel some resistance as the midplane connector unseats.

Figure 3-4 RPM Installed in the MGX 8850 Chassis (Front View)



Installing and Removing Back Cards in the MGX 8850 Midplane

The following sections describe how to install and remove the Ethernet, Fast Ethernet or FDDI (RPM/B only) back cards from the MGX 8850 midplane.

Installing the Back Cards

Use the following procedure to install the Ethernet, Fast Ethernet or FDDI (RPM/B only) back cards in the MGX 8850 midplane.

**Note**

Ensure that the two extractor levers are in the “in” position. When the card is being inserted into the slot, the levers should be vertical along the line of the back card.

Step 1 Position the rear card guides over the appropriate slot (directly behind the RPM in the chassis) at the top and bottom of the card cage.

There are two connectors each with 360 pins, for a total of 720 pins. The top and bottom connectors are mechanically identical.

Step 2 Push the back card firmly but gently into the slot and then all the way into the connectors on the midplane.

**Note**

Correct alignment between connector pins and receptacles is *extremely* important. First, make sure all pins on the card are straight. Make sure the connector on the card is aligned with the midplane connector. Insert the card gently. It may be necessary to push the card slightly to one side to achieve alignment.

Step 3 Tighten the two captive screws on the back card faceplate.

Tighten the upper and lower screws to prevent misalignment of the card. Do not overtighten the screws. Tighten only enough to secure the card.

Back cards installed in an MGX 8850 chassis and connected to the midplane are illustrated in [Figure 3-5](#).

**Note**

Slots 7 and 8 are reserved for the PXM-45 cards occupying the full height of the chassis. You can see PXM-45-UI-S3 cards in the top slots and T3 cards in the bottom slots in [Figure 3-5](#). The illustration shows RPMs in slots 9 and 10 occupying the full height of the chassis. You can see FE and 4E or 4E/B cards in the bottom slots.

FDDI back cards must be installed in the top slot of the RPM/B.

Removing the RPM Back Cards

Use the following procedure to remove the Ethernet or the Fast Ethernet back cards from the MGX 8850 midplane.

Step 1 Label and detach any cables connected to the back card.

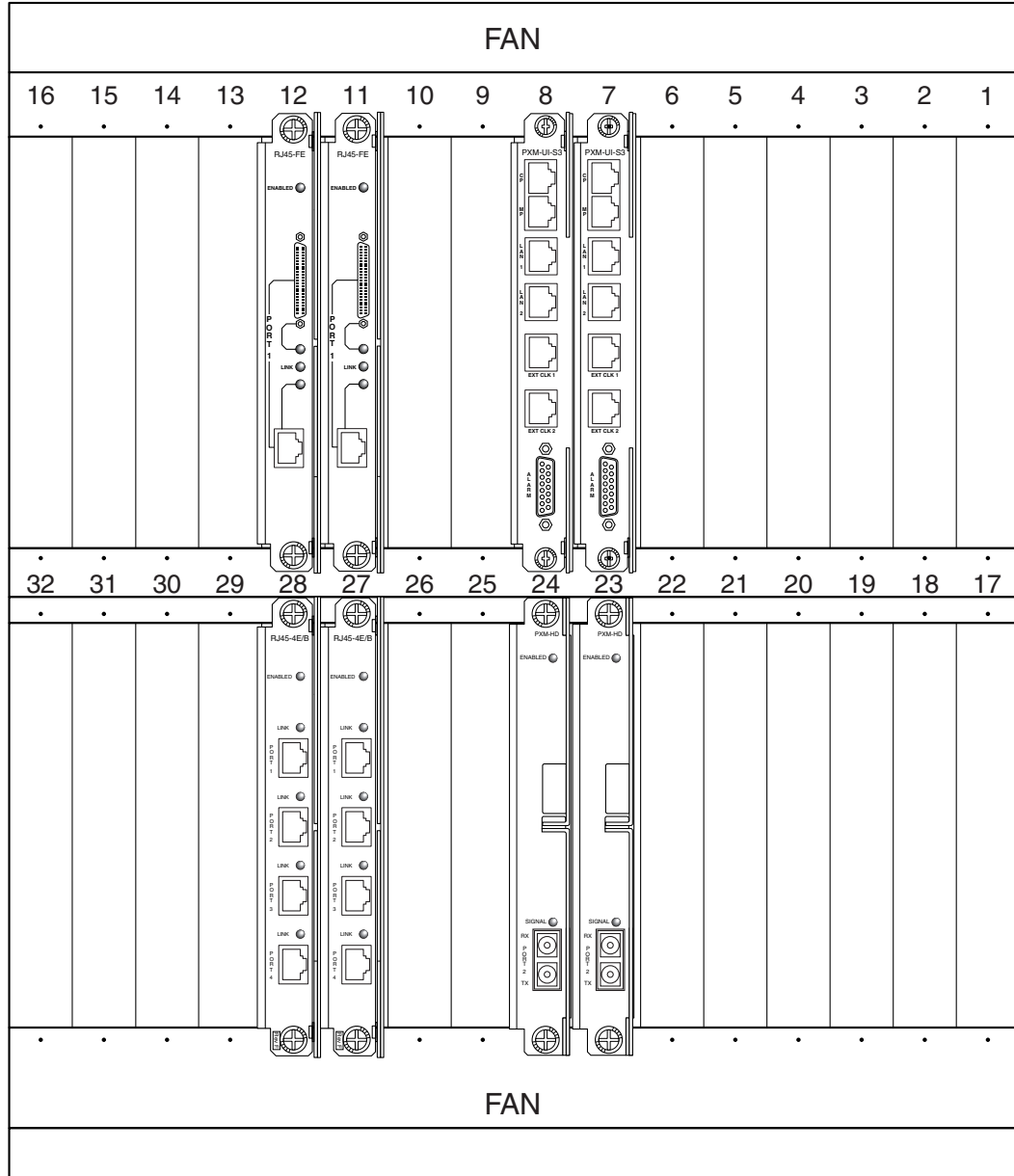
Step 2 Use a flat screwdriver to remove the two retaining screws in the back card faceplate.

Step 3 Pull both extractor levers out to the horizontal position.

This action will start the removal of the card.

Step 4 Gently pull the card out of the card cage.

Figure 3-5 RPM Back Cards Connected to a MGX 8850 (Back View)



Connecting a Console Terminal or PC to the RPM Console Port

The RPM includes asynchronous serial console and auxiliary ports. These ports provide administrative access to the RPM either locally using a console terminal, or remotely using a modem.

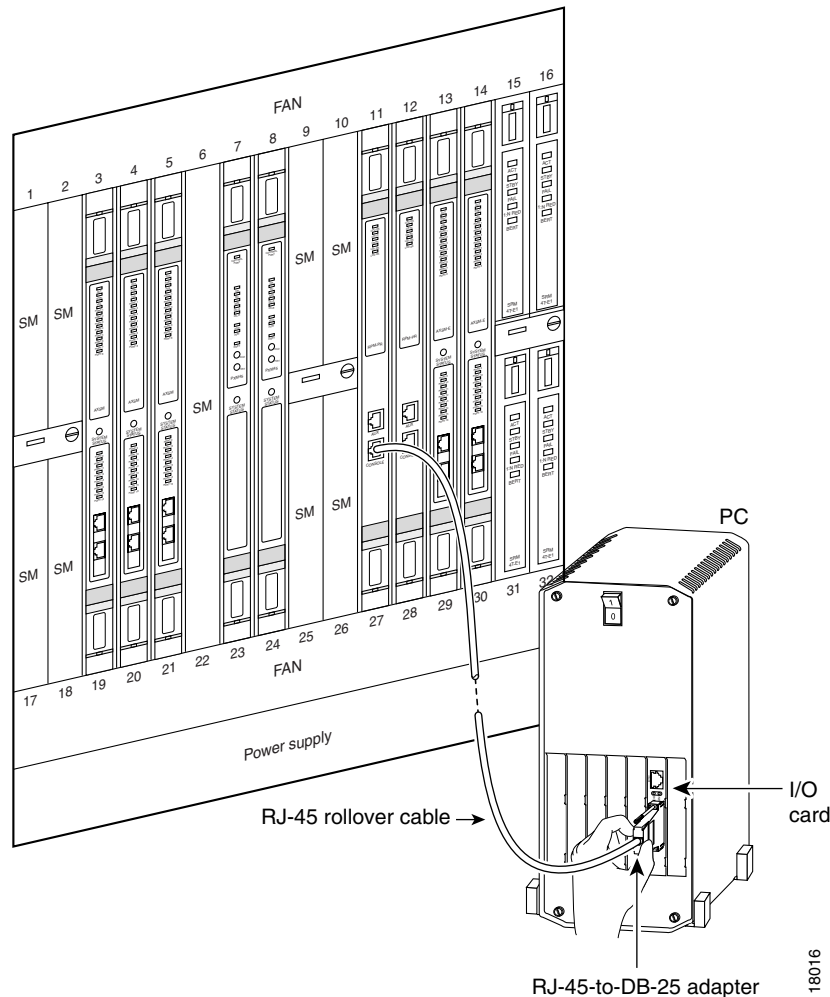
Use the following procedure to connect a terminal (an ASCII terminal or a PC running terminal emulation software) to the console port on the RPM.

- Step 1** Connect the terminal (see [Figure 3-6](#)) using the thin, flat, RJ-45-to-RJ-45 rollover cable (which looks like a telephone cable) and an RJ-45-to-DB-9 or RJ-45-to-DB-25 adapter (labeled “Terminal”).
- For cable pinouts, see [Appendix B, “Cable and Connector Specifications.”](#)
- Step 2** Configure your terminal or PC terminal emulation software for 9600 baud, 8 data bits, no parity, and 2 stop bits.

**Note**

The default parameters for the internal console port on the RPM are 9600 baud, 8 data bits, no parity and 2 stop bits.

Figure 3-6 Connecting a Console Terminal to the RPM Console Port

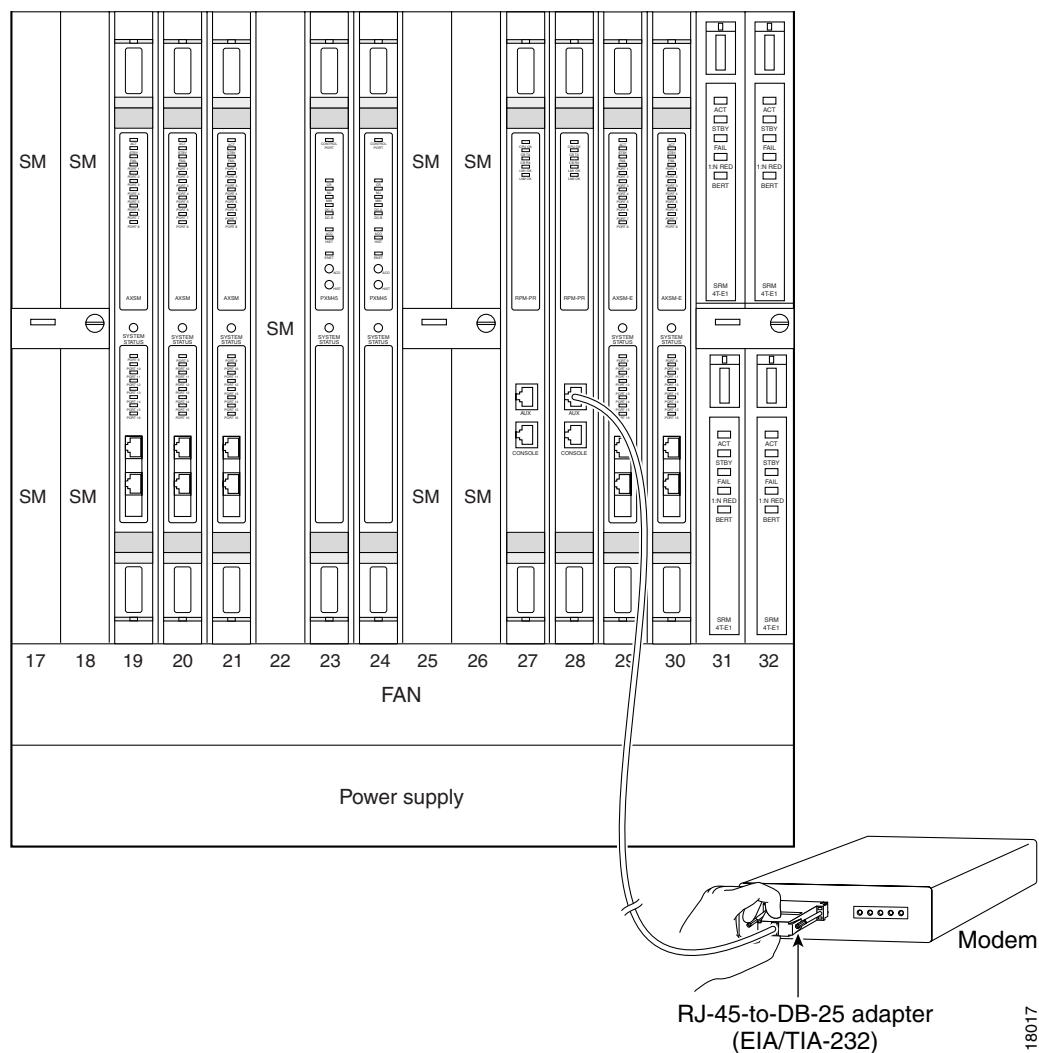


Connecting a Modem to the Auxiliary Port

Use the following procedure to connect a modem to the auxiliary port on the RPM for remote access.

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- Step 1** Connect a modem (see [Figure 3-7](#)) to the auxiliary port (labelled “Aux”) using the thin, flat, RJ-45-to-RJ-45 rollover cable, which looks like a telephone cable, with the RJ-45-to-DB-25 adapter (labelled “Modem”).
- Step 2** Make sure that the modem and the auxiliary port on the RPM are configured for the same transmission speed (38,400 baud is maximum) and hardware flow control.
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Figure 3-7 Connecting a Modem to the Auxiliary Port on the RPM



When the RPM is installed in the MGX 8850, make sure the system is powered on. Proceed to [Chapter 4](#), “Cabling the MGX RPM Back Cards.”

Upgrading from an RPM/B Card to an RPM-PR Card

To replace an RPM/B card with an RPM-PR card, the PXM must be running MGX Software Release 1.1.34 or later, and the RPM must be running IOS release 12.2(4)T or later. Then perform the following procedure.

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- Step 1** Insert the RPM-PR in a test node.
- Step 2** Copy the new RPM-PR boot image to the flash. Verify that the boot image is the first file in the flash.
- Step 3** Modify the configuration of the file to use the latest IOS image on the c: drive by entering the **boot system c:<IOS_filename>** command.
- Step 4** Enter the **write memory** command to save the configuration file in NVRAM.
- Step 5** Enter the **show bootvar** command to check the **BOOT** variable and to verify that the card is configured to boot from the latest image.
- Now the RPM-PR card is ready to replace an RPM/B card.
- Step 6** Verify the following before inserting the RPM-PR in the node:
- PXM must be running a minimum firmware release of 1.1.34.
 - PXM disk contains the latest IOS image specified for the RPM-PR.
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**Caution**

Once an RPM/B card is replaced with a RPM-PR card, the RPM/B card can not be re-installed. If an attempt is made to re-install the RPM/B, the module will be put into 'Mismatch'.

**Caution**

After installing the RPM-PR card, be sure not to mix card redundancy.
