



# Release Notes for Cisco MGX-RPM-1FE-CP Back Card for Cisco IOS Release 12.2(8)MC2

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Cisco IOS Release 12.2(8)MC2

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These release notes are for the Cisco MGX-RPM-1FE-CP for Cisco IOS Release 12.2(8)MC2. These release notes are updated as needed to describe new features, memory requirements, hardware support, software platform deferrals, and changes to the microcode and related documents.

For a list of the software caveats that apply to Cisco IOS Release 12.2(8)MC2, see the [“Caveats in Cisco IOS Release 12.2\(8\)MC2” section on page 4](#).

To review the release notes for Cisco IOS Release 12.2, go to [www.cisco.com](http://www.cisco.com) and click **Technical Documents**. Select **Release 12.2** from the Cisco IOS Software drop-down menu. Then click **Cisco IOS Release Notes > Cisco IOS Release 12.2**.

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## Introduction

The MGX-RPM-1FE-CP (one-port, Fast Ethernet-Co-processor) back card is a Cisco MGX 8850 RPM-PR back card that off-loads the following processes from the Route Processor Module (RPM-PR):

- Compression/decompression of Real-time Transport Protocol (RTP)/User Datagram Protocol (UDP) headers (cRTP/cUDP)
- Multiplexing/demultiplexing of Point-to-Point Protocol (PPP) frames

The MGX-RPM-1FE-CP back card is designed to be used with an MGX 8850 that is equipped with one or more RPM-PRs and that terminates some number of T1 lines. Each MGX-RPM-1FE-CP back card has a termination capacity of up to eight T1s (four per MLP bundle). The MGX-RPM-1FE-CP is only supported with the MLP encapsulation.

The MGX-RPM-1FE-CP back card contains one Fast Ethernet (100Base-Tx) interface. The interface has an RJ45 connector that is used to connect the card to a Category 5 un-shielded twisted pair (UTP) cable. Both half- and full-duplex operation are supported.

### **MGX-RPM-1FE-CP Back Card in an IP-RAN of a Mobile Wireless Network**

The MGX-RPM-1FE-CP back card off loads the compression/decompression of RTP/UDP headers and the multiplexing/demultiplexing of PPP frames.

The supported use of the MGX-RPM-1FE-CP back card is within an IP-RAN of a mobile wireless network. In mobile wireless networks, radio coverage over a geographical space is provided by a network of radios and supporting electronics (Base Transceiver Station or BTS) distributed over a wide area. Each radio and supporting electronics represents a “cell.” In traditional networks, the radio signals or radio data frames collected in each cell are forwarded over a T1 (or similar low-speed, leased) line to a centralized Base Station Controller (BSC) where they are processed.

The implementation of the MGX-RPM-1FE-CP backcard in the IP-RAN solution requires the following components:

- Cisco MGX 8850
- RPM-PR
- MGX-RPM-1FE-CP back card
- FRSM card
- BTS router (Cisco MWR 1900 Mobile Wireless Edge Router)

The solution uses OSPF as the routing protocol and requires MLP for transmission of the packets between the aggregation node (MGX8850) and the BTS. It requires you to configure the following:

- The Fast Ethernet (FE) interface to support OSPF. Enable multicast routing and indicate a Protocol Independent Multicast (PIM) mode.
- One or more PPP multilink interfaces with PPP mux and RTP header compression attributes.
- A virtual template for each of the multilink groups.
- A PVC under the switch subinterface that references the virtual template.

In addition, you must configure a connection between the PVC and the FRSM as well as a connection between the FRSM and the PVC.

For detailed information about the MGX-RPM-1FE-CP back card and its implementation in the IP-RAN solution, see the *MGX-RPM-1FE-CP Back Card Installation and Configuration Note*.

## System Configuration Requirements

The MGX-RPM-1FE-CP requires the following system configuration:

- Cisco IOS 12.2(8) MC1 or a later Cisco IOS Release 12.2 MC image be installed on the corresponding Cisco MGX 8850 RPM-PR.
- The FE interface be configured via the Cisco IOS software command line interface.

## Memory Recommendations

**Table 1** Memory Recommendations for the Cisco MGX 8850 RPM-PR

| Platform             | Software Image | Flash Memory Recommended | DRAM Memory Recommended | Runs From |
|----------------------|----------------|--------------------------|-------------------------|-----------|
| Cisco MGX-RPM-1FE-CP | rpm-js-mz      | 32 MB Flash              | 256 MB DRAM             | RAM       |

## Determining the Software Version

To determine the version of Cisco IOS software copied on the RPM-PR, access the CLI of the RPM-PR and enter the **show version** command:

```
rpm> show version
Cisco Internetwork Operating System Software
IOS (tm) RPM Software (RPM-JS-M), Version 12.2(8)MC2, EARLY DEPLOYMENT RELEASE
SOFTWARE (fc1)
```

## Upgrading to a New Software Release

For information about copying Cisco IOS images to RPM-PR Flash memory, see the *RPM-PR Installation and Configuration* document.

For general information about upgrading to a new Cisco IOS software release, refer to Software Installation and Upgrade Procedures located at the following URL:

[http://www.cisco.com/warp/public/130/upgrade\\_index.shtml](http://www.cisco.com/warp/public/130/upgrade_index.shtml)

# New Features in the MGX-RPM-1FE-CP with Cisco IOS Release 12.2 MC Software

For detailed descriptions of each of these features, see the *MGX-RPM-1FE-CP Back Card Installation and Configuration Note*.

- Fast Ethernet—Single 10/100 FE port that can be used with or without cRTP/cUDP or PPP Multiplexing configured.
- cUDP/cRTP—Header compression that compresses UDP/RTP headers to 2 to 4 bytes.
- PPP Multiplexing—Method, as defined in RFC 3153, of sending multiple PPP encapsulated packets in a single PPP frame.

## Limitations, Restrictions, and Important Notes

When working with a MGX-RPM-1FE-CP back card, please take note of the following limitations, restrictions, and important notes:

- Only one MGX-RPM-1FE-CP back card is supported per Cisco MGX 8850 RPM-PR.
- FE and multilink interfaces should be shut down before online insertion and removal (OIR) of the MGX-RPM-1FE-CP.
- The MGX-RPM-1FE-CP is only supported on the Cisco MGX 8850 RPM-PR.
- For PPP Multiplexing, MLP must be configured on the MGX-RPM-1FE-CP back card.
- For error messages to be stored, console logging must be configured.
- The IP MTU should be set to 512 bytes or less on multilink interfaces.
- The MGX-RPM-1FE-CP back card supports up to 8 multilink interfaces.
- MLP with LFI is not supported by the Cisco MWR 1900 router. Therefore, MLP with LFI must be disabled on peer devices connecting to the Cisco MWR 1900 router T1 MLP connections.
- To fully disable PPP Multiplexing, issue the **no ppp mux** command on the T1 interfaces of the routers at both ends of the T1 link. If PPP Multiplexing remains configured on one side of the link, that side will offer to receive PPP multiplexed packets.

## Caveats in Cisco IOS Release 12.2(8)MC2

The following sections list and describe the open and closed caveats for the Cisco MGX-RPM-1FE-CP with Cisco IOS Release 12.2(8)MC2. Only severity 1 through 3 caveats are included.

Caveats describe unexpected behavior in Cisco IOS software releases. Severity 1 caveats are the most serious caveats, severity 2 caveats are less serious, and severity 3 caveats are the least serious of these three severity levels.

Caveats in Cisco IOS Releases 12.2 and 12.2 T are also in Cisco IOS Release 12.2(8)MC2. For information on caveats in Cisco IOS Release 12.2, see *Caveats for Cisco IOS Release 12.2*. For information on caveats in Cisco IOS Release 12.2 T, see *Caveats for Cisco IOS Release 12.2 T*. These two documents list severity 1 and 2 caveats and are located on CCO and the Documentation CD-ROM.

**Note**

If you have an account with Cisco.com, you can use Bug Navigator II to find caveats of any severity for any release. To reach Bug Navigator II, Login to Cisco.com and click **Software Center: Cisco IOS Software: Cisco Bugtool Navigator II**. Another option is to go directly to <http://www.cisco.com/support/bugtools>.

## Open Caveats

The following caveat is open in Release 12.2(8)MC2.

- CSCdw40302

If two MGX-RPM-1FE-CP back cards are installed at boot up or a second MGX-RPM-1FE-CP back card is installed in a running system, cryptic error messages might display and the system might become unstable. If the system becomes unstable, the instability could lead to a system crash.

**Workaround:** Only one MGX-RPM-1FE-CP back card is supported per RPM-PR. Do not install a second MGX-RPM-1FE-CP back card before removing the first back card. If two back cards are installed at any one time, we recommend that you reload the RPM-PR with only one MGX-RPM-1FE-CP back card installed.

## Resolved Caveats

The following caveat is resolved in Release 12.2(8)MC2.

- CSCdy09277

Packet loss from the MGX 8850 RPM-PR to the Cisco MWR 1900 router increases at the Cisco MWR 1900 (as displayed using the **show ip rtp header-compression** command) when the MWR 1900 is reloaded and the MGX-RPM-PR switches are not.

## Troubleshooting

To collect data for reporting back card and router issues, issue the following command:

- **show tech-support**—Displays general information about the router when it reports a problem.
- **show logging**—Displays information in the syslog history table.

# Documentation Updates

This section contains information that was not included or was documented incorrectly in the *MGX-RPM-1FE-CP Back Card Installation and Configuration Note*. The heading in this section corresponds with the applicable section title in the documentation.

## **show ppp mux**

The efficiency improvement factor calculation documented in the **show ppp mux** command section is incorrect. The correct improvement factor calculation uses bytes, not packets, and is as follows:

Multiplex efficiency improvement factor =  $100 * (\text{Total bytes saved}) / (\text{Total bytes received})$

Where total bytes saved = bytes\_received\_at\_muxer - bytes\_sent\_at\_muxer.

Demultiplex efficiency improvement factor =  $100 * (\text{Total bytes saved}) / (\text{Total bytes sent})$

Where total bytes saved = bytes\_sent\_at\_demuxer - bytes\_received\_at\_demuxer.

## Related Documentation

The following sections describe the documentation available related to the Cisco MGX-RPM-1FE-CP back card. These documents consist of hardware and software installation guides, Cisco IOS configuration guides and command references, system error messages, and other documents.

Documentation is available as printed manuals or electronic documents.

## Platform-Specific Documents

These documents are available for the Cisco MWR 1900 Mobile Wireless Edge Router on Cisco.com and the Documentation CD-ROM:

- *MGX-RPM-1FE-CP Back Card Installation and Configuration Note*
- *RPM-PR Installation and Configuration*
- Cisco MWR 1900 Mobile Wireless Edge Router
  - *Cisco MWR 1900 Hardware Installation Guide*
  - *Cisco MWR 1900 Software Configuration Guide*
  - *Cisco MWR 1900 Rack Mounting Instructions*
  - *Cisco MWR 1900 Regulatory Compliance and Safety Information*
- *VWIC-2MFT-T1-DIR, VWIC-2MFT-E1-DIR Installation Instructions*

## Feature Modules

Feature modules describe new features supported by Cisco IOS Release 12.2 MC and are updates to the Cisco IOS documentation set. A feature module consists of an overview of the feature, configuration tasks, and a command reference.

On Cisco.com at:

**Technical Documents: Cisco IOS Software: Cisco IOS Release 12.2: New Feature Documentation: New Features in 12.2-Based Limited Lifetime Releases: New Features in Release 12.2 MC: New Features in Release 12.2 MC2**

On the Documentation CD-ROM at:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.2: New Feature Documentation: New Features in 12.2-Based Limited Lifetime Releases: New Features in Release 12.2 MC: New Features in Release 12.2 MC2**

## Obtaining Documentation

These sections explain how to obtain documentation from Cisco Systems.

### World Wide Web

You can access the most current Cisco documentation on the World Wide Web at this URL:

<http://www.cisco.com>

Translated documentation is available at this URL:

[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

### Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which is shipped with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual subscription.

## Ordering Documentation

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:  
[http://www.cisco.com/cgi-bin/order/order\\_root.pl](http://www.cisco.com/cgi-bin/order/order_root.pl)
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:  
<http://www.cisco.com/go/subscription>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, U.S.A.) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

## Documentation Feedback

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You can e-mail your comments to [bug-doc@cisco.com](mailto:bug-doc@cisco.com).

You can submit your comments by mail by using the response card behind the front cover of your document or by writing to the following address:

Cisco Systems  
Attn: Document Resource Connection  
170 West Tasman Drive  
San Jose, CA 95134-9883

We appreciate your comments.

## Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain online documentation, troubleshooting tips, and sample configurations from online tools by using the Cisco Technical Assistance Center (TAC) Web Site. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC Web Site.

## Cisco.com

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- Streamline business processes and improve productivity
- Resolve technical issues with online support
- Download and test software packages



- Order Cisco learning materials and merchandise
- Register for online skill assessment, training, and certification programs

If you want to obtain customized information and service, you can self-register on Cisco.com. To access Cisco.com, go to this URL:

<http://www.cisco.com>

## Technical Assistance Center

The Cisco Technical Assistance Center (TAC) is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two levels of support are available: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Cisco TAC inquiries are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

The Cisco TAC resource that you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

## Cisco TAC Web Site

You can use the Cisco TAC Web Site to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to this URL:

<http://www.cisco.com/tac>

All customers, partners, and resellers who have a valid Cisco service contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to this URL to register:

<http://www.cisco.com/register/>

If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco TAC Web Site, you can open a case online by using the TAC Case Open tool at this URL:

<http://www.cisco.com/tac/caseopen>

If you have Internet access, we recommend that you open P3 and P4 cases through the Cisco TAC Web Site.

## Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses priority level 1 or priority level 2 issues. These classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer automatically opens a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to this URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled: for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). When you call the center, please have available your service agreement number and your product serial number.

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This document is to be used in conjunction with the documents listed in the “[Related Documentation](#)” section.

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