Preparing to Install the MGX RPM-XF

This chapter describes the tasks you must perform before you begin to install the MGX Route Processor Module (RPM-XF). This chapter includes the following sections:

- Safety Recommendations
- Maintaining Safety with Electricity
- General Site Requirements
- Installation Checklist
- Creating a Site Log
- Preparing to Connect to a Network

Safety Recommendations

Note   The RPM-XF is a service module that fits in the MGX 8850 chassis. Refer to the *Cisco MGX 8850 Routing Switch Installation Guide* for further recommendations about safety.

The guidelines that follow help ensure your safety and protect the MGX 8850 equipment. The list of guidelines may not address all potentially hazardous situations in your working environment, so be alert, and exercise good judgement at all times.

The safety guidelines are as follows:

- Keep the chassis area clear and dust-free before, during, and after installation.
- Keep tools away from walk areas where people could fall over them.
- Do not wear loose clothing or jewelry, such as rings, bracelets, or chains, which may become caught in the chassis.
- Wear safety glasses if you are working under any conditions that may be hazardous to your eyes.
- Do not perform any actions that create a potential hazard to people or make the equipment unsafe.
- Never attempt to lift an object that is too heavy for one person to handle.

Maintaining Safety with Electricity

Warning **Before working on a chassis or working near power supplies, unplug the power cords on an AC-powered system. On a DC-powered system, disconnect the power at the circuit breakers.**

Follow these guidelines when working on equipment powered by electricity:

- Locate the emergency power-off switch for the room in which you are working. If an electrical accident occurs, you can quickly turn off the power.
- Do not work alone if potentially hazardous conditions exist anywhere in your workspace.
- Never assume that power is disconnected from a circuit—Always check the circuit.
- Carefully look for possible hazards in your work area, such as moist floors, ungrounded power extension cords, or missing safety grounds.
- If an electrical accident occurs:
    - Use caution—Do not let yourself become a victim.
    - Disconnect power from the system.
    - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim then call for help.
- Use the MGX 8850 AC and MGX 8850 DC systems within their marked electrical ratings and product usage instructions.
- Install the MGX 8850 AC or MGX 8850 DC systems with the following local, national, or international electrical codes:
    - United States—National Fire Protection Association (NFPA70), United States National Electrical Code.
    - Canada—Canadian Electrical Code, Part 1, CSA C22.1.
    - Other countries—International Electromechanical Commission (IEC) 364, Part 1 through Part 7.
- MGX 8850 AC models are shipped with a 3-wire electrical cord with a grounding-type plug that fits only a grounding type power outlet. This is a safety feature that you should not circumvent. Equipment grounding should comply with local and national electrical codes.
- MGX 8850 DC models are equipped with DC power entry modules and require you to terminate the DC input wiring on a DC source capable of supplying at least 60A. A 60A circuit breaker is required at the 48 VDC facility power source. An easily accessible disconnect device should be incorporated into the facility wiring. Be sure to connect the grounding wire conduit to a solid earth ground. A closed loop ring is recommended to terminate the ground conductor at the ground stud.
- Other DC power guidelines are as follows:
    - Only a DC power source that complies with the safety extra low voltage (SELV) requirements of UL 1950, CSA C22.2 No. 950-95, EN 60950 and IEC 950 can be connected to an MGX 8850 DC-input power entry module.
    - MGX 8850 DC which is equipped with DC power entry modules is intended only for installation in a restricted access location. In the United States, a restricted access area is in accordance with Articles 110–16, 110–17, and 110–18 of the National Electrical Code ANSI/NFPA 70.

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. It occurs when electronic components are improperly handled and can result in complete or intermittent failures.

Always follow ESD prevention procedures when removing and replacing components. Ensure that the chassis is electrically connected to earth ground. Wear an ESD preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the chassis frame to safely channel unwanted ESD voltages to ground. To properly guard against ESD damage and shocks, the wrist strap and cord must operate effectively. If no wrist strap is available, ground yourself by touching the metal part of the chassis.

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Caution   For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms (Mohms).

General Site Requirements

This section describes the requirements your site must meet for safe installation and operation of your system. Ensure that your site is properly prepared before beginning installation.

Power Supply Considerations

Check the power at your site to ensure that you are receiving "clean" power (free of spikes and noise). Install a power conditioner if necessary.

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Warning   **The MGX 8850 and RPM-XF are designed to work with TN power systems.**

The AC power supply of the RPM-XF is part of the MGX 8850 chassis. The RPM-XF, when installed in the MGX 8850 chassis, receives –48 volts DC power from the midplane.

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The RPM-XF is installed in the MGX 8850 chassis. Refer to the *Cisco MGX 8850 Routing Switch Installation Guide*. The location of the MGX 8850 chassis and the layout of your equipment rack or wiring room are extremely important for proper system operation. Equipment placed too close together, inadequate ventilation, and inaccessible panels can cause system malfunctions and shutdowns, and can make RPM-XF maintenance difficult.

Installation Checklist

The Installation Checklist lists the procedures for initial hardware installation of a new RPM-XF. Make a copy of this checklist and mark the entries as you complete each procedure. Include a copy of the checklist for each system in your Site Log (see the next section, "Creating a Site Log").

RPM-XF installation checklist for site _____

Installation Checklist	Verified by	Date
Installation checklist copied		
Background information placed in the Site Log		
Site power voltages verified		
Required tools available		
Additional equipment available		
MGX RPM-XF received		
MGX RPM-XF-UI received		
Cisco Documentation CD received		
Cisco Information Packet received		
Cisco MGX Route Processor Module (RPM-XF) Installation and Configuration Guide received		
Optional printed documentation received		
Chassis components verified		
Initial electrical connections established		
ASCII terminal or PC attached to MGX-XF-UI console port		
Signal distance limits verified		
RPM-XF and MGX-XF-UI properly installed in corresponding chassis slots.		
Startup sequence steps completed		
Initial system operation verified		
Software image verified		

Creating a Site Log

The Site Log provides a record of all actions relevant to the RPM-XF. Keep it near the chassis where anyone who installs or maintains the RPM-XF has access to it. Use the Installation Checklist (see the previous section, "Installation Checklist") to verify the steps in the installation and maintenance of your RPM-XF. Site Log might include the following entries:

- Installation progress—Make a copy of the "Installation Checklist" and insert it into the Site Log. Fill in the checklist as you complete each procedure.

- Upgrade and maintenance procedures—Use the Site Log as a record of ongoing system maintenance and expansion. Each time a procedure is performed on the RPM-XF, update the Site Log to reflect the following conditions:

    - Configuration changes

    - Changes and updates to Cisco IOS software

    - Maintenance schedules and requirements

    - Corrective maintenance procedures performed

    - Intermittent problems

    - Related comments and notes

Preparing to Connect to a Network

When setting up your RPM-XF in the MGX 8850, consider distance limitations and potential electromagnetic interference (EMI) as defined by the EIA.

Note   The Fast Ethernet, console, and auxiliary ports contain safety extra-low voltage (SELV) circuits. Connect them only to SELV-circuit equipment.

Ethernet Connection

The Ethernet ports located on the MGX-XF-UI back card support IEEE Ethernet standard 802.3 and Fast Ethernet standard 802.3u. The MGX-XF-UI back card implementation supports the following connections:

- 10BaseT— Ethernet on unshielded twisted-pair (UTP) cable. The maximum segment distance is 328 feet (100 meters). UTP cables look like wiring used for ordinary telephones; however, UTP cables meet certain electrical standards that telephone cables do not. The 10BaseT Ethernet operates at 10Mbs and can be connected through the RJ-45 connector.

- 100BaseTX—100BaseT Ethernet, half and full duplex over Category 5 UTP, Electronics Industry Association and Telecommunications Industry Association [EIA/TIA]-568-compliant cable. The 100BaseT Ethernet operates at 100Mbs and can be connected through the RJ-45 connector.

The cables required to connect the MGX-XF-UI Fast Ethernet ports to an Ethernet network are not included. For cable ordering information, contact customer service.

For detailed information about making Ethernet connections, see Chapter 4, "Installing and Configuring the MGX-XF-UI Management Back Card." For cable and port pinouts, see Appendix B, "Cable and Connector Specifications."

Console and Auxiliary Ports

The MGX-XF-UI includes asynchronous serial console and auxiliary ports. The console and auxiliary ports provide local administrative access to the RPM-XF. This section discusses important cabling information to consider before connecting a console terminal to the console port or the auxiliary port.

The main difference between the console and auxiliary ports is that the auxiliary port supports hardware flow control and the console port does not. Flow control paces the transmission of data, ensuring that the receiving device can absorb the data sent to it before the sending device sends more. When the buffers on the receiving device are full, a message is sent to the sending device to suspend transmission until the data in the buffers has been processed.

Console Port Connection

The MGX-XF-UI includes an EIA/TIA-232 asynchronous serial console port (RJ-45). This port will appear as a DTE device at the end of the cable.

Note Cisco Systems does not provide console cables in the MGX-RPM-XF-512 or MGX-XF-UI kit. Console cables can be ordered as spares from Cisco Systems.

To connect an ASCII terminal to the console port, use the RJ-45 rollover cable with the female RJ-45-to-DB-25 adapter (labeled "Terminal"). To connect a PC running terminal emulation software to the console port, use the RJ-45 rollover cable with the female RJ-45-to-DB-9 adapter (labeled "Terminal"). The default parameters for the console port are 9600 baud, 8 data bits, no parity, and 1 stop bit.

The console port does not support hardware flow control. For detailed information about installing a console terminal, see Chapter 3, "Installing the MGX RPM-XF Front and Back Cards." For cable and port pinouts, see Appendix B, "Cable and Connector Specifications."

Auxiliary Port Connections

The RPM-XF includes an EIA/TIA-232 asynchronous serial auxiliary port (RJ-45) that supports flow control. This port will appear as a DTE device at the end of the cable.

Note Connecting a modem to the auxiliary port on the MGX-XF-UI is not supported.

Note Cisco Systems does not provide console cables in the MGX-RPM-XF-512 or MGX-XF-UI kit. Console cables can be ordered as spares from Cisco Systems.

For detailed information about connecting devices to the auxiliary port, see Chapter 3, "Installing the MGX RPM-XF Front and Back Cards." For cable and port pinouts, see Appendix B, "Cable and Connector Specifications."