



About This Guide

This section describes the objectives, audience, organization, and conventions of the *Cisco MGX Route Processor Module (RPM-XF) Installation and Configuration Guide, Release 5.5.00*.

Objectives

This publication provides instructions for the initial site preparation and installation of the Cisco MGX Route Processor Module (RPM-XF). Troubleshooting, maintenance procedures, and cable specifications are also provided.

Only basic software configuration information is included in this publication. For detailed software configuration information, refer to the Cisco MGX 8850 and Cisco IOS configuration and command reference publications. These publications are available on the Documentation CD-ROM that comes with your RPM-XF, or you can order printed copies.

Audience

This document was written for engineers, users, network administrators, and technicians that are familiar with Cisco MGX Series switches and Cisco routers. Readers should be familiar with electronic circuitry and wiring practices.

Changes to this Document

[Table 1](#) summarizes the changes made to this document since the previous release.

Table 1 *Changes to This Guide Since the Previous Release*

Section and Link	Status	Description
Chapter 9, “Configuring MPLS Features”	Added	Added new section: Marking a GRE Tunnel Header for Multicast Traffic, page 19.

Organization

Chapter	Title	Description
Chapter 1	Overview of the MGX RPM-XF	Discusses the features and specifications of the Route Processor Module (RPM-XF).
Chapter 2	Preparing to Install the MGX RPM-XF	Discusses environmental requirements, safety recommendations, and describes the various ports and how to prepare for connections between networks and ports.
Chapter 3	Installing the MGX RPM-XF Front and Back Cards	Includes basic installation information and describes how to make connections to LANs, the main PXM ¹ , and console.
Chapter 4	Installing and Configuring MGX-XF-UI and MGX-XF-UI/B Management Back Cards	Describes how to install and configure the MGX-XF-UI management back card.
Chapter 5	Installing and Configuring the MGX-1OC12POS and the MGX-2OC12POS Back Cards	Describes how to install and configure the single-port OC-12 POS ² back card.
Chapter 6	Installing and Configuring the Cisco MGX-1GE and MGX-2GE Gigabit Ethernet Back Cards	Describes how to install and configure the single-port GE ³ back card.
Chapter 7	Configuring the MGX RPM-XF	Describes the initial configuration of the RPM-XF using Configuration Mode or AutoInstall. This chapter also explains how to configure and use 1:N redundancy on the RPM-XF.
Chapter 8	Configuring PNNI Communications	Describes how to configure the RPM-XF to operate as an edge router in a PNNI network. This chapter also explains how to configure all port adapter interfaces, followed by procedures for configuring PVCs ⁴ and connections with other RPM-XFs.
Chapter 9	Configuring MPLS Features	Describes MPLS ⁵ and VPN ⁶ features used with the RPM-XF in the Cisco MGX 8850 switch.
Chapter 10	Configuring Quality of Service	Describes how to configure QoS ⁷ on the RPM-XF. Also describes IPRAN configuration.
Appendix A	Maintaining the MGX RPM-XF	Provides selected maintenance procedures, including password recovery, virtual configuration register settings, and system code upgrades.
Appendix B	Cable and Connector Specifications	Provides pinouts for the various ports on the RPM-XF and associated cables.
Appendix C	Cisco IOS and Configuration Basics	Provides information on the Cisco IOS operating system and configuring the RPM-XF card.
Appendix D	Command Summary	Provides provides a high level view of many of the commands that run on the RPM-XF.

1. PXM=processor switch control module

2. POS=Packet Over SONET

3. GE=Gigabit Ethernet

4. PVC=Permanent Virtual Circuit

5. MPLS=Multiprotocol Label Switching

6. VPN=Virtual Private Network

7. QoS=Quality of Service

Conventions

This publication uses the following conventions to convey instructions and information.

Command descriptions use these conventions:

- Commands and keywords are in **boldface**.
- Arguments for which you supply values are in *italics*.
- Elements in square brackets ([]) are optional.
- Alternative but required keywords are grouped in braces ({ }) and are separated by vertical bars (|).

Examples use these conventions:

- Terminal sessions and information the system displays are in `screen` font.
- Information you enter is in **boldface screen** font.
- Nonprinting characters, such as passwords, are in angle brackets (< >).
- Default responses to system prompts are in square brackets ([]).

Notes, tips cautions, and warnings use the following conventions and symbols:



Note

Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual.



Tip

Means *the following information will help you solve a problem*. The tip information might not be troubleshooting or even an action, but could be useful information.



Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.



Warning

Means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. To see translated versions of the warning, refer to the Regulator Compliance and Safety document that accompanied the device.

Warning Definition



Warning

Means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

Waarschuwing

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van standaard maatregelen om ongelukken te voorkomen.

Varoitus

Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista.

Attention

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant causer des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents.

Warnung

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewußt.

Avvertenza

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di lavorare su qualsiasi apparecchiatura, occorre conoscere i pericoli relativi ai circuiti elettrici ed essere al corrente delle pratiche standard per la prevenzione di incidenti.

Advarsel

Dette varselsymbolet betyr fare. Du befinner deg i en situasjon som kan føre til personskade. Før du utfører arbeid på utstyr, må du være oppmerksom på de faremomentene som elektriske kretser innebærer, samt gjøre deg kjent med vanlig praksis når det gjelder å unngå ulykker.

Aviso

Este símbolo de aviso indica perigo. Encontra-se numa situação que lhe poderá causar danos físicos. Antes de começar a trabalhar com qualquer equipamento, familiarize-se com os perigos relacionados com circuitos eléctricos, e com quaisquer práticas comuns que possam prevenir possíveis acidentes.

¡Atención!

Este símbolo de aviso significa peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considerar los riesgos que entraña la corriente eléctrica y familiarizarse con los procedimientos estándar de prevención de accidentes.

Varning!

Denna varningssymbol signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanligt förfarande för att förebygga skador.

Class 1 Laser Product Warning



Warning

Class 1 laser product.

Waarschuwing

Klasse-1 laser produkt.

Varoitus

Luokan 1 lasertuote.

Attention

Produit laser de classe 1.

Warnung

Laserprodukt der Klasse 1.

Avvertenza

Prodotto laser di Classe 1.

Advarsel

Laserprodukt av klasse 1.

Aviso

Produto laser de classe 1.

¡Advertencia!

Producto láser Clase I.

Varning!

Laserprodukt av klass 1.

Laser Beam Warning



Warning

Do not stare into the beam or view it directly with optical instruments.

Waarschuwing

Niet in de straal staren of hem rechtstreeks bekijken met optische instrumenten.

Varoitus

Älä katso säteeseen äläkä tarkastele sitä suoraan optisen laitteen avulla.

Attention

Ne pas fixer le faisceau des yeux, ni l'observer directement à l'aide d'instruments optiques.

Warnung

Nicht direkt in den Strahl blicken und ihn nicht direkt mit optischen Geräten prüfen.

Avvertenza

Non fissare il raggio con gli occhi né usare strumenti ottici per osservarlo direttamente.

Advarsel

Stirr eller se ikke direkte på strålen med optiske instrumenter.

Aviso

Não olhe fixamente para o raio, nem olhe para ele directamente com instrumentos ópticos.

¡Advertencia! No mirar fijamente el haz ni observarlo directamente con instrumentos ópticos.

Varning! Rikta inte blicken in mot strålen och titta inte direkt på den genom optiska instrument.

Documentation

A *Finding Cisco User Documentation Online* document ships with your product. That guide contains general information about how to locate Cisco MGX, BPX, SES, and CWM documentation online.

Documentation Notes for These Product Releases

This release includes new hardware or features for the following releases:

- Cisco MGX Release 5.5.00, for these multiservice switches:
 - Cisco MGX 8850 (PXM1E)
 - Cisco MGX 8850 (PXM45)
 - Cisco MGX 8950
 - Cisco MGX 8830
- Cisco MGX Release 1.3, for these multiservice switches:
 - Cisco MGX 8850 (PXM1)
 - Cisco MGX 8230
 - Cisco MGX 8250
- Cisco MGX Release 5.5.00, for the Route Processor Modules (RPM-XF and RPM-PR)
- Cisco WAN Manager Release 15.4. CWM Release 15 introduced a helpful new documentation feature: web-based *online help*. To invoke online help, press **F1** on a PC, press the **Help** key on a UNIX workstation, or select **Help** from the main or popup menu. Cisco WAN Manager online help has been updated for Release 15.4.

Other components of multiservice WAN products, such as the Service Expansion Shelf (SES) and WAN switching software have no new features for this release.

Related Documentation

This section describes the technical manuals and release notes that support this release of Cisco Multiservice Switch products.

Technical Manual Order of Use

Use the technical manuals listed here in the following order:

-
- Step 1** Refer to the documents that ship with your product. Observe all safety precautions.
- *Regulatory Compliance and Safety Information for Cisco Multiservice Switch Products (MGX, BPX, and SES)*—This document familiarizes you with safety precautions for your product.

- *Finding Cisco User Documentation Online*—This document explains how to find documentation for MGX, BPX, and SES multiservice switches and media gateways as well as CWM network management software. These documents are available only online.
- *Installation Warning Card*—This document provides precautions about installing your cards. It explains such subjects as removing the shipping tab and inserting cards properly into the correct slots.

Step 2 Refer to the release notes for your product.

Step 3 If your network uses the CWM network management system, upgrade CWM. (If you are going to install CWM for the first time, do so *after* Step 4.) Upgrade instructions are included in the following documents:

- *Cisco WAN Manager Installation Guide, 15.4.00*
- *Cisco WAN Manager User Guide, 15.4.00*

Step 4 If your network contains MGX and SES products, refer to this manual for planning information:

- *Cisco PNNI Network Planning Guide for MGX and SES Products*

Step 5 Refer to these manuals for information about installing cards and cables in the MGX chassis:

- *Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.2* for installing cards and cables in these chassis.
- *Cisco MGX 8xxx Edge Concentrator Installation and Configuration Guide* for installing cards and cables in the Cisco MGX 8230, Cisco MGX 8250, or Cisco MGX 8850 (PXM1) chassis.

Step 6 Refer to the manuals that help you configure your MGX switch and processor cards:

- *Cisco MGX 8800/8900 Series Software Configuration Guide, Release 5.5.00.00* for these chassis.
- *Cisco MGX 8xxx Edge Concentrator Installation and Configuration Guide* for the Cisco MGX 8230, Cisco MGX 8250, or Cisco MGX 8850 (PXM1) chassis.

Step 7 Refer to the manual that supports the additional cards you intend to install in your switch. For example:

- The services books can help you establish ATM, Frame Relay, or circuit emulation services on your switch.
- The VISM book can help you set up your switch as a voice gateway, and the RPM book can help you implement IP on the switch.

Step 8 Additional books, such as command reference guides and error message books, can help with the daily operation and maintenance of your switch.



Note

Manual titles may be different for earlier software releases. The titles shown in [Table 2](#) are for the November 2008 release.

Technical Manual Titles and Descriptions

[Table 2](#) lists the technical manuals and release notes that support the November 2008 multiservice switch product releases. Books and release notes in [Table 2](#) are listed in order of use and include information about which multiservice switch or media gateway the document supports.

The books for Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) switches were not updated for the November 2008 release, therefore, some information about configuring and using the new MPSM-8-T1E1 card in these switches is included in the following books:

- *Cisco ATM Services (AUSM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2*
- *Cisco Frame Relay Services (FRSM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2*
- *Cisco Circuit Emulation Services (CESM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2*

Information about how to install or upgrade to the MPSM-8-T1E1 card in Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) switches is in the *Release Notes for Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) Switches, Release 1.3.16*.


Note

Refer to each product's release notes for the latest information on features, bug fixes, and more.

Two main types of ATM cards are used in MGX switches: AXSM and AUSM. AXSM stands for ATM Switching Service Module. AUSM stands for ATM UNI (User Network Interface) Service Module.

CWM stands for Cisco WAN Manager, our multiservice switch network management system.

Legacy service module refers to a previously introduced card. For this release, the term is used specifically for the CESM-8-T1E1, FRSM-8-T1E1, and AUSM-8-T1E1 cards, which can now be replaced by the new MPSM-8-T1E1 card.

MPSM stands for Multiprotocol Service Module.

RPM stands for Route Processor Module.

SES stands for Service Expansion Shelf.

VISM stands for Voice Interworking Service Module.

VXSM stands for Voice Switch Service Module.

Table 2 **Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (November 2008 Product Releases)**

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.5	MGX 8850 (PXM1E) Rel. 5.5	MGX 8850 (PXM45) Rel. 5.5	MGX 8950 Rel. 5.5	MGX 8880 Rel. 5.5
Overview and Safety Documents									
<i>Finding Cisco User Documentation Online</i> DOC-7814807=	x	x	x	x	x	x	x	x	x
<i>Installation Warning Card</i> DOC-7812348=	x	x	x	x	x	x	x	x	x

Table 2 Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (November 2008 Product Releases) (continued)

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.5	MGX 8850 (PXM1E) Rel. 5.5	MGX 8850 (PXM45) Rel. 5.5	MGX 8950 Rel. 5.5	MGX 8880 Rel. 5.5
<i>Regulatory Compliance and Safety Information for Cisco Multiservice Switch Products (MGX, BPX, and SES)</i> DOC-7814790=	x	x	x	x	x	x	x	x	x
<i>Release Notes for the Cisco MGX 8880 Media Gateway, Release 5.5.00</i>	—	—	—	—	—	—	—	—	x
<i>Release Notes for Cisco MGX 8850 (PXM1E/PXM45), Cisco MGX 8950, and Cisco MGX 8830 Switches, Release 5.5.00</i>	—	—	—	—	x	x	x	x	
<i>Release Notes for Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) Switches, Release 1.3.16</i>	—	x	x	x	—	—	—	—	—
<i>Release Notes for the Cisco Voice Switch Service Module (VXSM), Release 5.5.00</i>	—	—	—	—	—	—	x	—	x
<i>Release Notes for Cisco WAN Manager, Release 16.0.00</i>	x	x	x	x	x	x	x	x	x
<i>Release Notes for the Cisco Voice Interworking Service Module (VISM), Release 3.3</i>	—	x	x	x	x	x	x	—	x
<i>Release Notes for Cisco MGX Route Processor Module (RPM-XF) for PXM45-based Switches, Release 5.5.00</i>	—	—	—	—	x	—	x	x	x
<i>Release Notes for Cisco MGX Route Processor Module (RPM-PR) for MGX Releases 1.3.18 and 5.4.00</i>	—	x	x	x	x	x	x	x	x
<i>Cisco MGX 8230 Edge Concentrator Overview, Release 1.1.3¹</i> DOC-7812899=	—	x	—	—	—	—	—	—	—
<i>Cisco MGX 8250 Edge Concentrator Overview, Release 1.1.3¹</i> DOC-7811576=	—	—	x	—	—	—	—	—	—

Table 2 Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (November 2008 Product Releases) (continued)

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.5	MGX 8850 (PXM1E) Rel. 5.5	MGX 8850 (PXM45) Rel. 5.5	MGX 8950 Rel. 5.5	MGX 8880 Rel. 5.5
<i>Cisco MGX 8850 Multiservice Switch Overview, Release 1.1.3¹</i>	—	—	—	x	—	—	—	—	—
Hardware Installation Guides									
<i>Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.2</i>	—	—	—	—	x	x	x	x	x
<i>Cisco Service Expansion Shelf Hardware Installation Guide, Release 1¹</i> DOC-786122=	x	—	—	—	—	—	—	—	—
Planning and Configuration Guides									
<i>Cisco PNNI Network Planning Guide for MGX and SES Products</i>	x	—	—	—	x	x	x	x	x
<i>Cisco MGX 8800/8900 Series Software Configuration Guide, Release 5.5.00</i>	—	—	—	—	x	x	x	x	x
<i>Cisco WAN Manager Installation Guide, Release 15.4</i>	x	x	x	x	x	x	x	x	x
<i>Cisco WAN Manager User Guide, Release 15.4</i>	x	x	x	x	x	x	x	x	x
<i>Cisco MGX 8850 Edge Concentrator Installation and Configuration, Release 1.1.3¹</i> DOC-7811223=	—	—	—	x	—	—	—	—	—
<i>Cisco SES PNNI Controller Software Configuration Guide, Release 3¹</i> DOC-7814258=	x	—	—	—	—	—	—	—	—
<i>Cisco MGX 8230 Edge Concentrator Installation and Configuration, Release 1.1.3¹</i> DOC-7811215=	—	x	—	—	—	—	—	—	—
<i>Cisco MGX 8250 Edge Concentrator Installation and Configuration, Release 1.1.3¹</i> DOC-7811217=	—	—	x	—	—	—	—	—	—
Service Module Configuration and Reference Guides									

Table 2 Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (November 2008 Product Releases) (continued)

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.5	MGX 8850 (PXM1E) Rel. 5.5	MGX 8850 (PXM45) Rel. 5.5	MGX 8950 Rel. 5.5	MGX 8880 Rel. 5.5
<i>Cisco MGX Route Processor Module (RPM-PR) Installation and Configuration Guide, Release 5.2¹</i> 78-12510-02	—	x	x	x	—	—	—	—	—
<i>Frame Relay Software Configuration Guide and Command Reference for the Cisco MGX 8850 FRSM12 Card, Release 3¹</i> DOC-7810327=	—	—	—	—	—	—	x	—	—
<i>Cisco ATM Services (AUSM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2²</i> OL-6479-01	—	2	2	2	x	x	x	—	—
<i>Cisco Frame Relay Services (FRSM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2²</i> OL-6480-01	—	2	2	2	x	x	x	—	—
<i>Cisco Circuit Emulation Services (CESM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2²</i> OL-6481-01	—	2	2	2	x	x	x	—	—
<i>Cisco MGX Route Processor Module (RPM-XF) Installation and Configuration Guide, Release 5.5¹</i>	—	—	—	—	—	—	x	x	x
<i>Cisco ATM Services (AXSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i>	—	—	—	—	—	—	x	x	x
<i>Cisco ATM and Frame Relay Services (MPSM-T3E3-155 and MPSM-16-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i>	—	—	—	—	x	—	x	—	—

Table 2 **Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (November 2008 Product Releases) (continued)**

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.5	MGX 8850 (PXM1E) Rel. 5.5	MGX 8850 (PXM45) Rel. 5.5	MGX 8950 Rel. 5.5	MGX 8880 Rel. 5.5
<i>Cisco Voice Switch Services (VXSM) Configuration Guide and Command Reference for MGX Switches, Release 5.5.00</i>	—	—	—	—	—	—	X	—	X
<i>Cisco Voice Interworking Services (VISM) Configuration Guide and Command Reference, Release 3.3</i>	—	X	X	X	X	X	X	—	X
Reference Guides									
<i>Cisco MGX 8230 Multiservice Gateway Error Messages, Release 1.1.3¹</i> DOC-78112113=	—	X	—	—	—	—	—	—	—
<i>Cisco MGX 8230 Multiservice Gateway Command Reference, Release 1.1.3¹</i> DOC-7811211=	—	X	—	—	—	—	—	—	—
<i>Cisco MGX 8250 Multiservice Gateway Command Reference, Release 1.1.3¹</i> DOC-7811212=	—	—	X	—	—	—	—	—	—
<i>Cisco MGX 8250 Multiservice Gateway Error Messages, Release 1.1.3¹</i> DOC-7811216=	—	—	X	—	—	—	—	—	—
<i>Cisco MGX 8800 Series Switch Command Reference, Release 1.1.3¹</i> DOC-7811210=	—	X	X	X	—	—	—	—	—
<i>Cisco MGX 8800 Series Switch System Error Messages, Release 1.1.3¹</i> DOC-7811240=	—	X	X	X	—	—	—	—	—
<i>Cisco SES PNNI Controller Command Reference, Release 3¹</i> DOC-7814260=	X	—	—	—	—	—	—	—	—
<i>Cisco MGX 8800/8900 Series Command Reference, Release 5.2</i>	—	—	—	—	X	X	X	X	X
<i>Cisco WAN Manager SNMP Service Agent, Release 15.1</i>	X	X	X	X	X	X	X	X	X

Table 2 *Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (November 2008 Product Releases) (continued)*

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.5	MGX 8850 (PXM1E) Rel. 5.5	MGX 8850 (PXM45) Rel. 5.5	MGX 8950 Rel. 5.5	MGX 8880 Rel. 5.5
<i>Cisco WAN Manager Database Interface Guide, Release 15.1</i>	x	x	x	x	x	x	x	x	x
<i>Cisco MGX and Service Expansion Shelf Error Messages, Release 5.2</i>	x	—	—	—	x	x	x	x	x

1. This document was not updated for the March 2007 release.
2. Some configuration and command information is included in this book for using the multiprotocol service module (MPSM-8-T1E1/MPSM-16-T1E1) in a Cisco MGX 8230, MGX 8250, or MGX 8850 (PXM1) switch.

**Note**

For the November 2008 product release, there are no new features for the Service Expansion Shelf (SES) of the BPX switch and BPX WAN switching software. Therefore, documentation for these items was not updated. [Table 2](#) lists the most recent technical manuals and release notes for these products.

[Table 2](#) also lists the latest documentation available for the Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) switches. These switches use the PXM1 processor card. Although there are new features in MGX Release 1.3 for these switches, only the release notes were updated. And the following books contain some information about configuring the MPSM-8-T1E1 and MPSM-16-T1E1 cards for use in these switches:

- *Cisco Circuit Emulation Services (CESM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2*
- *Cisco Frame Relay Services (FRSM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2*
- *Cisco ATM Services (AUSM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2*

[Table 3](#) lists the documents that ship with product.

[Table 4](#) contains alphabetized titles and descriptions of all the manuals and release notes listed in [Table 2](#).

Table 3 *Documents that Ship with Multiservice Switch Products*

Document Title	Description
<i>Finding Cisco User Documentation Online</i>	Describes how to find the manuals and release notes that support multiservice switches and network management products. These documents are available only online.

Table 3 Documents that Ship with Multiservice Switch Products (continued)

Document Title	Description
<i>Installation Warning Card</i> DOC-7812348=	Contains precautions that you should take before you insert a card into a slot. This Warning Card ships with product.
<i>Regulatory Compliance and Safety Information for Cisco Multiservice Switch Products (MGX, BPX, and SES)</i> DOC-7814790=	Provides regulatory compliance information, product warnings, and safety recommendations for all the Cisco MGX multiservice switches: MGX 8230, MGX 8250, MGX 8850 (PXM1), MGX 8850 (PXM45), MGX 8850 (PXM1E), MGX 8830 and MGX 8950. Also provides such information for the MGX 8880 Media Gateway. This book ships with product.

Table 4 Descriptions of Technical Manuals and Release Notes for Cisco Multiservice Switch Products

Document Title	Description
<i>Cisco ATM and Frame Relay Services (MPSM-T3E3-155 and MPSM-16-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i>	Provides software configuration procedures for provisioning ATM and Frame Relay connections on the new MPSM-T3E3-155 multiprotocol service module. Also describes all MPSM-T3E3-155 commands.
<i>Cisco ATM Services (AUSM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i>	Provides software configuration procedures for provisioning connections and managing the AUSM cards supported in this release. Also describes all AUSM commands. Includes software configuration procedures for provisioning connections and managing the MPSM-8-T1E1 card as an AUSM card replacement.
<i>Cisco ATM Services (AXSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i>	Explains how to configure the AXSM cards and provides a command reference that describes the AXSM commands in detail. The AXSM cards covered in this manual are the AXSM-XG, AXSM/A, AXSM/B, AXSM-E, and AXSM-32-T1E1-E.
<i>Cisco Circuit Emulation Services (CESM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i>	Provides software configuration procedures for provisioning connections and managing the Circuit Emulation Service Module (CESM) cards supported in this release. Also describes all CESM commands. Includes software configuration procedures for provisioning connections and managing the MPSM-8-T1E1 card as a CESM card replacement.
<i>Cisco Frame Relay Services (FRSM/MPSM-8-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i>	Provides software configuration procedures for provisioning connections and managing the Frame Relay Service Module (FRSM) cards supported in this release. Also describes all FRSM commands. Includes software configuration procedures for provisioning connections and managing the MPSM-8-T1E1 card as an FRSM card replacement.
<i>Cisco MGX 8230 Edge Concentrator Installation and Configuration, Release 1.1.3</i> DOC-7811215=	Provides installation instructions for the Cisco MGX 8230 edge concentrator.

Table 4 **Descriptions of Technical Manuals and Release Notes for Cisco Multiservice Switch Products (continued)**

Document Title	Description
<i>Cisco MGX 8230 Edge Concentrator Overview, Release 1.1.3</i> DOC-7812899=	Describes the system components and function of the Cisco MGX 8250 edge concentrator.
<i>Cisco MGX 8230 Multiservice Gateway Command Reference, Release 1.1.3</i> DOC-7811211=	Provides detailed information on the general command line interface commands.
<i>Cisco MGX 8230 Multiservice Gateway Error Messages, Release 1.1.3</i> DOC-78112113=	Provides error message descriptions and recovery procedures.
<i>Cisco MGX 8250 Edge Concentrator Installation and Configuration, Release 1.1.3</i> DOC-7811217=	Provides installation instructions for the Cisco MGX 8250 edge concentrator.
<i>Cisco MGX 8250 Edge Concentrator Overview, Release 1.1.3</i> DOC-7811576=	Describes the system components and function of the Cisco MGX 8250 edge concentrator.
<i>Cisco MGX 8250 Multiservice Gateway Command Reference, Release 1.1.3</i> DOC-7811212=	Provides detailed information on the general command line interface commands.
<i>Cisco MGX 8250 Multiservice Gateway Error Messages, Release 1.1.3</i> DOC-7811216=	Provides error message descriptions and recovery procedures.
<i>Cisco MGX 8800 Series Switch Command Reference, Release 1.1.3</i> DOC-7811210=	Provides detailed information on the general command line for the Cisco MGX 8850 (PXM1), Cisco MGX 8250, and Cisco MGX 8230 edge concentrators.
<i>Cisco MGX 8800 Series Switch System Error Messages, Release 1.1.3</i> DOC-7811240=	Provides error message descriptions and recovery procedures for Cisco MGX 8850 (PXM1), Cisco MGX 8250, and Cisco MGX 8230 edge concentrators.
<i>Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.2</i>	Describes how to install the Cisco MGX 8950, the Cisco MGX 8850 (PXM1E/PXM45), the Cisco MGX 8850/B (PXM1E/PXM45), and the Cisco MGX 8830 switches. Also describes how to install the MGX 8880 Media Gateway. This document explains what each switch does and covers site preparation, grounding, safety, card installation, and cabling. The Cisco MGX 8850 switch uses either a PXM45 or a PXM1E controller card and provides support for both serial bus-based and cell bus-based service modules. The Cisco MGX 8830 switch uses a PXM1E controller card and supports cell bus-based service modules. The Cisco MGX 8950 supports only serial bus-based service modules. The Cisco MGX 8880 uses a PXM45/C controller card, and supports only serial bus-based service modules. <i>This hardware installation guide replaces all previous hardware guides for these switches.</i>

Table 4 **Descriptions of Technical Manuals and Release Notes for Cisco Multiservice Switch Products (continued)**

Document Title	Description
<i>Cisco MGX 8800/8900 Series Software Configuration Guide, Release 5.5.00</i>	Describes how to configure the Cisco MGX 8880 Media Gateway. Also describes how to configure Cisco MGX 8850 (PXM1E), Cisco MGX 8850 (PXM45), the Cisco MGX 8850/B (PXM1E/PXM45), and Cisco MGX 8830 switches to operate as ATM edge switches and the Cisco MGX 8950 switch to operate as a core switch. This guide also provides some operation and maintenance procedures.
<i>Cisco MGX 8800/8900 Series Command Reference, Release 5.2</i>	Describes the PXM commands that are available in the CLI of the Cisco MGX 8850 (PXM45), Cisco MGX 8850 (PXM1E), Cisco MGX 8950, and Cisco MGX 8830 switches. Also describes the PXM commands that are available in the CLI of the Cisco MGX 8880 Media Gateway.
<i>Cisco MGX 8850 Edge Concentrator Installation and Configuration, Release 1.1.3</i> DOC-7811223=	Provides installation instructions for the Cisco MGX 8850 (PXM1) edge concentrator.
<i>Cisco MGX 8850 Multiservice Switch Overview, Release 1.1.3</i>	Describes the system components and function of the Cisco MGX 8850 (PXM1) edge concentrator.
<i>Cisco MGX and Service Expansion Shelf Error Messages, Release 5.2</i>	Provides error message descriptions and recovery procedures.
<i>Cisco MGX Route Processor Module (RPM-XF) Installation and Configuration Guide, Release 5.5</i>	Describes how to install and configure the Cisco MGX Route Processor Module (RPM-XF) in the Cisco MGX 8850 (PXM45), Cisco MGX 8880 (PXM45), and Cisco MGX 8950 switch. Also provides site preparation procedures, troubleshooting procedures, maintenance procedures, cable and connector specifications, and basic Cisco IOS configuration information.
<i>Cisco MGX Route Processor Module (RPM-PR) Installation and Configuration Guide, Release 5.2</i>	Describes how to install and configure the Cisco MGX Route Processor Module (RPM/B or RPM-PR) in the Cisco MGX 8850 (PXM1), the Cisco MGX 8250, and the Cisco MGX 8230 edge concentrators. Also provides site preparation procedures, troubleshooting procedures, maintenance procedures, cable and connector specifications, and basic Cisco IOS configuration information.
<i>Cisco PNNI Network Planning Guide for MGX and SES Products</i>	Provides guidelines for planning a PNNI network that uses Cisco MGX 8830, Cisco MGX 8850 (PXM45 and PXM1E), Cisco MGX 8950, or Cisco BPX 8600 switches or the MGX 8880 Media Gateway. When connected to a PNNI network, each Cisco BPX 8600 Series switch requires an SES for PNNI route processing.
<i>Cisco Service Expansion Shelf Hardware Installation Guide, Release 1</i> DOC-786122=	Provides instructions for installing and maintaining an SES controller.
<i>Cisco SES PNNI Controller Command Reference, Release 3</i> DOC-7814260=	Describes the commands used to configure and operate the SES PNNI controller.

Table 4 **Descriptions of Technical Manuals and Release Notes for Cisco Multiservice Switch Products (continued)**

Document Title	Description
<i>Cisco SES PNNI Controller Software Configuration Guide, Release 3</i> DOC-7814258=	Describes how to configure, operate, and maintain the SES PNNI controller.
<i>Cisco Voice Interworking Services (VISM) Configuration Guide and Command Reference, Release 3.3</i>	Describes how to install and configure the Voice Interworking Service Module (VISM) in the Cisco MGX 8830, Cisco MGX 8850 (PXM45), and Cisco MGX 8850 (PXM1E) multiservice switches. Provides site preparation procedures, troubleshooting procedures, maintenance procedures, cable and connector specifications, and Cisco CLI configuration information.
<i>Cisco Voice Switch Services (VXSM) Configuration and Command Reference Guide for MGX Switches, Release 5.5.00</i>	Describes the features and functions of the new Voice Switch Service Module (VXSM) in the Cisco MGX 8880 Media Gateway and in the Cisco MGX8850 (PXM45 and PXM1E) multiservice switches. Also provides configuration procedures, troubleshooting procedures, and Cisco CLI configuration information.
<i>Cisco WAN Manager Database Interface Guide, Release 15.1</i>	Provides information about accessing the CWM Informix database that is used to store information about the network elements.
<i>Cisco WAN Manager Installation Guide, Release 15.4</i>	Provides procedures for installing Release 15.1 of the CWM network management system.
<i>Cisco WAN Manager SNMP Service Agent, Release 15.1</i>	Provides information about the CWM Simple Network Management Protocol service agent, an optional adjunct to CWM that is used for managing Cisco WAN switches through SNMP.
<i>Cisco WAN Manager User Guide, Release 15.4</i>	Describes how to use the CWM Release 15.1 software, which consists of user applications and tools for network management, connection management, network configuration, statistics collection, and security management. Note The CWM interface now has built-in documentation support in the form of online Help. On a PC, press F1 to access Help; on a UNIX workstation, press the Help key. Alternatively, on either system you can select Help from the main or popup menu.
<i>Frame Relay Software Configuration Guide and Command Reference for the Cisco MGX 8850 FRSM12 Card, Release 3</i> DOC-7810327=	Describes how to use the high-speed Frame Relay (FRSM-12-T3E3) commands that are available in the CLI of the Cisco MGX 8850 (PXM45) switch.
<i>Release Notes for Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) Switches, Release 1.3.16</i>	Provides new feature, upgrade, and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for Cisco MGX 8850 (PXM1E/PXM45), Cisco MGX 8950, and Cisco MGX 8830 Switches, Release 5.5.00</i>	Provides new feature, upgrade, and compatibility information, as well as information about known and resolved anomalies.

Table 4 **Descriptions of Technical Manuals and Release Notes for Cisco Multiservice Switch Products (continued)**

Document Title	Description
<i>Release Notes for the Cisco MGX 8880 Media Gateway, Release 5.5.00</i>	Provides new feature and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for Cisco MGX Route Processor Module (RPM-PR) for MGX Releases 1.3.18 and 5.4.00</i>	Provides upgrade and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for Cisco MGX Route Processor Module (RPM-XF) for PXM45-based Switches, Release 5.5.00</i>	Provides upgrade and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for the Cisco Voice Interworking Service Module (VISM), Release 3.3</i>	Provides new feature, upgrade, and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for the Cisco Voice Switch Service Module (VXSM), Release 5.5.00</i>	Provides new feature, upgrade, and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for Cisco WAN Manager, Release 16.0.00</i>	Provides new feature, upgrade, and compatibility information, as well as information about known and resolved anomalies.

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New* in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>