1.1.31 Version Software Release Notes
Cisco WAN MGX 8850, 8230, and 8250 Software

About These Release Notes

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About the 1.1.31 Release

This is a maintenance release including all features supported up to release 1.1.25.

Features Introduced in Release 1.1.31

MGX 8850, MGX 8250, and MGX 8230 Feature and Availability Overview:

Features that require 1.1.31 bundled with IOS 12.1(3)T

Feature	Availability
DS3 Loopback on PXM-T3	Release 1.1.31
Independent Service Rate on FRSM-HS1/B	Release 1.1.31
Standard ABR on FRSM-8 and FRSM8-C Modules	Release 1.1.31
Standard ABR on AUSM	Release 1.1.31
ForeSight and Standard ABR Coexistence Guidelines	Release 1.1.31
VBR-rt on AUSM	Release 1.1.31
Stratum3 Clocking	Field Trial Only
CoS Map for FRSM-8	Release 1.1.31
Online Diagnostics for PXM	Release 1.1.31
SRM in MGX 8230	Release 1.1.31
VISM 1.5.5 on MGX 8250/8850	Release 1.1.31
VISM 2.0.0 on MGX 8230/8250/8850	Release 1.1.31

Feature Descriptions

DS3 Loopback on PXM-T3

The active PXM will be able to initiate the DS3 loopback code. That is, to program the T3 framers to generate the sequence of 16 bit FEAC codes (Far End Alarm and Control). The two main purposes are:

- send alarm or status information from far end terminal back to the near end terminal
- to initiate DS3 loopbacks at the far end terminal from the near end terminal.

The active PXM will initiate this code and will run on the standby PXM also. This feature has CLI support and is supported by CWM 10.3 (which is not targeted for General Availability).

Independent Service Rate on FRSM-HS1/B

This feature provides capability to configure connection service rate in ingress direction. User can also specify EIR if connection is '0' of CIR.This feature is already implemented in FRSM-8 and FRSM-VHS.

Same functionality as provided in FRSM-8 and FRSM-VHS. This feature is not supported by CWM 10.3 (which is not targeted for General Availability).

Standard ABR on FRSM-8 and FRSM8-C Modules

The feature implements TM 4.0 ABR service on the FRSM card. The current FRSM supports a pre-standard version of congestion control- foresight. This feature provides standards compliant ABR congestion mechanism in addition to foresight. The module will generate RM cells to dynamically increase or decrease bandwidth rate. The scope involves to including all applicable modes of behavior - Source, Destination or Switch. Only relevant modes need be considered. Connections with standard ABR parameter will be mapped to appropriate queues that also will co-exist with foresight connection types.

This feature will be implemented via appropriate MIBS and CLI. This feature is supported by CWM 10.3 (which is not targeted for General Availability). ABR license (similar to foresight license) will be created. This is a billable feature. One common license for either foresight or standard ABR on FRSM. Standard ABR fulfils the standards compliance part of TM 4.0.

Standard ABR on AUSM

This feature involves implementing the standards based TM 4.0 ABR congestion control loop. The current AUSM-8 card only supports foresight, which is pre-standards based. In order to inter-operate with third party devices supporting standard ABR and AXSM card, this feature is required on AUSM card.

This calls for implementing the RM cells to perform the flow control. All three modes, EFCI, ER and RR will be considered and only modes that can be supported on the existing hardware are being implemented. Also, all appropriate behaviors namely source, destination and switch behaviors will be implemented. The connections with standard ABR parameter will be mapped to the appropriate queue. This calls out for new CLI and MIB support. Also expected for the CWM support is the appropriate formula. Due to current hardware limitation, VS/VD will not be considered. This feature is supported by CWM 10.3 (which is not targeted for General Availability).

ForeSight and Standard ABR Coexistence Guidelines

In this release, Cisco has introduced the ability to support ABR TM4.0 as well as Foresight congestion control on the FRSM and AUSM modules. This document describes the major differences between the TM 4.0 compliant standard ABR and ForeSight. It also provides guidelines for coexistence of ForeSight connections with standard ABR connections on the same network, with a worked example of how to configure the two different connection types to have similar characteristics

VBR-rt on AUSM

This feature involves implementing the standard class of service on the AUSM-8 Module. VBR-rT CoS is required for video and real time voice applications. In terms of conformance definition it is same as VBR-nRT, which is already supported. The connection parameters will be bounded by Peak Cell rate (PCR), Sustainable Cell Rate (SCR) and Maximum Burst Size (MBS). Cell Delay Variation Tolerance (CDVT) will be parameter to characterize the PCR.

This new CoS requires to be scheduled in the appropriate queue in both, the ingress and egress direction. It has lower priority than CBR but higher than VBR-nRT.

Appropriate CLI commands to configure the parameters will be implemented. Connection display command will display the connection parameters. This feature is supported by CWM 10.3 (which is not targeted for General Availability).

Stratum3 Clocking

Standard clocking in the MGX is supported with a built-in Stratum-4 clock source. For network applications that require a higher clock accuracy, the PXM-UI back card used with the Stratum-4 can be replaced with an optional PXM-UI-S3 back card that carries a Stratum-3 clock. This clock reference conforms to AT&T T1.5 and ITU G.824 specifications. Provision is also made for a Service Provider to connect an external clock source, if necessary.

Both holdover and fail-over modes are supported by the PXM-UI-S3. That is, if all clock sources fail, the Stratum-3 clock will hold the last best-known clocking frequency.

The default clock is the internal Stratum-4. Pertinent CLI and MIB support are provided for Stratum-3 configuration. The PXM-UI-S3 back card is also recognized by the Cisco WAN Manager.

Hardware Changes

A new PXM-UI-S3 backcard replaces existing PXM-UI-B cards.

CLI

A new Cli **cnfclklevel** has been introduced which permits the user to set the STRATUM level desired.

Default Settings

The default clock source is set to be the Internal Oscillator. Subsequently, an External/Inband/SM clock can be configured to be the primary/secondary clock driving the node.

Limitations

There are 2 physical ports on the PXM-UI-S3 backcard for providing External clock. However, only "Ext Clk 1" is currently supported. There are 2 physical LAN ports on the PXM-UI-S3 backcard. However, only "LAN port 1" is currently supported.

⚠
Warning   **If an External clock was configured to drive the node in Stratum-4 clocking with the old UI backcard, and this UI card is replaced with the new PXM-UI-S3 backcard, one must configure Stratum-3 clocking explicitly on the node to be able to continue using the External clock source. The following cli's need to be executed :**

* cnfclklevel 3

* cnfextclk (with T1/E1 option)

CoS Map for FRSM-8

This feature implements the ATM class of service (CoS) on the FRSM-8 Module. Based on our current design of hardware and software, this involves map the connection with ATM class of service parameters to appropriate queue in the ingress side of FRSM-8 and on the PXM.

The current version does not support any CoS type of connections - only foresight and non-foresight type connections. By map the CoS parameters the connections can then be scheduled in the appropriate queue on the PXM. The service types to be considered are: UBR, VBR, VBR-RT, VBR-nRT, and STD-ABR. This is in addition to the existing connection types. The current limit on connection count to be retained as far as possible. This feature is supported by CWM 10.3 (which is not targeted for General Availability).

Online Diagnostics for PXM

This feature provides capability to configure hardware oriented test to check the health of the PXM - both active and standby. This test is non-intrusive and will be able to run with minimum overhead. The results of the diagnostics will be written to a log file to be viewed offline and perform analysis. The initial goal is to not provide any intelligence.

However, built in intelligence may be considered as a future enhancement. The hardware and software components selected for running the diagnostics will be selected from the field experience. The targets are hard disk, memory components. Although the intent is to check the health of h/w a switchover should not occur except under severe circumstances.

Also, this capability of running diagnostics will be provided as an option. Appropriate CLI and SNMP interface is provided for all these features.

The Online Diagnostics are used to test components on the PXM and SRM modules while the shelf is running. Connections, states and tasks are not effected by the tests.

The diagnostic test is invoked from the active PXM. If a standby PXM exists and is in standby state, it also will be tested. When the test is executed, each component is checked and the results are presented on the screen. Results also are saved to a log file.

SRM in MGX 8230

This feature provides SRM support in MGX 8230. Only the newest version of the SRM, MGX-SRM-3T3/C, will be supported in the 8230 chassis. This feature is not supported by CWM 10.3 (which is not targeted for General Availability), but is planned for a future release.

VISM 1.5.5 on MGX 8250/8850

VISM 1.5.5 is supported on MGX 8250/8850. For VISM on MGX 8230, please use VISM 2.0.0 listed below. CWM 10.3 (which is not targeted for General Availability) supports VISM 1.5.5. VISM 1.5.5 is not targeted for General Availability.

VoIP using RTP (RFC 1889)

VISMR1.5 supports standards based VoIP using RTP (RFC1889) and RTCP protocols. This allows VISM to interwork with other VoIP Gateways.

VoAAL2 (With sub-cell multiplexing) PVC

The VISM supports standards compliant AAL2 adaptation for the transport of voice over an ATM infrastructure. AAL2 trunking mode is supported

Codec Support

G.711 PCM (A-law, Mu-law), G.726, G.729a/b

8 T1/E1 Interfaces

The VISM supports 8 T1 or 8 E1 interfaces when G.711 PCM coding is used. For higher complexity coders such as G.726-32K and G.729a-8K, the density drops to 6 T1 or 5 E1 interfaces (max 145 channels)

1:N redundancy using SRM

T3 interfaces (via SRM bulk distribution)

T3 interfaces are supported using the SRM's bulk distribution capability. In this case, the T3 interfaces are physically terminated at the SRM module. The SRM module breaks out the individual T1s and distributes the T1s via the TDM backplane bus to the individual VISM cards for processing.

Echo Cancellation

The VISM provides on-board echo cancellation on a per connection basis. Up to 128 msec user-configurable near-end delay can be canceled. The echo cancellation is compliant with ITU G.165 and G.168 specifications.

Voice Activity Detection (VAD)

VISM uses VAD to distinguish between silence and voice on an active connection. VAD reduces the bandwidth requirements of a voice connection by not generating traffic during periods of silence in an active voice connection. At the far end, comfort noise is generated.

Fax/modem detection for ECAN and VAD control

The VISM continually monitors and detects fax and modem carrier tones. When carrier tone from a fax or modem is detected, the connection is upgraded to full PCM to ensure transparent connectivity. Fax and modem tone detection ensures compatibility with all voice-grade data connections.

CAS tunneling via AAL2(For AAL2 trunking mode)

The VISM in AAL2 mode facilitates transport of CAS signaling information. CAS signaling information is carried transparently across the AAL2 connection using type 3 packets. In this mode, VISM does not interpret any of the signaling information.

PRI tunneling via AAL5(For AAL2 trunking mode)

VISM supports transport of D-ch signaling information over an AAL5 VC. The signaling channel is transparently carried over the AAL5 VC and delivered to the far end. In this mode, VISM does not interpret any of the signaling messages.

Voice CAC

VISM can be configured to administer Connection Admission Control (CAC) so that the bandwidth distribution between voice and data can be controlled in AAL2 mode.

Type 3 packet for DTMF

The VISM in AAL2 mode facilitates transport of DTMF signaling information. DTMF information is carried transparently across the AAL2 connection using type 3 packets.

Dual (Redundant) PVCs for bearer/control

The VISM provides the capability to configure two PVCs for bearer/signaling traffic terminating on two external routers (dual-homing). VISM continually monitors the status of the active PVC by using OAM loopback cells. Upon detection of failure, the traffic is automatically switched over to the backup PVC.

64 K clear channel transport

The VISM supports 64 Kbps clear channel support. In this mode, all codecs are disabled and the data is transparently transported through the VISM.

DTMF relay for G.729

In VoIP mode, DTMF signaling information is transported across the connection using RTP NSE (Named Signaling Event) packets

MGCP 0.1 for VoIP with Softswitch control

VISM supports Media Gateway Control Protocol (MGCP) Version 0.1. This open protocol allows any Softswitch to interwork with the VISM module.

Resource coordination via SRCP

Simple Resource Control Protocol (SRCP) provides a hearbeat mechanism between the VISM and the softswitch. In addition, SRCP also provides the softswitch with gateway auditing capabilities.

Full COT functions

VISM provides the capability to initiate continuity test as well as provide loopbacks to facilitate continuity test when originated from the far end.

Courtesy Down

This feature provides a mechanism for graceful upgrades. By enabling this feature, no new calls are allowed on the VISM while not disrupting the existing calls. Eventually, when there are no more active calls, the card is ready for a upgrade and/or service interruption.

VISM 2.0.0 on MGX 8230/8250/8850

VISM 2.0.0 supports all of the VISM 1.5.5 features listed above. VISM 2.0.0 is supported on MGX 8230/8250/8850. CWM 10.3 (which is not targeted for General Availability) supports VISM 2.0.0. VISM is not targeted for General Availability.

PRI backhaul to the Softswitch using RUDP

The PRI backhaul capability provides PRI termination on the VISM with the Softswitch providing call control. ISDN layer 2 is terminated on the VISM and the layer 3 messages are transported to the softswitch using RUDP.

Latency Reduction (<60 ms round trip)

Significant improvements have been made to bring the roundtrip delay to less than 60 ms.

Codecs Preference

VISM provides the capability to have the codecs negotiated between the two end-points of the call. The VISM can be configured, for a given end-point, to have a prioritized list of codecs. Codec negotiation could be directly between the end-points or could be controlled by a softswitch

31 DS0 for E1 with 240 channels only

While all 31 DS0s on a E1 port can be used, there is a limitation of 240 channels per card.

Features NOT supported in Release 1.1.31

The following features are NOT supported in MGX Release 1.1.31:

- RPMB on 8230
- Multiple RPM card type
- RPM-PR

Note These features require MGX Release 1.1.32 bundled with IOS 12.1(5.3)T and CWM 10.4. Please see the MGX 1.1.32 Release Notes for more information on support of these features.

Features Introduced in Release 1.1.25

None.

Features Introduced in Release 1.1.24

While no new features are incorporated into Software Release 1.1.24, this software release does provide support to two new wide area switches, the MGX 8230 and the MGX 8250, as well as continued support for the MGX 8850 switch.
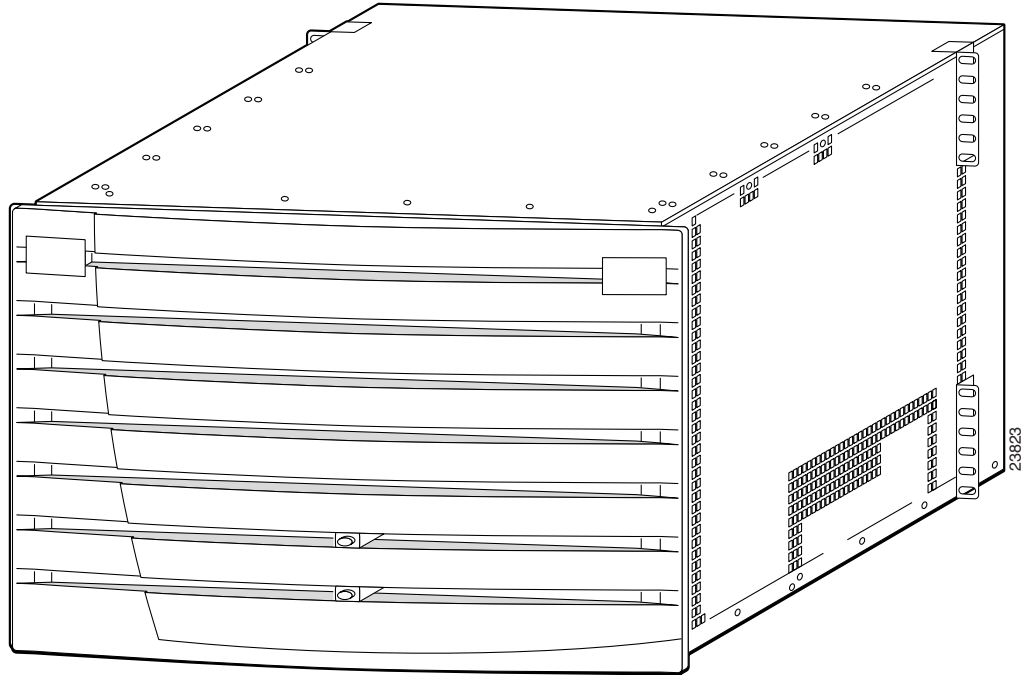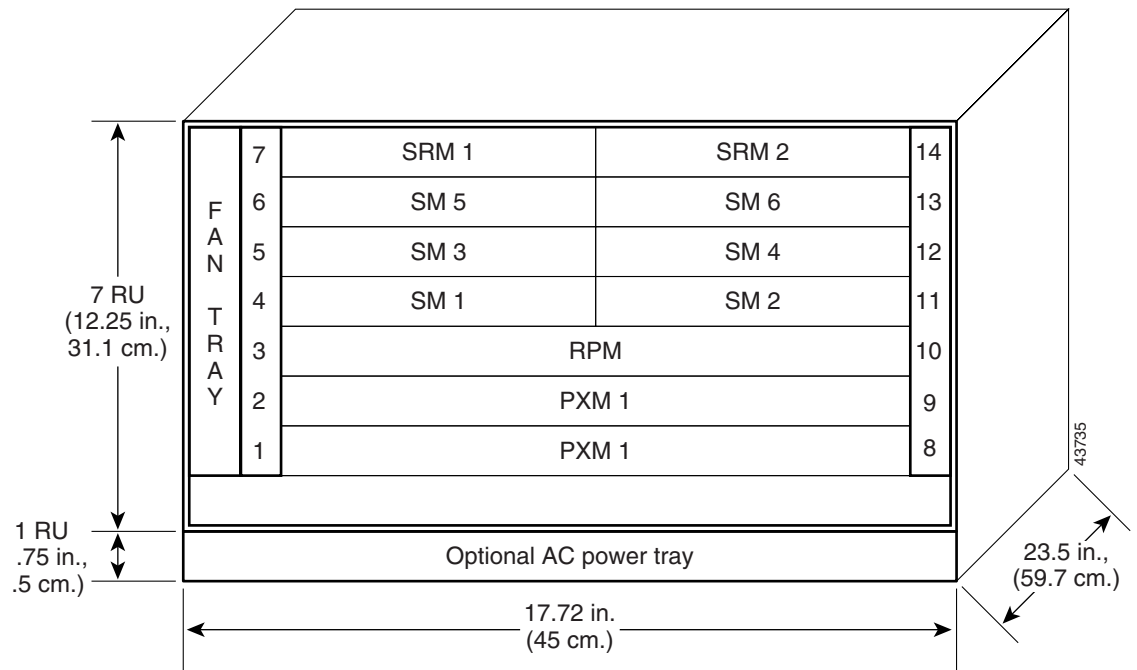
MGX 8230

he MGX 8230 functions as a feeder to the IGX, BPX or MGX 8850 switches, or can be used for bringing in service. It has a 7-slot (double-height) chassis, and the slots are oriented in the following manner:

- Two slots are reserved for PXMs.
- Two single height (which equals 1 double height) slots are reserved for SRM.
- The remaining slots can be configured with 4 double-height or 8 single-height slots, supporting service modules.

Figure 1 shows the MGX 8230 with its door attached. Note that there are light pipes in the door that display the status of the processor models (PXMs). Figure 2 is a conceptual drawing of an MGX 8230 showing the dimensions and the slot numbering. The slot numbering is as it appears from the front of the MGX 8230; slots 8 and 9 refer to back card slots only.

Note that the following features are not supported in this release, but are planned for future releases:

- Service Resource Module (SRM)
- Route processor module (RPM)
- Voice Interface Service Module (VISM)
- PNNI (some CLI commands may show options for PNNI, but this feature is not supported.)

Figure 1   MGX 8230 with Door Attached

Figure 2   MGX 8230 Dimensions

F A N T R A Y	7	SRM 1	SRM 2	14
	6	SM 5	SM 6	13
	5	SM 3	SM 4	12
	4	SM 1	SM 2	11
	3	RPM		10
	2	PXM 1		9
	1	PXM 1		8

7 RU
(12.25 in.,
31.1 cm.)

1 RU
.75 in.,
.5 cm.)

Optional AC power tray

23.5 in.,
(59.7 cm.)

17.72 in.
(45 cm.)

> ✎
>
> **Note**   Even though the card slots in an MGX 8230 are horizontal and would more appropriately be called single-width and double-width, this manual still refers to the card slots, and the processor and service modules, as single-height and double-height. This is for consistency because the PXM and service module cards are a subset of the MGX 8850 cards that are installed vertically in an MGX 8850 chassis.

Main Features

Release 1.0 of MGX 8230 includes:

- PXM1 with 4-port OC3-C/STM-1.
  - MMF, SMFLR, and SMFIR back cards are supported.
  - PXM1 ports are used as ATN UNI or feeder trunks.
  - Core redundancy for PXM1.
  - Environmental monitoring.
  - PXM–1 with one OC-12 port.
- PXM1-2-T3E3 provides interfaces for up to two T3 (each at 44.736 Mbps) or two E3 lines (each at 34.368 Mbps).
- ATM, Frame Relay, and Circuit Emulation service modules.
  - AUSM-8T1/E1/B with RJ48-T1/E1 and SMB E1 back card with UNI and IMA support.
  - FRSM-8T1/E1 with RJ48-T1/E1 and SMB E1 back cards.
  - FRSM-2T3E3 with BNC-2T3/E3 back cards.
  - FRSM-HS2 with 2 port HSSI back card.
  - FRSM-2CT3 with BNC-2T3 back card.
  - CESM-8T1/E1 with RJ48-T1/E1 and SMB E1 back cards.
  - CESM-T3E3
- 1:1 redundancy for T3/E3 cards.
- 1:N redundancy for T1/E1 service modules.
- Graceful upgrade.
- 1000 connections per card, 4000 connections per shelf (T1 service modules).

The MGX 8230 backplane supports a minimum of 1.2 Gbps of non-blocking switching and has a high-end limit of 21 Gbps with the PXM1. Individual line rates can range from DS0 through OC-3.

The MGX 8230 can also support a wide range of services over narrowband and mid-band user interfaces. It maps all the service traffic to and from ATM circuits based on standardized interworking methods.

The MGX 8230 supports up to 64 channelized or non-channelized T1 and E1 interfaces on a single IP + TM multiservice gateway. These interfaces support:

- Frame Relay UNI and NNI
- ATM UNI, NNI, and FUNI
- Frame Relay-to-ATM network interworking
- Frame Relay-to-ATM service interworking

- Circuit emulation services

Frame-based services on T3 and E3 high-speed lines are also supported.

The MGX 8230 also supports Inverse Multiplexing for ATM (IMA) to provide ATM connectivity below T3 or E3 rates via the AUSM-8T1/E1 (AUSM/B).

The modular, software-based system architecture enables it to support new features through downloadable software upgrades or new hardware modules.

The Service Resource Module-3T3 (MGX-SRM-3T3/B), when supported in a future release, will be able to support up to 64 T1 interfaces over its three T2 lines and provide 1:N redundancy for the T1 and E1 cards. *This feature is described in the MGX 8230 switch documentation, but is currently not supported by the hardware.*

Standards-Based Conversion to ATM

The MGX 8230 converts all user-information into 53-byte ATM cells by using the appropriate ATM Adaptation Layer (AAL) for transport over the ATM backbone network. The individual service modules segment and reassemble (SAR) cells to eliminate system bottlenecks. The following list shows the applicable AAL for each service:

- Circuit emulation services uses AAL1.
- Frame Relay-to-ATM network interworking uses AAL5 and Frame Relay Service Specific Convergence Sub-layer (FR-SSCS).
- Frame Relay-to-ATM service interworking uses both transparent and translation modes to map Frame Relay to native ATM AAL5.
- Frame Forwarding uses AAL5.

Refer to the Cisco MGX 8230 Installation and Configuration Guide for further installation and physical descriptions for the MGX 8230 switch.

MGX 8230 Cards

MGX 8230 Processor Switch Module (PXM1)

The MGX 8230 Processor Switch Module (PXM1) performs shelf control and shared-memory switching functions. It also serves as a data processing and ATM interface card. The PXM1 processor module for the MGX 8230 is identical to the PXM1 for the MGX 8250.

Primarily, the MGX 8230 PXM1 controls the switch and provides 1.2 Gbps of non-blocking, shared memory ATM switching and ATM trunking up to OC-12 speed. In addition, the PXM features:

- A 4.0-Gigabyte hard disk drive that holds software, firmware for all the cards, and a substantial amount of other information.
- Environmental monitoring (cabinet temperature, fan speed, and power supply voltages).
- Hot swappable, 1:1 redundancy.

The PXM1 and its two types of back cards make up the required control card set. The following are model numbers of cards supported by the MGX 8230 for this release:

The following are model numbers of cards supported by the MGX 8230 for this release:

- PXM1-4-155, PXM1-1-622, and PXM1-2-T3E3
- PXM-UI (user interface back card)
- MGX-MMF-4-155 (uplink back card)
- MGX-SMFIR-4-155 (uplink back card)

- MGX-SMFLR-4-155 (uplink back card)

- MGX-BNC-2-T3 (uplink back card)

- MGX-BNC-2-E3 (uplink back card)

- MGX-SMFIR-2R-1-622 (uplink back card)

- MGX-SMFLR-1-622 (uplink back card)

PXM1 User Interface Back Card

The PXM1 User Interface card (PXM-UI) provides the MGX 8230 with the several user- interface ports. It mates with an PXM1 through the backplane and is installed in a back card slot (slot 8 or 9). As seen from the back of the MGX 8230, the PXM-UI will plug into the slot that is on the right side of its corresponding PXM1. The user-interface ports provide the following functions:

- User and management interface to an ASCII terminal or workstation

- Network synchronization for the shelf

- Central office-compatible major/minor alarm interface

The PXM UI has the following physical connectors and interfaces:

- RJ-45 T1 clock input—BITS clock source

- RJ-45 Maintenance port—RJ-45 connector, EIA/TIA 232, DTE mode, asynchronous interface, 19200 bits per second, 1 start bit, 1 stop bit, no parity bits.

- RJ-45 Control port— EIA/TIA 232, DTE mode, asynchronous interface, 9600 bits per second, 1 start, 1 stop, no parity.

- RJ-45 LAN port—10BaseT, 802.3 Ethernet

- SMB connector E1 clock input—BITS clock source

- DB-15 female connector for alarm outputs

MGX 8230 OC-3 Uplink Back Card

The MGX 8230 Uplink back card, which mates with a corresponding PXM1 through the backplane, provides the feeder trunk to the MGX switch. This uplink back card can provide either a multi-mode or single-mode fiber OC-3 interface:

- MGX-MMF-4-155 (multi-mode fiber uplink back card)

- MGX-SMFIR-4-155 (single-mode fiber intermediate reach uplink back card)

- MGX-LMFLR-4-155 (single-mode fiber long reach uplink back card)

FRSM Cards

The primary function of the FRSM is to convert between the Frame Relay-formatted data and ATM/AAL5 cell-formatted data. It converts the header format and translates the address for Frame Relay port/DLCIs, ATM-Frame UNI (FUNI) port/frame address, or frame forwarding port, and the ATM virtual connection identifiers (VPI/VCIs).

The MGX 8230 supports the following FRSM models:

- Frame Service Module for T1 (FRSM-8T1)
  The FRSM-8T1 card provides interfaces for up to eight T1 lines, each of which can support one 56 Kbps or one Nx64 Kbps FR-UNI, FR-NNI port, ATM-FUNI, or a Frame Forwarding port. Note that this unchannelized card cannot be configured to support sub-T rates.

- Frame Service Module for T1, channelized (FRSM-8T1-C)
  The FRSM-8T1-C card provides interfaces for up to eight T1 lines, each of which can support up to twenty-four 56 Kbps or Nx64 Kbps FR-UNI, FR-NNI, ATM-FUNI, or Frame Forwarding ports.

- Frame Service Module for E1 (FRSM-8E1)
  The FRSM-8E1 card provides interfaces for up to eight E1 lines, each of which can support one 56 Kbps or one Nx64 Kbps FR-UNI, FR-NNI, ATM-FUNI, or Frame Forwarding port.

- Frame Service Module for E1, channelized (FRSM-8E1-C)
  The FRSM-8E1-C card provides interfaces for up to eight E1 channelized Frame Relay lines, each of which can support multiple (up to thirty-one) 56 Kbps or Nx64 Kbps FR-UNI, FR-NNI, ATM-FUNI, or Frame Forwarding ports.

- Frame Service Module for T3 and E3 (FRSM-2E3T3)
  The FRSM-2E3/T3 card provides interfaces for up to two T3 or E3 Frame Relay lines, each of which can support either two T3 lines (each at 44.736 Mbps) or two E3 lines (each at 34.368 Mbps) FR-UNI, FR-NNI, ATM-FUNI, or Frame Forwarding ports.

- Frame Service Module for channelized T3 (FRSM-2CT3)
  The FRSM-2CT3 card supports interfaces for up to two T3 channelized Fame Relay lines, each of which supports 56 Kbps, 64 Kbps, Nx56 Kbps, Nx64 Kbps, T1 ports for a total of 256 ports that can be freely distributed across the two T3 lines.

- FRSM-HS2
  The FRSM-HS2 provides unchannelized Frame Relay service for up to 1000 user-connections over two HSSI lines on the SCSI2-2HSSI back card. The maximum rate for the card is 104 Mbps. Each port can operate in either DTE or DCE mode with incremental rates of N x T1 or N x E1 up to 52 Mbps.

OC-12 Uplink Back Card

For Automatic Protection Switching (APS) requires the "B" model—an SMFLR-1-622/B.

SMFIR-1-622 Back Card

For Automatic Protection Switching (APS) requires the "B" model—an SMFIR-1-622/B.

BNC-2T3 Back Card

BNC-2E3 Back Card

Two versions of the BNC-2E3 card are available. The BNC-2E3A applies to Australia only, and the BNC-2E3 applies to all other sites that require E3 lines on the PXM uplink card.

ATM Universal Service Module

AUSM/B Front Card

AUSM/B Back Cards

The MGX-AUSM/B-8T1 and MGX-AUSM/B-8E1 use the generic 8-port T1 or E1 line modules that operate with the 8-port service modules. The standard T1 version of the back card has eight RJ-48 connectors. The standard versions of the E1 back card have either eight RJ-48 connectors or eight pairs of SMB connectors. The following back cards are compatible with the AUSM/B:

- RJ48-8T1 back card for T1

- RJ48-8E1 back card for E1

- SMB-8E1 back card for E1

Circuit Emulation Service Module 8T1E1

CESM Models

The MGX 8230 supports the following CESM models:

- Circuit Emulation Service Module for T1 (CESM-8T1)
  The CESM-8T1 card provides interfaces for up to eight T1 lines, each of which is a 1.544 Mbps structured or unstructured synchronous data stream.

- Circuit Emulation Service Module for E1 (CESM-8E1)
  The CESM-8E1 card provides interfaces for up to eight E1 lines, each of which is a 2.048 Mbps structured or unstructured synchronous data stream.

- Circuit Emulation Service Module for T3/E3 (CESM-T3E3)

The CESM-8T1E1 card set consists of the CESM-8T1E1 front card and one of the following back cards:

- RJ48-8T1-LM

- RJ48-8E1-LM

- SMB-8E1-LM

Redundancy Architecture

Since the MGX 8230 chassis is a smaller form factor MGX 8850, most of the redundancy features available in MGX 8850 are available in MGX 8230 chassis. The following is a list of available redundancy features on the MGX 8230 chassis.

- Dual PXM

- Y-cable redundancy on PXM uplink ports

- 1:N redundancy for T1/E1 service modules

- Eight cell buses per PXM

- N+1 cooling fan redundancy

- N+1 AC or DC power redundancy (optional)

- 1:1 Y-cable redundancy for T3/E3 interfaces

MGX 8230 Management

To give you access for control purposes, the MGX 8230 switch supports high- and low-level user interfaces. You can use the Cisco WAN Manager application (formerly StrataView Plus) for connection management, the CiscoView application for hardware configuration, and a command line interface for low-level control of hardware functionality and connection control. An assortment of ports and protocols supports these user-interfaces. For communicating with the MGX 8230 switch, the control port (SLIP protocol only), the LAN (Ethernet) port, and the in-band ATM connection (feeder application only) all support access by the command line interface (CLI) via Telnet, TFTP, and SNMP protocols.

The downloadable firmware on each card determines the functionality, and you can upgrade functionality by downloading new firmware through a TFTP application on a workstation or a PC.

The current status and configuration parameters of the MGX 8230 modules reside in a Management Information Base (MIB). The firmware on each card updates the MIB as changes in status and configuration occur.

MGX 8250

The Cisco MGX 8250 wide-area edge switch supports:

- Integrated IP+ATM services

- Frame Relay

- IP-based virtual private network

- Video

- Circuit emulation services for private line replacement

It does not support PNNI, despite the fact that some CLI commands may show options for PNNI.

This chapter contains a brief outline of the features of the Cisco MGX 8250 switch. An illustration of the AC-powered version of the switch appears in Figure 3.

Figure 3   MGX 8250 Switch
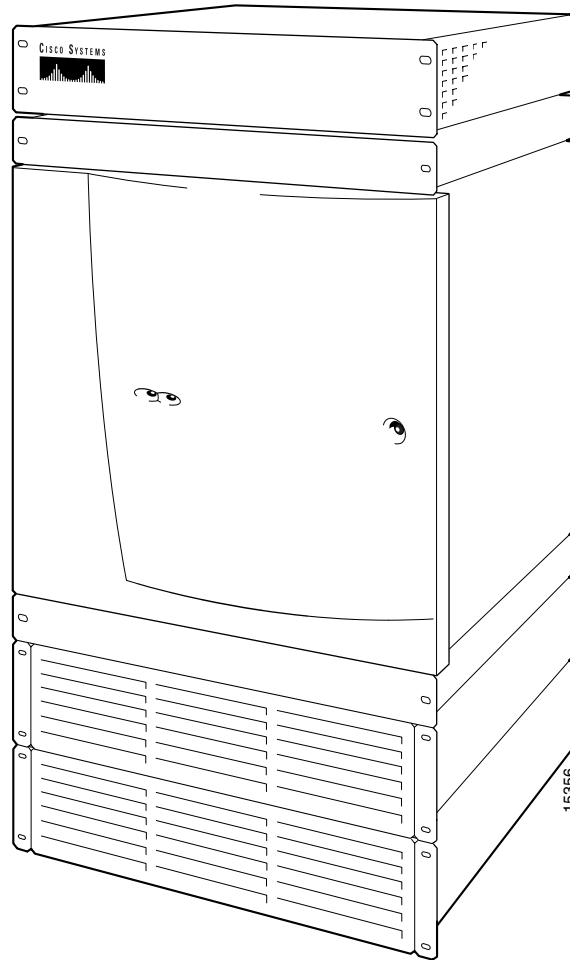
The Applications of the MGX 8250 Switch

The MGX 8250 switch operates in two operational *applications*:

- As a *feeder*, the MGX 8250 switch concentrates narrow-band and medium-band ATM, Frame Relay, and into a single, wide-band ATM feeder trunk to an BPX 8600-series switch.

- As a *stand-alone node*, the MGX 8250 switch concentrates narrow-band and medium-band ATM, Frame Relay, and voice into a single ATM line to at third-party switch. The MGX 8250 interface in this application is a UNI or an NNI.

For a description of how to configure the switches for a particular application, see the *MGX 8250 Switch Installation and Configuration Guide*.

The switch is also capable of supporting Cisco Multiprotocol Label Switching (MPLS).

Universal Edge Architecture

The MGX 8250 switch can support a wide range of services over narrowband and mid-band user interfaces. It maps all the service traffic to and from ATM by using standardized interworking methods.

The supported interfaces for user-traffic are:

- Frame Relay UNI on T3, E3, HSSI, T1, and E1 lines
- ATM UNI and FUNI and optional inverse multiplexing for ATM (IMA)
- Frame Relay to ATM network interworking and service interworking
- Circuit emulation services (T1/E1 and T3/E3)

The optional Service Resource Module-3T3 (MGX-SRM-3T3/B) can support up to 80 T1 interfaces over its three T3 lines and provide 1:N redundancy for the T1 and E1 cards.

The modular, software-based system architecture enables the switch to support new features through downloadable software upgrades or new hardware modules.

The MGX 8250 backplane supports a minimum of 1.2 Gbps of non-blocking switching. Individual line rates range from DS0 through OC-12.

Standards-Based Conversion to ATM

The MGX 8250 switch converts all user information into 53-byte ATM cells by using the appropriate ATM Adaptation Layer (AAL) for transport over the ATM backbone network. The individual service modules segment and reassemble (SAR) cells to eliminate system bottlenecks. The following list shows the applicable AAL for each service:

- Circuit emulation services uses AAL1.
- Frame Relay-to-ATM network interworking uses AAL5 and Frame Relay Service Specific Convergence Sub-layer (FR-SSCS).
- Frame Relay-to-ATM service interworking uses both transparent and translation modes to map Frame Relay to native ATM AAL5.
- Frame Forwarding uses AAL5.

MGX 8250 Cards

The MGX 8250 switch supports *core cards* and *service modules*. The Processor Switching Module (PXM) and optional Service Resource Module (SRM) are *core cards.* In addition to the PXM being a core card, it is also part of a a *card set*. A card set consists of a front card, a back card, and a daughter card. Service modules are not combined in this manner and are never part of a card set. Instead, *service modules* provide the interface to the transport technologies of the CPE—Frame Relay, ATM, and so on. The MGX 8250 enclosure contains up to 24 service modules (I/O cards) and 4 optional Service Redundancy Modules (SRMs) provide redundancy. A card set consists of a front card with its attached daughter card and a back card (or line module). The front card contains the processing intelligence and, on the daughter card, the firmware that distinguishes the interface (OC-3, T3, E3, and so on). The back card is a simple card that provides the electrical interface for one or more lines of a particular type. The MGX 8250 front and back cards are the:

- Processor Switching Module (PXM1)
  This front card controls the switch and supports external interfaces for user-access and trunking or UNI ports. The back cards consist of a user interface card (PXM-UI) and a broadband network module (see subsequent list items).

- Processor Switch Module User Interface (PXM1-UI)
  The PXM1-UI is the *user interface* card that has various types of ports to let you access and control the switch.

- Broadband Network Module (MGX-SMFIR-1-622 and MGX-SMFLR-1-622)
  The SMFIR-1-622 is a *broadband network* module for the PXM and provides a SONET OC12/STM4 ATM interface at 622 Mbps.

- Broadband Network Module (MGX-MMF-4-155)
  The MMF-4-155 is a *broadband network* module for the PXM and provides 4 SONET OC3/STM1 ATM interfaces at 155 Mbps.

- Broadband Network Module (MGX-BNC-2T3)
  The MGX-BNC-2T3 is a *broadband network* module for the PXM and provides 2 T3 ATM interfaces.

- Broadband Network Module (MGX-BNC-2E3)
  The MGX-BNC-2E3 is a *broadband network* module for the PXM and provides 2 E3 ATM interfaces. A version for Australia, New Zealand, and elsewhere is available (MGX-BNC-2E3A).

- Frame Service Module for T3 and E3 (MGX-FRSM-2E3T3)
  The MGX-FRSM-2E3/T3 provides interfaces for up to two T3 or E3 frame relay lines, each of which can support either 2 T3 lines (each at 44.736 Mbps) or 2 E3 lines (each at 34.368Mbps) FR-UNI, ATM-FUNI, or Frame Forwarding port.

- Frame Service Module for channelized T3 (MGX-FRSM-2CT3)
  The MGX-FRSM-2CT3 supports interfaces for up to two T3 channelized frame relay lines, each of which supports 56 Kbps, 64 Kbps, Nx56 Kbps, Nx64 Kbps, T1 ports for a total of 256 ports that can be freely distributed across the two T3 lines.

- Frame Service Module for unchannelized HSSI (MGX-HS2/B)
  The MGX-HS2/B supports interfaces for 2 unchannelized HSSI lines, each of which supports approximately 51 Mbps. With both lines operating, maximum throughput is 70 Mbps.

- Frame Service Module for T1 (AX-FRSM-8T1)
  The AX-FRSM-8T1 provides interfaces for up to eight T1 lines, each of which can support one 56 Kbps or one Nx64 Kbps FR-UNI, ATM-FUNI, or a Frame Forwarding port. Note that this unchannelized card cannot be configured to support sub-T rates.

- Frame Service Module for T1, channelized (AX-FRSM-8T1c)
  The AX-FRSM-8T1c provides interfaces for up to eight T1 lines, each of which can support up to 24 56 Kbps or *N* x 64 Kbps FR-UNI, ATM-FUNI, or Frame Forwarding port.

- Frame Service Module for E1 (AX-FRSM-8E1)
  The AX-FRSM-8E1 provides interfaces for up to eight E1 lines, each of which can support one 56 Kbps or one *N* x 64 Kbps FR-UNI, ATM-FUNI, or frame forwarding port.

- Frame Service Module for E1, channelized (AX-FRSM-8E1c)
  The AX-FRSM-8E1c provides interfaces for up to 8 E1 channelized frame relay lines Each line can support *N* x 64-Kbps or (up to 31) 56-Kbps FR-UNI, ATM-FUNI, or frame forwarding ports.

- ATM UNI Service Module for T1 (MGX-AUSM/B-8T1)
  The MGX-AUSM/B-8T1 provides interfaces for up to eight T1 lines. You can group *N* x T1 lines to form a single, logical interface (IMA).

- ATM UNI Service Module for E1 (MGX-AUSM/B-8E1)
  The MGX-AUSM/B-8E1 provides interfaces for up to eight E1 lines. You can group *N* x E1 lines to form a single, logical interface (IMA).

- Circuit Emulation Service Module for T1 (AX-CESM-8T1)
  The AX-CESM-8T1 provides interfaces for up to eight T1 lines, each of which is a 1.544 Mbps structured or unstructured synchronous data stream.

- Circuit Emulation Service Module for E1 (AX-CESM-8E1)
  The AX-CESM-8E1 provides interfaces for up to eight E1 lines, each of which is a 2.048-Mbps structured or unstructured synchronous data stream.

- Route Processor Module (RPM)
  The RPM is a Cisco 7200-series router redesigned as a double-height card. Each RPM uses two single-height back cards. The back-card types are: single-port Fast Ethernet, four-port Ethernet, and single-port (FDDI).

- Service Resource Module (MGX-SRM-3T3/B)
  The optional MGX-SRM-3T3/B provides bit error rate testing (BERT), 1:N redundancy for T1 and E1 service modules, and a de-multiplexing function for T1 service called *bulk mode*.

- Smart Serial Interface FRSM-HS1/B 12IN1
  A multi-personality back card that supports either X.21 or V.35 interface.

MGX 8250 Management

To give you access for control purposes, the MGX 8250 switch supports high- and low-level user interfaces. You can use the Cisco WAN Manager application (formerly StrataView Plus) for connection management, the CiscoView application for hardware configuration, and a command line interface for low-level control of hardware functionality and connection control. An assortment of ports and protocols supports these user-interfaces. For communicating with the MGX 8250 switch, the control port (SLIP protocol only), the LAN (Ethernet) port, and the in-band ATM connection (feeder application only) all support access by the command line interface (CLI) via Telnet, TFTP, and SNMP protocols.

The downloadable firmware on each card determines the functionality, and you can upgrade functionality by downloading new firmware through a TFTP application on a workstation or a PC.

The current status and configuration parameters of the MGX 8250 modules reside in a Management Information Base (MIB). The firmware on each card updates the MIB as changes in status and configuration occur.

## Continued Support for the MGX 8850

The Cisco MGX 8850 wide-area edge switch supports:

- Integrated IP+ATM services

- Frame Relay

- IP-based virtual private network

- Video

- Circuit emulation services for private line replacement

It does not support PNNI, despite the fact that some CLI commands may show options for PNNI.

An illustration of the AC-powered version of the switch appears in Figure 4.

Figure 4   MGX 8850 Switch
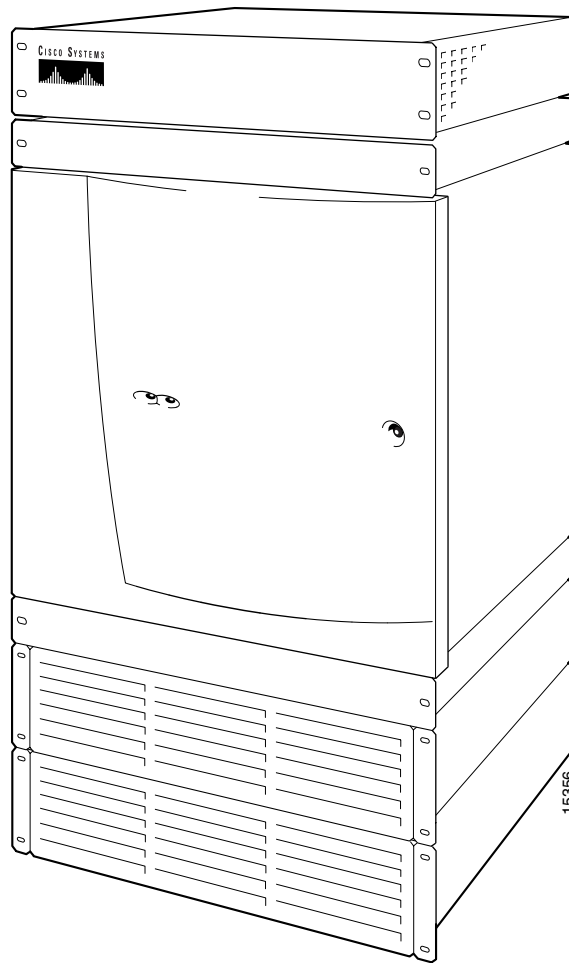
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- As a *stand-alone node*, the MGX 8850 switch concentrates narrow-band and medium-band ATM, Frame Relay, and voice into a single ATM line to at third-party switch. The MGX 8850 interface in this application is a UNI or an NNI.

For a description of how to configure the switches for a particular application, see the *MGX 8250 Switch Installation and Configuration Guide*.

The switch is also capable of supporting Cisco Multi-Protocol Label Switching (MPLS).

Universal Edge Architecture

The MGX 8850 switch can support a wide range of services over narrowband and mid-band user interfaces. It maps all the service traffic to and from ATM by using standardized interworking methods. When the MGX 8850 switch operates as a feeder, it uses a single port to communicate the aggregated traffic over an ATM interface with an MGX 8850 or BPX 8600-series switch.

The supported interfaces for user-traffic are:

- Frame Relay UNI on T3, E3, HSSI, T1, and E1 lines

- ATM UNI and FUNI and optional inverse multiplexing for ATM (IMA)

- Frame Relay to ATM network interworking and service interworking

- Circuit emulation services

The optional Service Resource Module-3T3 (MGX-SRM-3T3/B) can support up to 80 T1 interfaces over its 3 T3 lines and provide 1:N redundancy for the T1 and E1 cards.

The modular, software-based system architecture enables the switch to support new features through downloadable software upgrades or new hardware modules.

The MGX 8850 backplane supports a minimum of 1.2 Gbps of non-blocking switching up to 45 Gbps. Individual line rates range from DS0 through OC-12.

Standards-Based Conversion to ATM

The MGX 8850 switch converts all user-information into 53-byte ATM cells by using the appropriate ATM Adaptation Layer (AAL) for transport over the ATM backbone network. The individual service modules segment and reassemble (SAR) cells to eliminate system bottlenecks. The following list shows the applicable AAL for each service:

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- Frame Forwarding uses AAL5.

MGX 8850 Cards

The MGX 8850 switch supports two types of *card sets*: the *core cards* (or core modules) and *service modules*. The Processor Switching Module (PXM) and optional Service Resource Module (SRM) are *core cards*. The *service modules* provide the interface to the transport technologies of the CPE—Frame Relay, ATM, and so on. The MGX 8850 enclosure contains up to 24 service modules (I/O cards) and 4 optional Service Redundancy Modules (SRMs) provide redundancy. A card set consists of a front card with its attached daughter card and a back card (or line module). The front card contains the processing intelligence and, on the daughter card, the firmware that distinguishes the interface (OC-3, T3, E3, and so on). The back card is a simple card that provides the electrical interface for one or more lines of a particular type. The MGX 8850 front and back cards are the:

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  The MMF-4-155 is a *broadband network* module for the PXM and provides 4 SONET OC3/STM1 ATM interfaces at 155 Mbps.

- Broadband Network Module (MGX-BNC-2T3)
  The MGX-BNC-2T3 is a *broadband network* module for the PXM and provides 2 T3 ATM interfaces.

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  The MGX-FRSM-2E3/T3 provides interfaces for up to two T3 or E3 frame relay lines, each of which can support either 2 T3 lines (each at 44.736 Mbps) or 2 E3 lines (each at 34.368Mbps) FR-UNI, ATM-FUNI, or Frame Forwarding port.

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  The MGX-HS2/B supports interfaces for 2 unchannelized HSSI lines, each of which supports approximately 51 Mbps. With both lines operating, maximum throughput is 70 Mbps.

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- Frame Service Module for T1, channelized (AX-FRSM-8T1c)
  The AX-FRSM-8T1c provides interfaces for up to eight T1 lines, each of which can support up to 24 56 Kbps or N x 64 Kbps FR-UNI, ATM-FUNI, or Frame Forwarding port.

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- Frame Service Module for E1, channelized (AX-FRSM-8E1c)
  The AX-FRSM-8E1c provides interfaces for up to 8 E1 channelized frame relay lines Each line can support N x 64-Kbps or (up to 31) 56-Kbps FR-UNI, ATM-FUNI, or frame forwarding ports.

- ATM UNI Service Module for T1 (MGX-AUSM/B-8T1)
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- Circuit Emulation Service Module for T1 (AX-CESM-8T1)
  The AX-CESM-8T1 provides interfaces for up to eight T1 lines, each of which is a 1.544 Mbps structured or unstructured synchronous data stream.

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- Circuit Emulation Service Module for E1 (AX-CESM-8E1)
  The AX-CESM-8E1 provides interfaces for up to eight E1 lines, each of which is a 2.048-Mbps structured or unstructured synchronous data stream.

- Route Processor Module (RPM)
  The RPM is a Cisco 7200-series router redesigned as a double-height card. Each RPM uses two single-height back cards. The back-card types are: single-port Fast Ethernet, four-port Ethernet, and single-port (FDDI).

- Service Resource Module (MGX-SRM-3T3/B)
  The optional MGX-SRM-3T3/B provides bit error rate testing (BERT), 1:N redundancy for T1 and E1 service modules, and a de-multiplexing function for T1 service called *bulk mode*.

- Smart Serial Interface FRSM-HS1/B 12IN1
  A multi-personality back card that supports either X.21 or V.35 interface.

MGX 8850 Management

To give you access for control purposes, the MGX 8850 switch supports high and low-level user interfaces. You can use the Cisco WAN Manager application (formerly StrataView Plus) for connection management, the CiscoView application for hardware configuration, and a command line interface for low-level control of hardware functionality and connection control. An assortment of ports and protocols supports these user-interfaces. For communicating with the MGX 8850 switch, the control port (SLIP protocol only), the LAN (Ethernet) port, and the in-band ATM connection (feeder application only) all support access by the command line interface (CLI) via Telnet, TFTP, and SNMP protocols.

The downloadable firmware on each card determines the functionality, and you can upgrade functionality by downloading new firmware through a TFTP application on a workstation or a PC.

The current status and configuration parameters of the MGX 8850 modules reside in a Management Information Base (MIB). The firmware on each card updates the MIB as changes in status and configuration occur.

Features Introduced in Release 1.1.23

MGX 8850 Release 1.1.23 is a maintenance release of Release 1.1.22. In addition, it introduces the following new features:

- Dynamic subrate FRSM-T3E3.

- **Clrsmcnf/savesmcnf/restoresmcnf** feature support for VISM.

- Switchcc and softswitch performance enhancement (See Problems Fixed).

- New Database integrity check commands.

- Model # recognition for MGX8230 and MGX8250.

Release 1.1.31 MGX 8850, MGX 8230, and MGX 8250 Hardware

MGX 8850 is a 45 Gbps backplane with 1.2 Gbps switching fabric for Release 1.1.31. The same backplane is used with different switching fabric cards (1.2, 45 Gbps) to achieve scalability. MGX 8850 Release 1.1.31 hardware components and their revisions that are supported are as follows:

Front card model #	Rev #	Back card Model #	Rev #
MGX 8850 Chassis	A		
MGX 8230 Chassis	A		
MGX 8250 Chassis	A		
MGX-DC power supply	A		
MGX-AC1 power supply	A		
MGX-AC2-2 power supply	A		
PS-1200-AC power supply	A		
MGX-SRM-3T3/B	B	MGX-BNC-3T3-M	A
PXM1	H	PXM-UI	A
PXM 1-2-T3E3	H	PXM-UI	A
		MGX-BNC-2E3	A
		MGX-BNC-2E3A	A
		MGX-BNC-2T3	A
PXM 1-4-155	J	PXM-UI	A
		MGX-MMF-4-155	A
		MGX-SMFIR-4-155	A
		MGX-SMFLR-4-155	A
PXM 1-1-622	H	PXM-UI	A
		MGX-SMFIR-1-622	A
		MGX-SMFLR-1-622	A
MGX-RPM 64M/B	A	MGX-RJ45-FE	A
		MGX-MMF-FE	A
		MGX-RJ45-4E	A
		MGX-MMF-FDDI	A
		MGX-SMF-FDDI	A
		MGX-MMF-FDDI/FD	A
		MGX-SMF-FDDI/FD	A

Front card model #	Rev #	Back card Model #	Rev #
MGX RPM-128M/B	A	MGX-RJ45-FE	A
		MGX-MMF-FE	A
		MGX-RJ45-4E	A
		MGX-MMF-FDDI	A
		MGX-SMF-FDDI	A
		MGX-MMF-FDDI/FD	A
		MGX-SMF-FDDI/FD	A
AX-CESM-8E1	B	AX-SMB-8E1	B
		AX-RJ48-8E1	C
		AX-R-SMB-8E1	B
		AX-R-RJ48-8E1	B
AX-CESM-8T1	B	AX-RJ48-8T1	B
		AX-R-RJ48-8T1	B
MGX-AUSM-8E1/B	A	AX-SMB-8E1	B
		AX-RJ48-8E1	C
		AX-R-SMB-8E1	B
		AX-R-RJ48-8E1	B
MGX-AUSM-8T1/B	A	AX-RJ48-8T1	B
		AX-R-RJ48-8T1	B
AX-FRSM-8E1	B	AX-SMB-8E1	B
		AX-RJ48-8E1	C
		AX-R-SMB-8E1	B
		AX-R-RJ48-8E1	B
MGX-VISM-8T1	B	AX-RJ48-8T1	B
		AX-R-RJ48-8T1	B
MGX-VISM-8E1	B	AX-SMB-8E1	B
		AX-RJ48-8E1	C
		AX-R-SMB-8E1	B
		AX-R-RJ48-8E1	B
AX-FRSM-8E1-C	B	AX-SMB-8E1	B
		AX-RJ48-8E1	C
		AX-R-SMB-8E1	B
		AX-R-RJ48-8E1	B
AX-FRSM-8T1	B	AX-RJ48-8T1	B
		AX-R-RJ48-8T1	B

Front card model #	Rev #	Back card Model #	Rev #
AX-FRSM-8T1-C	B	AX-RJ48-8T1	B
		AX-R-RJ48-8T1	B
MGX-FRSM-HS2/B	B	MGX-SCSCI2-2HSSI/B	A
MGX-FRSM-2CT3	C	MGX-BNC-2T3	A
MGX-FRSM-2T3E3	C	MGX-BNC-2E3	A
		MGX-BNC-2E3A	A
MGX-FRSM-HS1/B	A	MGX-12IN1-4S	A
MGX-CESM-T3E3	C	MGX-BNC-2T3	A
		MGX-BNC-2E3	A
		MGX-BNC-2E3A	A

Support for embedded Cisco IOS router (Router Processor Module - RPM)

- The RPM is an embedded Cisco IOS router with integrated ATM Deluxe Port Adapter and Cellbus Controller ASIC for internal connections to the backplane Cellbus. A number of port adaptors (back cards) can be configured with the RPM front card (FDDI, Ethernet, Fast Ethernet).

    - 4E Adapter

    - FE Adapter (UTP, MMF)

    - FDDI Adapter (full duplex, half duplex, SMF, MMF)

MGX 8220 Hardware Not Supported on Release 1.1.31 of the MGX 8850

The following cards are not supported in Release 1.1.31:

- AX-SRM-T1E1

- AX-SMB-8E1

- AX-R-SMD-8E1

- AX-RJ48-8E1

- AX-R-RJ48-8E1

MGX 8220 Hardware that has been superseded on the MGX 8850 by MGX 8850-specific Hardware

- AX-SRM-3T3-A and AX-BNC-3T3 card set

    The MGX-SRM-3T3-C front card replaces the original AX-SRM-3T3-A front card and the MGX-BNC-3T3 back card replaces the original AX-BNC-3T3 back card. This change allows the use of slots 9, 10, 25, and 26 for 1:n redundancy and BERT in the MGX 8850 chassis. Both the AX-SRM-3T3-A/AX-BNC-3T3 card set and the MGX-SRM-3T3-C/MGX-BNC-3T3 card set are supported on the MGX 8220.

    New card should have enabled use of bulk distribution in slots 9 and 10. 1:N redundancy should have been supported in those slots with the model A card.

- AX-SCSI2-2HSSI

   Superseded by the MGX-SCSCI2-2HSSI/B, which works with the MGX-FRSM-HS2 front card. A V.35 interface is supported on the MGX-FRSM-HS1/B in this release.

- AX-IMATM

   Superseded by MGX-AUSM-8T1/B and MGX-AUSM-8E1/B

- AX-IMATM-B

   Superseded by MGX-AUSM-8T1/B and MGX-AUSM-8E1/B

MGX 8220 Hardware Not Supported on the MGX 8850

- AX-FRASM-8T1
- All four port MGX 8820 cards
- AX-AUSM-8T1
- AX-AUSM-8E1

Software Platform Features

MGX 8850 provides high speed native ATM interfaces which can be configured as ATM UNI ports or trunks.

Support for 1:N and 1:1 Service Module Redundancy, as indicated in the following table:

Front Card Model #	Redundancy Supported
MGX-RPM-64M/B	No redundancy
MGX-RPM-128M/B	No redundancy
MGX-AUSM-8E1/B	1:N redundancy
MGX-AUSM-8T1/B	1:N redundancy
AX-CESM-8E1	1:N redundancy
AX-CESM-8T1	1:N redundancy
MGX-CESM-2T3E3	1:1 redundancy
AX-FRSM-8E1	1:N redundancy
AX-FRSM-8E1-C	1:N redundancy
AX-FRSM-8T1	1:N redundancy
AX-FRSM-8T1-C	1:N redundancy
MGX-FRSM-HS2	1:1 redundancy
MGX-FRSM-2CT3	1:1 redundancy
MGX-FRSM-2T3E3	1:1 redundancy
MGX-FRSM-HS1/B	No redundancy
MGX-T3E3	1:1 redundancy

Front Card Model #	Redundancy Supported
MGX-VISM-8T1	1:N redundancy (bulk mode support for T1 lines only)
MGX-VISM-8E1	1:N redundancy (bulk mode support for T1 lines only)

Support for Bulk Distribution using SRM-3T3-C card.

Service module and PXM upgrades.

Features Not Supported in this Release

- RPM 1:1 redundancy
- RPM statistics
- Layer 2 support as an autoroute routing node
- SRM T1E1
- IPX endpoints with the MGX 8850
- E1 users circuits
- T1/CAS Backhaul
- Interworking with SGCP 1.1+ compliant call agent (Bellcore CA SM1.5)
- Interworking with Cisco 3810
- G.726 and G.729 voice compression
- G729b voice activity detection
- Voice Circuit Admission Control (CAC)
- Bearer continuity testing
- Ring back tone on Ground Start
- Separate PVCs for signaling and bearer channels

Note Code for the above features may be included in the VISM code image. However, no specific mechanism has been included to prevent the use of these unsupported features. If the user attempts to use these unsupported features, there is no guarantee that the features will operate correctly.

Major Network Management Features

- CWM Connection Management
- CiscoView support for equipment management
- CLI support
- Service MIB support
- Connection Management for connections to RPM with associated CM GUI support.
- Topology subsystem enhancements to support the MGX 8850 as a stand-alone switch.

- Statistics

For more details refer to the CWM Release 9.2.07 release notes part number 78-6659-07.

Connection Limits

- Up to 4000 connections per VHS card.
- Up to 1000 connections per 8 port card (up to 898 per port with LMI enabled)
- Up to 200 connections per HS1 card
- Up to 12000 connections per shelf

SNMP MIB

The SNMP MGX 8850 MIB is being provided with the delivery of Release 1.1.31 of the MGX 8850 software on CCO. The MIB is in standard ASN.1 format and is located in the same directory within CCO. These files may be compiled with most standards-based MIB compilers. For changes in this MIB from release 1.1.25, please refer to the MIB release notes on CCO. The following files are required:

- BASIS-GENERIC-MIB.my
- BASIS-MIB.my
- CISCO-WAN-AXIPOP-MIB.my
- BASIS-RAS-DISK-MIB.my
- BASIS-SHELF-MIB.my
- CISCO-WAN-MG-MIB.my
- cardGeneric1.my
- errStatus.my
- CISCO-MGX82XX-DSX1-MIB.my
- GENERICOBJECT-MIB.my
- CISCO-MGX82XX-DSX3-MIB.my
- RTM-MIB.my
- CISCO-MGX82XX-SONET-MIB.my
- vismLapd.my
- CISCO-MGX82XX-TRAPS-MIB.my
- vismRudpSession.my

Notes & Cautions

In Release 1.1.31, the default UPC connection parameters on the PXM have changed. The default PCR is 50 cps, and the default for policing is "enabled." These settings are insufficient for running RPM ISIS protocol over the connection, and with such settings, the ISIS protocol will fail. The PCR value needs to be increased, depending upon the number of interfaces configured for ISIS on the RPM. CLI modification and changes in this release.

Depending upon your connection type, you can use the following Command Line Interface commands to modify the PCR parameter.

- **cnfupccbr**
- **cnfupcvbr**
- **cnfupcabr**
- **cnfupcubr**

ForeSight and Standard ABR Coexistence Guidelines

Foresight is similar to the rate based ABR control system in TM 4.0, in that they both use Rate up and Rate down messages sent to the source of the connection to control the rate a connection runs at, based on congestion within the switches along that connections path. Both systems use Resource management (RM) cells to pass these messages. There are differences between the two systems that need to be considered.

RM Cell Generation

ForeSight is a destination driven congestion notification mechanism. This means the destination switch is responsible for generating the RM cells, which defaults to every 100 ms. This means that any rate modifications at the source end happen approximately every 100 ms, and the time delay between the actual congestion at the destination and the source getting to know about it could be 100ms.

In standard ABR a source generates FRM cells every (nRM) cell intervals, where n is configurable. These are used to pass congestion information along to the destination switch, which then uses this information to generate BRM (Backward RM cells) back to the source A further consideration is that the actual user data flow will be lower for an equivalent rate due to the additional RM cells. Therefore, the more traffic being generated on a connection at any one time, the faster the feedback will be to the source.

There is also a TRM parameter which states that, if no RM cells have been generated after this time has passed then one will automatically be sent. Depending upon the speed it is running at, an ABR connection may therefore react faster or slower to congestion than the equivalent Foresight connection. (e.g. if an ABR connection runs at 100 cells per second, and nRM is 32, then approximately three RM cells will be generated per second, or once every 300 msecs. If it runs at 1000 cps then an RM cell would be generated approximately every 30 msecs. In both cases, the equivalent Foresight connection would generate an RM cell every 100 msec)

Reaction to feedback messages – Rate Up

In ForeSight, in response to a Rate Up cell from the destination, the source increases its rate by a percentage of the MIR for that connection. If we call this percentage the rate increase percentage (RIP), then RIP is configurable at the card level and by default it is 10%. In the case where MIR is low, the ForeSight rate increase will be slow as it has to increase as a percentage of MIR. (rather than CIR)

On a standard ABR connection, in the event of available bandwidth (no congestion) the source increases its rate by a factor of (RIF*PCR). This means the rate increase step sizes are much bigger than for ForeSight for larger values of RIF (RIF has a range of 1/2, 1/4,....,1/32768). If RIF is not configured properly then standard ABR will ramp up its rate much faster and to a higher value. This is aided by the fact that the step sizes are bigger and the step frequency is higher in comparison with ForeSight.

Reaction to feedback messages – Rate Down

In ForeSight on receiving a Rate Down cell from the remote end, the source reduces its current rate (actual cell rate) by 13%. We will call this the rate decrease percentage (RDP). RDP is configurable at the card level.

In standard ABR, rate decrease is by an amount (RDF*ACR). Currently the default value of RDF is 1/16 (i.e 6.25%). This means when this connection co-exists with ForeSight connections, in the event of congestion ForeSight connection reduces its rate by 13% whereas standard ABR connection reduces its rate by only 6.25%. Therefore, in the case of co-existence, if we need to approximate the same behavior across the two connection types then RDF should be changed to 1/8, so that both connections ramp down by the same amount, i.e. 13%.

Fast-Down

In ForeSight if the destination egress port drops any data due to congestion then the destination sends a Fast Rate Down cell. Also, if a frame cannot be reassembled at the egress due to a lost cell somewhere in the network, a Fast-down will be generated. On reception of Fast Rate Down the source reduces its current rate by 50% (this is again a card level configurable parameter).

Standard ABR does not distinguish between drops and the ECN/EFCI threshold being exceeded. This means that, in case of drops in the egress port queue, a standard ABR connection rate reduces by only (RDF*ACR) but the ForeSight connection rate reduces by (ACR*0.5). Therefore, in the case of co-existence, if we need to approximate the same behavior across the two connection types then Fast down could effectively be disabled by configuring the reaction to be 13% rate down instead of 50%.

Guidelines

The two systems will work together within the network, but as the above description suggests, if the differences between the two systems are not taken into consideration, then a Foresight connection and an ABR connection with the same configuration parameters will not behave the same way within the network.

ABR and Foresight provide a mechanism for distributing excess bandwidth between connections over and above the minimum rate, therefore if these guidelines are not taken into consideration then the allocation of this excess bandwidth may be biased towards connections running one of these algorithms over connections running the other.

If this is a requirement, the following guidelines may be useful, assuming ForeSight is set to defaults except for Fast_Rate_down which is set for 13%.

1. Nrm: Nrm needs to be set at a value whereby the approximate RM cell generation is 100 milliseconds, to match that of Foresight. This is a calculation based on the expected average, or sustained, cell rate of the connection. However, if the (potential) fast-down messages from Foresight are left to equate to 50% rate down, then an estimate of how often this may occur needs to be made and factored into the equation. If the connection receives fast-down messages then this would make the Foresight connection react faster than the equivalent ABR connection to congestion. To compensate for this, Nrm needs to be set at a value of less than 100 msecs, a suggested value to aim for is between 60-70 secs (this would be approximate as n is configurable in steps of 2**n). This would mean that, in the event of congestion, the ABR connection would start to react faster.

2. RIF: Rate increase factor is a factor of PCR in ABR and MCR in Foresight. The default RIF for Foresight is MCR*.10. Therefore, RIF should be configured so that (PCR*RIF) approximates MCR*0.1. If Fast-Down is still effectively enabled, then PCR*RIF should approximate MCR*0.62 to compensate.

3. RDF: (Rate Decrease Factor) RDF should be 1/8. This approximates to 13% that Foresight uses.

The following worked examples may help explain this further

Assume a network is currently running Foresight with default parameters, and supports the following four connection type, where CIR = MIR, PIR = port speed and QIR = PIR:

T1 Port Speed   64K CIR

Example:

CIR = MIR = 64K
PIR = QIR = port speed = 1544
Fastdown = 13%

(The calculation used to convert between Frame based parameters (CIR, PIR etc) and their equivalent cell based parameters is FR_param *3/800. This allows for cell overheads etc based on frame sizes of 100 octets.)

CIR = MIR = (64000*3/800) = 240 cps
PIR = QIR = (1544 *3/800) = 5790 cps

Foresight	ABR
Rate-up equals (240*.1) = 24 cps	RIF equals x where (1590/x) = 24 cps
	X needs to be approx 200
	RIF equals 256 (nearest factor of 2)
RDF equals 13%	RDF = 1/8
Nrm equals 100 msecs	Nrm equals 32

RM cells will be generated somewhere between 6 (5790 cps approx equal to 32 cells per 6 msecs) and 133 msecs (240 cps approx equal to 32 cells every 133 msecs) depending on ACR

CLI modification and changes in this release

dspfail <slotno>

 shows all failed connections per slot basis

dspfabit <slotno>

 shows all A-bit failed connections per slot basis

dsplmiloop

shows if lmi loop is present

chkslotcon <slotno>

checks database consistency per slot basis

chkportcon <slotno> <portno>

checks database consistency per slot basis

Chkcon <slot.port.vpi.vci>

checks database consistency per connection basis

dspbecnt

displays bit error count

CLI modification and changes in previous releases

- A few modifications have been made to the IP configuration commands. (cnfifip and bootChange) See CLI Change section:
  - the cnfifip command has an additional option to up/down one of the ip interfaces (ethernet, slip, atm) dynamically. No reboot is required to up/down interface. Turned down interfaces are persistent across resets.
  - the cnfifip command is now an active only command
  - **dspifip** will now display the state of each interface and indicate if it is up or down.
  - bootChange now checks the ip values set and will complain if it detects incorrect values.

- bootChange values are sent and updated on standby card automatically. Both bootlines are kept in sync.

- bootChange command is now an active only command from CLI.

- **cnfenetgw** command has been added to establish the ethernet gateway route permanently. (command is active only)

- **dspenetgw** command will display ethernet gateway address set.

- A shelf can now either have one or two ip addresses for ethernet. The shelf ip address set using cnfifip will always be the active card ip address. The bootChange ip address will be used for the standby card and backup boot if it is different than the shelf ip address. If the bootChange ip address is same as the shelf ip address then the ethernet interface on the standby card or in backup boot will be left in the down state.

- If the "255.255.255.252" netmask is used for the SLIP interface, the PXM will automatically add host route for its peer whenever the interface is turned ON

- If the FW fails to reach the CLI prompt or comes up in backup boot, the ethernet interface could be down if the shelf ip address and boot change address are the same. In this case the bootChange command could be used from the shell to set another ip address and then usrEnetEnable should be called to activate that address. (see example)

- Commands and Examples

- cnfifip:

  Syntax:

  cnfifip "Interface IPaddr [NetMask [BroadcastAddr]]"

  or cnfifip "Interface Flag"

  Interface -- 26/28/37 (26:Ethernet 28:SLIP 37:ATM)

  or Ethernet/SLIP/ATM

  IP_Addr -- <n>.<n>.<n>.<n> (<n>: integer 0..255)

  Net_Mask -- <n>.<n>.<n>.<n> (<n>: integer 0..255)

  BroadcastAddr -- <n>.<n>.<n>.<n>

  (<n>: integer 0..255)

  Flag -- a string "UP" or "DOWN"

  Example:

  > cnfifip atm 192.9.200.1 255.255.255.128

  This configures the ATM interface and brings it UP.

  > cnfifip atm up

  This will bring up the ATM interface with current information in database.

  > cnfifip atm down

  This will bring down the ATM interface and preserve the information in the database.

- **delifip**

  Syntax:

  delifip Interface

  Interface -- 26/28/37 (26:Ethernet 28:SLIP 37:ATM) or Ethernet/SLIP/ATM

Example:

> **delifip** 37

This will bring down the ATM interface and delete the information in the database

– **dspifip**:

Example:

```
> dspifip
Interface       Flag  IP Address      Subnetmask      Broadcast Addr
--------------  ----  --------------  --------------  --------------
Ethernet/lnPci0 UP    172.29.37.77    255.255.255.0   172.29.37.255
SLIP/sl0        DOWN  172.29.36.253   255.255.255.252 (N/A)
ATM/atm0        UP    192.9.200.1     255.255.255.128 0.0.0.0
```

This command shows the current condition of all 3 interfaces. The data shown for the SLIP interface will apply when it is turned UP with, say, "cnfifip slip on".

– **cnfenetgw**

Syntax:

cnfenetgw IPAddr

Example:

```
> cnfenetgw 172.29.37.1
```
This command will set the default gateway and add the appropriate routes necessary to it.

– **dspenetgw**

Example:

```
> dspenetgw
  Enet Gateway:  172.29.37.1
```
– bootChange:

Several lines are essential for the network to function:

- boot device   : lnPci

(The only Ethernet interface)

- inet on ethernet (e) : 172.29.37.40:ffffff00

(IP address and subnetmask)

- gateway inet (g)   : 172.29.37.1

(Default Ethernet gateway)

The PXM will try to correct bad entries when it boots up. This information will be copied to the standby card and if different than the shelf ip address it will up the interface on the standby with the bootChange ip address. The shellconn version of this command only updates the local bootline values and is not copied to the other card.

– usrEnetEnable:

Used to bring up the Ethernet interface when CLI prompt is not there or in backup boot if it's not enabled

The following commands which are related to FRSM-2CT3 line level loopbacks.

• Remote Loopback at DS3:-

This loopback can be configured in FRSM-2CT3 using the following commands.

adddds3rmtloop <lineno>

xcnfln -ds3 <lineno> -e 3 -lpb 2

- Local Loopback at DS3:-

  This loopback can be configured in FRSM-2CT3 using the following commands.

  adddds3loop <lineno>

  xcnfln -ds3 <lineno> -e 3 -lpb 3

  DS3 Loopback status will be displayed with following commands:

  dspds3ln <lineno>

  dspalm -ds3 <lineno>

  dspalms -ds3

  FEAC codes monitoring and Inband loopbacks for DS3 are not supported in FRSM-2CT3

- Remote Loopback at DS1:-

  This loopback can be configured in FRSM-2CT3 using the following commands:

  cnfbert (from PXM)

  addrmtloop <lineno>

  xcnfln -ds1 <lineno> -e 3 -lpb 2

- Local Loopback at DS1:-

  This loopback can be configured in FRSM-2CT3 using the following commands:

  cnfbert (from PXM)

  addlnloop <lineno>

  xcnfln -ds1 <lineno> -e 3 -lpb 3

  DS1 Loopback status will be displayed with following commands:

  dspln <lineno>

  dspalm -ds1 <lineno>

  dspalms -ds1

- Inband loopback for DS1 are supported only using bert diagnostics. The status of inband loopbacks are displayed with **dspalm** and **dspalms** commands. It is not displayed with **dspln** command. Before configuring the DS1 line in Inband loopback from bert diagnostics, user should use following command to enable code detection on FRSM-2CT3:

  xcnfln -ds1 <lineno> -e 3 -detect 2

- Ctrl-X has been disabled from resetting PXM on the firmware.

- This release has the fix to meet the Bellcore jitter specs. The way to fix the jitter problem is having FW to disable the force_signal_detect_enable register and let the optical receiver to control the signal-detect input. The OC3 transmit data jitter now measured is below 0.10UI.

- Due to the concerns about the too frequent message exchanging between the two PXM cards, the current command **dspbecnt** is limited by following:

  - **dspbecnt** only displays the bit error counts after the last APS switch, i.e. every APS switch will clear the counts for both working and protection line.

  - **dspbecnt** displays the active line bit error counts correctly. The bit error counts for non-active line is inaccurate and requires a state change (since the last state) in the protection line for display of any bit error counts.

  - A state change indicates a change of line status, such as from SD to SF.

Node Related

At most one BERT test can be performed per shelf at any point in time. BERT can only be activated through the CLI.

Do not execute the **restoreallcnf** command in the middle of the installation process. If you follow the following steps:

Step 1	**saveallcnf**
Step 2	**restoreallcnf**
Step 3	install
Step 4	**newrev**

The **dsplns** command will display a line as disabled, but you cannot run an **addln** command. Do not execute the **restoreallcnf** command until the install and **newrev** commands have completed.

The correct order for the restore procedure is:

Step 1	**saveallcnf**
Step 2	install
Step 3	**newrev**
Step 4	**restoreallcnf**

(for more information, refer to CSCdm57683)

Addln should be issued before issuing **addapsln**.

The following line and alarm related commands have been modified to allow slots 8, 16 and 32 as valid arguments if PXM at slot 8 is active:

- **addln**
- **delln**
- **cnfln**

- **dspln**
- **dsplns**
- **addlnloop**
- **dellnloop**
- **cnfsrmclksrc**
- **dspsrmclksrc**
- **dspalm**
- **dspalms**
- **dspalmcnt**
- **clralmcnt**
- **clralm**
- **dspalmcnf**

Full SRM redundancy requires redundant SRMs. There must be SRMs in BOTH slot 15 and 16 to ensure service module redundancy for the upper shelf AND SRMs in BOTH slot 31 and 32 to ensure service module redundancy for the lower shelf. Lack of the second SRM in either shelf may result in mismatch conditions.

For service module redundancy support, if the active service module is physically removed from the slot then a switchcc would cause the now active service module to be inaccessible. The workaround is to make sure that both the active and standby cards are physically present in their slots. If the active card indeed needs to be removed then at shellconn type: pmmStartScmPolling(slotnumber) after the switchcc.

If you are moving service modules from an existing MGX 8220 platform to the MGX 8850, the MGX 8220 service modules (AX-FRSM-8T1/E1, and AX-CESM-8T1/E1) need to have the boot flash upgraded to MGX 8220 Release 5.0.00 common boot code (1.0.01 version) before they can be plugged in to the MGX 8850 chassis. All MGX-8220 service module versions that use release 4.0.xx of boot code and earlier are not supported in the MGX 8850.

If loading of the correct common boot code image is required then it will have to be performed on an MGX 8220 chassis, and cannot be performed on an MGX 8850 chassis. Please refer to the procedure below, which is also outlined in the *Cisco MGX 8850 Installation and Configuration* publication on the documentation CD.

Step 1 Use ftp to port the Axis 5 common boot image for the service module to a workstation

Step 2 Plug in the card into the MGX 8220 shelf

Step 3 Download the proper MGX 8220 shelf release 5.0 boot image using the following commands from the workstation:

```
tftp <ip address of the MGX 8220 shelf >
bin
put <boot filename> AXIS_SM_1_<slot#>.BOOT
```

Insure that tftp downloaded the appropriate boot code by verifying the flash checksums.

Step 1 Log into the shelf.

```
cc <slot #>'
```

Step 2 Verify that the two checksums are the same.

```
chkflash'
```

If NOT, repeat the process until they are the same. If they are the same, then you can safely remove the card. At this point the service module can be used in the MGX 8850 shelf.

⚠️
Caution If the checksums are not the same when you remove the service module then the service module will not boot when it is plugged in and the service module will have to be returned using the Cisco Returned Material Authorization process.

Whenever an MGX 8850 is added as a feeder to a BPX 8600, SWSW automatically programs a channel with a VPI.VCI of 3.8 for use as the IP Relay channel. IP Relay is used to send IP data between nodes via the network handler; allowing every node in the domain to be directly addressable via IP addressing and CWM workstations to communicate with every node (especially feeders) using TELNET, SNMP and CWM protocols. If the user tries to add a channel with a VPI.VCI of 3.8, the BPX 8600 does not prevent the user channel from being added, but the MGX 8850 rejects it. To delete the added channel on the BPX 8600, and to get IP relay working you need to reset the BXM card.

In addition to clearing all the configuration, **clrallcnf** clears the network IP addresses. IP addresses and netmasks stay the same (**dspifip**). However, it's recommended by engineering to reconfigure them using the cnfifip command. Network IP is gone (**dspnwip**), and must be reconfigured using the cnfifip command. Refer to the entry on cnfifip in the *Cisco MGX 8850 Command Reference* publication on the documentation CD for syntax.

- The **copychan** command does not work on the MGX 8850

A minimum of two and up to four IP addresses are needed to be configured for MGX 8850 (one or more of the following: ethernet, ATM, SLIP) and the boot IP address. The user should use "bootChange" to set up IP gateway when the PXM card is just installed. The IP default gateway should be on the same subnet as the PXM board. Use the bootChange command to set correct IP address, netmask, and default gateway.

Do not install a Y cable on the UIA CP port for PXMs. If you do both serial ports will be enabled and you will not be able to communicate at all with the shelf through the console ports. If after switchcc standby PXM loses the downlevel port then it is due to a downlevel Beta version of UIA backcard that were shipped during field-trial only. Upgrading the UIA back card to the latest version should fix this problem.

To configure the external clock source, use the interface label 7.35. Do not use 0.33 or 7.33

There are also *routeShow/routeAdd/routeDelete* commands for modifying routing tables.

You must reboot your PXM after each modification with "*bootChange*" for it to take effect. Also make sure the subnet mask is 255.255.0.2

```
. bootChange
  - Only enter the ethernet IP address, netmask and default gateway.
  - Type "." to erase incorrect entries.

    tigers.1.7.PXM.a > bootChange

    '.' = clear field;  '-' = go to previous field;  ^D = quit

    boot device         :lnPci
    processor number    :0
    host name           :C               <-- Please put "C".
    file name           :
    inet on ethernet (e) :172.29.37.40:ffff00  <-- Ethernet IP Addr/Netmask
    inet on backplane (b):
    host inet (h)       :
    gateway inet (g)    :172.29.37.1   <-- Default Gateway
    user (u)            :
    ftp password (pw) (blank = use rsh):
    flags (f)           :0x0
    target name (tn)    :
    startup script (s)  :
    other (o)           :

  - Type in reboot, after this the command "" will work:

    tigers.1.7.PXM.a >  171.71.54.53 1
    171.71.54.53 is alive
```

Configuration save and restore is only supported through the CLI (CWM does not support configuration save and restore).- Service module upgrades error handling is not provided. If the user skips any of the steps during upgrade or if a power failure happens in the middle of the upgrade, results will be unpredictable. See the Special Installation and Upgrade requirements section for service module upgrades. To recover from procedural errors contact your TAC support personnel.

The MGX 8850 supports 15 simultaneous telnet sessions and 10 tftp sessions.

You must use the following Y cables for FRSM-HS2 and FRSM-CT3 redundancy as specified in the Product Orderability Matrix (Straight Cable: 72-0710-01, Crossover Cable: 72-1265-01, Straight Y-cable: FRSM-HS2: CAB-SCSI2-Y, FRSM-CT3: CAB-T3E3-Y). Other cables are not supported.

Y cable redundancy for FRSM-HS2, FRSM-2CT3, FRSM-2T3, FRSM-2E3 is only supported for adjacent slots.

Statistics are not supported for the RPM.

There is no need to issue the **syncdisk** and **shutdisk** commands before removing the PXMs. The system quiesces the disk by detecting the removal of the PXM board and flushes the write buffers to the disk and *puts the PXM in sleep mode.* This disables any further hard disk access since it locks the actuator. *When the card is reinserted the PXM automatically comes out of sleep mode.*

Syntax of **addlink** command has changed as follows:

New Syntax:

Syntax: **addlink** <T3LineNum> <T1Slot> <NumberOfT1s> <TargetSlotNum>

       <TargetSlotLineNum>

    <T3LineNum> where = Slot.Line

        Slot = 15,31

Line = 1 - 3

<T1Slot> where T1Slot = 1 - 28

<NumberOfT1s> where NumberOfT1s = 1-8

<TargetSlotNum> where TargetSlotNum = 1-6|11-14|17-22|27-30

<TargetSlotLineNum> where TargetSlotLineNum = 1-8

PAR command **cnfnwip** has been disabled in this release, please use "cnfifip" instead.

If you lose power, or remove the on-line PXM you lose the broadcast address. Use the "cnfifip" command to configure the broadcast address. To re-define your ATM address and IP Address that are in the same subnet, you have to change the ATM address to a temporary address not in the same subnet, then add back your IP Address with the original Broadcast address, then go back and correct your ATM address.

Cooling and Power limitations: Customer should be aware of the need for extra power supplies and fans beyond certain limitations. A single fan tray will support all configurations that draw between 1200 and 1400 watts. For power requirements, the MGX 8850 requires a minimum of one power supply per line cord to support the power requirement for 5 cards.

	0-5Cards	6-10 Cards	11 and Above
Single Line Cord (N+1):	2	3	4
Dual Line Cord (2N):	2	4	6

This is based on an estimated worst case power requirement of 190W plus margin per card slot.

CONNECTION MANAGEMENT RELATED

The name of the node cannot be changed if there are PVCs. The node name must be changed from the default value before adding connections, since it cannot be changed later. Use the **cnfname** command to change the node name.

Only one feeder trunk can be configured. No BNI trunk to MGX 8850 as a feeder is supported.

The slave end of a connection must be added first.

The slave end cannot be deleted and re-added back by itself. If you delete the slave end, the entire connection must be completely torn down and re-added back. If the slave end of the connection is deleted and re-added back by itself, then unpredictable results will happen.

For user connections, VCI 3 and VCI 4 on every VPI are reserved for VPC OAMs.

The actual number of feeder connections you can provision on the PXM is always two less than you have configured. (the **dsprscprtns** command shows max connections as 32767, but you can only use 32767 - 2 = 32765). One connection is used for LMI and another one for IP relay.

There is no error handling detection while provisioning through the CLI. Invalid endpoints and unsupported connection types (such as connections between FRSM-CESM ports or connections between structured and unstructured connections) are permitted using the CLI. The user should not configure these connections.

The sum of CIR of all channels of a port can be greater than port speed as long as CAC is disabled. However, it is not acceptable for one channel's CIR to be greater then port speed even if CAC is disabled. Two channels added up can exceed port speed. This means you cannot oversubscribe a port if only one channel is configured.

When trying to add a port on DS0 slot 32 of a CESM-8E1 line using an SNMP set or the CiscoView Equipment Manager, The SNMP agent in CESM will time out, without adding the port. The SNMP libraries treat the 32 bit DS0 slotmap (cesPortDs0ConfigBitMap) as an integer. The value for the last DS0 is treated as the sign value. This causes a corruption in the packet coming to the agent. As the agent does not receive a complete SNMP packet, it does not respond and times out. Use the command line interface to add a port on DS0 slot 32 of a CESM-8E1 line.

The **cnfport** command does not allow VPI ranges to be reduced. The **cnfport** command only allows the VPI range to expand. The correct sequence is to delete all connections on the partitions, delete the partitions, delete the port and add the port with new VPI range.

On an FRSM-2CT3, one can add 128 ports on a group of 14 T1 lines as indicated below.

    lines 1 to 14 -- 128 ports   (A)

    lines 15 to 28 -- 128 ports   (B)

    lines 29 to 42 -- 128 ports   (C)

    lines 43 to 56 -- 128 ports   (D)

So, to add 256 ports on one T3 one should add 128 ports on the first 14 T1 lines and the remaining 128 on the next 14 T1 lines.

Note that (A) and (D) are connected to 1st FREEDM and (B) and (C) are connected to the 2nd FREEDM. Each FREEDM supports only 128 ports. If 128 ports are added on one T3 as in (A), then there cannot be any more ports as in (D). The 129th port should be on lines 15 to 42 (as in B or C).

If the user adds a connection between an RPM and a PXM and then deletes the connection the RPM shows no connection but the PXM still has the connection. The MGX was designed and implemented in such a way that only the connections that have the master end show up on PXM (by **dspcons** command). Consider these three connections:

        c1 - has only slave end,

        c2 - has only master end,

        c3 - has both master and slave end.

When using the **dspcons** command, c2 & c3 will be displayed, NOT c1. The connection will not show up once the master end (PXM) is deleted. Recommendation: When adding a connection, if one end of the connection is PXM, always configure the PXM side to be the slave. Thus when deleting the RPM side, which is the master, the connection will not show up on the PXM. However keep in mind that the slave end (PXM) still exists. This also provides a side benefit. When a connection exists with only the slave side, no bandwidth is occupied. The bandwidth is reserved only if the master end exists (with or without the slave).

The MGX-FRSM-HS1/B is capable of supporting a total throughput (card-level) of 16 Mbps. However, it is possible to configure 4 lines each supporting up to 8 Mbps, thus oversubscribing the card. This has been raised in bug #CSCdm71476 and a restriction/warning will be added in a future release.

Addlnloop on an FRSM-HS1/B line works only when there is a (valid) cable plugged in to the backcard on that line. This is a hardware limitation on the backcard and has been mentioned in the Release-notes in bug# CSCdm44993

RPM Related

The RPM is a NPE-150 based router card capable of sustaining 150,000 pps. With RPM versions earlier than 12.O.7T1, some limitations in Inter-Process Communication between the can cause the PXM to declare that the RPM has Failed, when the RPM is at high loads. To avoid this, with RPM software releases earlier than 12.0.7T1, throughput is limited to 62,000 pps, and it is recommended that MPLS configurations are limited to 100 interfaces.

With RPM software releases from 12.0.7T1, those limitations are removed.

In a separate limitation, the number of directly-connected OSPF networks supported by an RPM is currently limited to 27. This means that any or all of the 700 subinterfaces supported by the RPM can run OSPF, but the number of distinct OSPF networks supported is limited to 27. (A work-around is available and is discussed below.) The limit of 27 arises because of the overheads of supporting separate link-state databases for separate networks. In an application where the RPM is a Provider Edge Router in an MPLS Virtual Private Network service, a much better solution in any case is to use a distance-vector routing protocol between the customer routers and the RPM. A distance-vector routing protocol provides exactly the information required for this application: reachability information, and not link-state information. The distance-vector routing protocols supported by the RPM are BGP, RIP v1 and RIP v2, as well as static routing. With RPM software releases from 12.0.7T1, distance-vector routing protocols can be used with as many different networks as subinterfaces. Currently, the RPM supports 700 subinterfaces, and hence 700 networks with BGP, RIP or static routing.

Note that if the RPM is acting as a Provider Edge Router in an MPLS Virtual Private Network service, and even if OSPF is running in a customer network, it is not necessary to run OSPF between the customer router and the RPM. If the customer edge devices run Cisco IOS, they can redistribute OSPF routing information into RIP using the IOS commands redistribute rip in the OSPF configuration, and redistribute ospf in the RIP configuration. Similar configurations are possible for BGP. Using such configurations, the RPM with IOS software release 12.0.7T1 supports 700 customer networks which use OSPF internally. (For more information on readvertisement, see the "Configuring IP Routing Protocol-Independent Features" chapter in the "Cisco IOS Release 12.0 Network Protocols Configuration Guide, Part 1".) Redistribution is not unique to Cisco CPE, and other vendors' equipment also supports redistribution.

Recommendations for Booting:

The current implementation provides the following options:

From PXM Disk

NetBoot (TFTP server)

Booting from PXM Disk is faster than NetBoot.

Recommendations for saving RPM configuration

The current implementation provides the following options:

a. Save on flash / boot-flash.

b. Save on PXM Disk.

c. Save on network (TFTP server)

d. Save on RPM NVRAM (comes up faster; only for limited configuration size)

It is recommended to save the configuration on flash and on the PXM Disk, as well as on the network server. This ensures that the configuration can be restored; even in the case of multiple failures.

For example if an RPM card has problems, one can copy the configuration from either the PXM disk or from the network to new RPM card. In case of multiple hardware failures (both RPM and PXM cards have problems) one can copy the configuration from the network server.

Replacing the existing RPM with a new card or a card with old configuration in flash:

The existing configuration (of the old card) can be restored on the newly inserted card by following the instructions given below:

Step 1 Insert the new card into an unreserved empty slot. A previously used slot can be unreserved by giving the **clrsmcnf** command.

Step 2 Copy the old RPM's configuration (from the PXM disk or the network server) to the new card's bootflash (For example copying from PXM disk: "copy c: <image name>   bootflash:").

Step 3 Configure the new card to use the configuration in its bootflash using the "boot config bootflash: <config-file-name>" command.

Step 4 Save the changes using "write mem" command.

Step 5 Insert the new card into the old slot.

Please note that in RPM context the "config save/restore" feature of the PXM only restores the PXM part of the RPM configuration/connections. The RPM part of the configuration should also be saved from RPM CLI through copy command (For example: "copy run c: <config-filename>" for saving to PXM Disk) for future restoration.

RPM Connection Resynchronization:

The RPM Connection Re-sync process is supported in the 12.04T and higher releases. This feature checks for consistency between the RPM and PXM connection databases.

Limitations

restoreallcnf

Do not execute the **restoreallcnf** command in the middle of the installation process. If you do, the **dsplns** command will display a line as disabled, but you cannot run an **addln** command. Do not execute the **restoreallcnf** command until the install and **newrev** commands have completed.

The correct order for the restore procedure is:

Step 1 Execute the **saveallcnf** command.

Step 2 Execute the **install** command.

Step 3 Execute the **newrev** command.

Step 4 Execute the **restoreallcnf** command

.(for more information, refer to CSCdm57683)

The Service MIB does not support resource partitions.

LIP is supported on the maintenance port, but there is no PPP support on the maintenance port.

BIS messages are constantly being sent from BPX to various nodes. This affects the frequency of TFTP updates, which may affect CWM performance and/or CWM database consistency.

Unable to provision virtual trunks in SWSW 9.1.10.

clrsmcnf

As a speedy way to wipe out all configuration on an SM, you can use **clrsmcnf**. This command works in the following scenarios:

- 1.1 SM not in slot
- 1.2 SM in slot and in active (good) state
- 1.3 SM in slot but in failed state or boot state or whatever state.

To be able to use an SM of a different type from the current one in a slot you can also use **clrsmcnf**. For example, if there is a FRSM8t1e1 in the slot with some configuration and the customer wants to use this slot for an AUSM8t1e1 card.

clrsmcnf cannot delete a port or channel due to corruption or error locally on the SM. It is able to delete the port/channel from within the PXM, but it cannot delete a port or channel due to corruption/error on the PXM itself. You can save an SM configuration and restore it back to the same slot on the same node. If the SM configuration is corrupted on disk, but the run-time image is okay and the file contented is corrupted, this is supported.

The following are NOT supported on the MGX 8850:

- Saving a configuration of an SM from one shelf and restoring it to the same slot on another shelf.
- Saving a configuration of an SM in a slot and restoring it to another slot of the same card type.
- If the SM configuration is corrupted on disk, but the run-time image is okay and the FAT is corrupted.

If you have more than 500 connections on a service module, before issuing **clrsmcnf** you need to change the session timeout default value.

Use CLI command timeout 0 (no timeout)

clrsmcnf

after it is done

Use CLI command timeout 600 (to set the timeout value back to the default)

Note   **clrsmcnf** does not work with the VISM card.

Core Dump Mask

There are no system performance implication unless you take a core dump, currently the default error mask to take core dump is attached, you can change the mask or take it manually.

Set the core dump mask to its default value. If you enable core dumps with power on reset and shell reset core dumps enabled you will end up with a PXM that continuously dumps the core and resets. The only way out is to use a download boot that does not have the core dump feature.

```
Default setting 0x262ee

OFF 0001 Power ON Reset
ON   0002 DRAM Parity Error
ON   0004 WatchDog Timeout Reset
ON   0008 Resource Overflow
OFF 0010 Clear All Configuration
ON   0020 Missing Task
ON   0040 Reset because of PXM Low Voltage
ON   0080 Reset By Event Log Task
OFF 0100 Reset from Shell
ON   0200 Unknown
OFF 0400 Reset from PXM
OFF 0800 Reset System
OFF 1000 Switch Core Card
ON   2000 Secondary Cache Error
ON   4000 Software Error Reset
OFF 8000 S/W reset due to upgrade
OFF 10000 Restore All Configuration
ON   20000 Device Driver Error


NODENAME.1.8.PXM.a > core hot-dump
Do you want to proceed (Yes/No)? y
Dum PXM Core Image[0]:
.............................................................................................
......................................

Done.


NODENAME.1.7.PXM.s > core save 2 core.zip

Creating core.zip
................................

Core dump basics.

There are two steps to save a core dump.

1. The system will store a raw core dump image on the disk (this image is
on a portion of the disk that is not used for the filesystem).
2. After the raw core dump image is saved on the disk, use the cli command
"core" to zip the image and save it in a file on the disk.


Use the "core mask" command to display and to set the mask which determines
which conditions will cause an autmatic core dump.


NODENAME.1.7.PXM.s > core mask
Automatic Core Dum is enabled..

The Current Core slot is 0

The Current Core mask is 0x4004

OFF 0001 Power ON Reset
OFF 0002 DRAM Parity Error
```

```
ON   0004 WatchDog Timeout Reset
OFF  0008 Resource Overflow
OFF  0010 Clear All Configuration
OFF  0020 Missing Task
OFF  0040 Reset because of PXM Low Voltage
OFF  0080 Reset By Event Log Task
OFF  0100 Reset from Shell
OFF  0200 Unknown
OFF  0400 Reset from PXM
OFF  0800 Reset System
OFF  1000 Switch Core Card
OFF  2000 Secondary Cache Error
ON   4000 Software Error Reset
OFF  8000 S/W reset due to upgrade
OFF  10000 Restore All Configuration
OFF  20000 Device Driver Error

NODENAME.1.7.PXM.s > core mask 0x2e2ee
Automatic Core Dum is enabled..

The Current Core slot is 0

The Current Core mask is 0x2e2ee

OFF  0001 Power ON Reset
ON   0002 DRAM Parity Error
ON   0004 WatchDog Timeout Reset
ON   0008 Resource Overflow
OFF  0010 Clear All Configuration
ON   0020 Missing Task
ON   0040 Reset because of PXM Low Voltage
ON   0080 Reset By Event Log Task
OFF  0100 Reset from Shell
ON   0200 Unknown
OFF  0400 Reset from PXM
OFF  0800 Reset System
OFF  1000 Switch Core Card
ON   2000 Secondary Cache Error
ON   4000 Software Error Reset
ON   8000 S/W reset due to upgrade
OFF  10000 Restore All Configuration
ON   20000 Device Driver Error

NODENAME.1.7.PXM.s >


Use the "core mask default" command to set the mask back to the default.


NODENAME.1.7.PXM.s > core mask default
Automatic Core Dum is enabled..

The Current Core slot is 0

The Current Core mask is 0x262ee

OFF  0001 Power ON Reset
ON   0002 DRAM Parity Error
ON   0004 WatchDog Timeout Reset
ON   0008 Resource Overflow
OFF  0010 Clear All Configuration
ON   0020 Missing Task
ON   0040 Reset because of PXM Low Voltage
ON   0080 Reset By Event Log Task
```

```
OFF 0100 Reset from Shell
ON  0200 Unknown
OFF 0400 Reset from PXM
OFF 0800 Reset System
OFF 1000 Switch Core Card
ON  2000 Secondary Cache Error
ON  4000 Software Error Reset
OFF 8000 S/W reset due to upgrade
OFF 10000 Restore All Configuration
ON  20000 Device Driver Error


NODENAME.1.7.PXM.s >
```

Use the "core enable" command to enable autmatic core dumps.

```
NODENAME.1.7.PXM.s > core enable
Automatic Core Dum is enabled..

NODENAME.1.7.PXM.s >
```

Use the "core disable" command to disable automatic core dumps.

```
NODENAME.1.7.PXM.s > core disable
Automatic Core Dum is disabled..

NODENAME.1.7.PXM.s >
```

Use the "core hot-dump" to dump the raw image to the disk.

```
NODENAME.1.7.PXM.s > core hot-dump
Do you want to proceed (Yes/No)? y
Dum PXM Core Image[0]:
..............................................................................................
......................................

Done.

NODENAME.1.7.PXM.s >
```

Use the "core" command to list the current list of raw core dumps save on
the disk.

```
NODENAME.1.7.PXM.s > core
Saved Core Images:
Slot          Reset Reason                 Dump Time
-------------------------------------------------------------
0    Unknown   WED DEC 29 09:38:30 1999

1    WatchDog Timeout Reset   FRI DEC 10 08:51:52 1999

2    WatchDog Timeout Reset   TUE DEC 14 08:01:39 1999

3    WatchDog Timeout Reset   TUE DEC 14 12:38:01 1999

4    Reset from Shell   TUE DEC 14 14:45:30 1999

5    WatchDog Timeout Reset   WED DEC 22 08:20:26 1999

Automatic Core Dum is enabled.
The Current Core slot is 0
```

```
NODENAME.1.7.PXM.s >


Use the "core save" command to save the specified raw image to the
specified zip file.

NODENAME.1.7.PXM.s > core save 0 ccc

Creating ccc
.................................
NODENAME.1.7.PXM.s >


To upload the zip file, you must use FTP (TFTP has a limit of 16 MBytes
for file size).

Enter shellconn:

NODENAME.1.7.PXM.s > shellConn

->


Set the and enable the user name:

-> setLogin
setLogin

  User Name
  =========
  cisco
value = 0 = 0x0
->


The user name is "cisco" and the password is "ciscoinc".
Now you can FTP the image. Be sure to use binary mode.

After the image has been uploaded, disable the user name:

-> clrLogin
clrLogin

  User Name
  =========
value = 0 = 0x0
->
```

Problems Fixed in Release 1.1.31

Bug ID	Description
CSCdk82484	Symptom: The RPM incorrectly identifies the physical slot position when it is placed in an 8230 or other SweetPea node. This causes communication with the PXM to fail. Conditions: PXM and/or RPM software is running on an 8230 or other Sweetpea node. Workaround: PXM and RPM software should be upgraded to versions that support the 8230 slot numbering scheme. The minimum level of software should be 1.1.31 on the PXM and Cisco IOS Release 121-4.1(T).
CSCdk94100	Symptom: When Ilmi signalling and polling is enabled at one port and not enabled at the other end the port on which signalling was configured does not go into the failed state. Condition: This happens when address registration is also configured along with the Ilmi signalling and polling at one end and the other end is not configured for any signalling. Workaround: Do not configure address registration along with Ilmi signalling and polling only at one end.

CSCdm06097	Symptom:
	
	While SM is in a mismatch state, and switchcc occurs, the log file gets cluttered.
	
	Condition:
	
	When switchcc occurs and SM goes in mismatch state, SM logs same message more than once to PXM. Message which gets logged is like this:
	
	`02/01/1999-14:28:42 12 cmm        FRSM-6-4167 ASC sent slot number to`
	`SM : Old S.N.= 12 New S.N.=12`
	`02/01/1999-14:28:41 11 cmm        FRSM-6-4167 ASC sent slot number to`
	`SM : Old S.N.= 11 New S.N.=11`
	`02/01/1999-14:28:41 12 cmm        FRSM-6-4167 ASC sent slot number to`
	`SM : Old S.N.= 12 New S.N.=12`
	
	Work around:
	
	This log file is not going to affect the functionality of the card or any performance of the card. This log message simply can be ignored because this is useful for debug purposes only.

Bug ID	Description
CSCdm20583	Symptom: When the dspcd command gets executed on the active PXM, with standby SRM card number or vice versa, the error message is confusing. Conditions: When the dspcd command is executed with the other SRM slot numbers. Workaround: No work around is available. This is just an unclear error message problem. No logical errors. Further Problem Description: When the dspcd command gets executed on the active PXM and when the argument for the command is the standby SRMs slot number, the above error message is displayed. That is because from slot 7 PXM only slot 15 and 31 SRMs are accessible. Similarly for slot 8 PXM only 16 and 32 are accessible.
CSCdm31793	Symptom: When you configure a Bert on any line, all the channels on the local as well as remote popeye are going into alarm. But connections on the PXM on both end does not indicate any alarm. Conditions: Configure bert on any line which is having some connections. Workaround: No workaround for this.
CSCdm41079	Symptom: When you configure CESM T1 D4/AMI lingcod and framing, the line will not come up. The card is not generating a T1 signal. Conditions When configuring CESM T1 D4/AMI line Workaround: None other than use ESF/B8ZS

Bug ID	Description
CSCdm55480	Symptom:
	While 'downloadflash' is executing on the PXM or while the tftp of the flash image to SM is in progress, if the PXM or the respective SM is reset, it leaves the flash in an unknown state. The card that was reset will not bootup the next time.
	Conditions:
	The problem will happen when the PXM or the respective SM is reset using the resetcd or switchcc commands, while the flash is being written
	Workaround:
	No workaround. Make sure that the flash is intact before executing the resetcd or switchcc commands or any other command which will result in the reset of the card.
	Further Problem Description:
	If the card is reset when the flash is being written, it leaves the flash in the corrupted state. So, the card does not boot up. All the soft reset commands like switchcc, resetcd, or addred do not check if any flash write is going on before resetting the card.
CSCdm69318	Symptom:
	If a switchcc is performed at the same time that an FRSM-2CT3 is going through a reboot, the FRSM gets stuck in boot state.
	Conditions:
	If a switchcc is performed at the same time that an FRSM-2CT3 is going through a reboot, the FRSM gets stuck in boot state.
	Workaround:
	Do switchcc only after FRSM-CT3 is comes up
CSCdm84982	Symptom:
	The CLI tstdelay displays time in micro seconds in stead of milliseconds.
	Condition:
	Cli shows delay in micro seconds and GUI shows in MilliSeconds but the values are almost same.
	Workaround:
	Convert the displayed time using this formula Time in milliseconds = (Time displayed + 1000 - 1) / 1000. Above formula converts the time in milliseconds with round off. After converting the time, consider the time in milliseconds.

Bug ID	Description
CSCdp03640	Symptom:
	The **dspshelfalm** command displays power supplies and fans for MGX8830 which are non-existent. Also, the fan unit numbers 1 to 8 are displayed as 10 to 17 in the fan traps.
	Conditions:
	This occurs when the **dspshelfalm** command is executed. When the Fan Traps occur, the Unit Numbers are displayed as 10 to 17 instead of 1 to 8.
	Workaround:
	None.
CSCdp11502	Symptom:
	In case of any failure in modifying the channel parameters, such as when a modify fails due to over subscription, the backoff fails with "Wrong Egress Service rate Value" as the error.
	Conditions:
	When there are AUSM UBR-1 connections through Proxy.
	Workaround:
	None.
CSCdp15496	Symptom:
	Doesn't ask for the password to protect platform feature. (clicmd: dspfeature)
	Description:
	This is a CLI enhancement not a bug.
	Condition:
	Not applicable.
	Work around:
	Currently not available.
CSCdp17122	Symptom:
	Softswitch and switchback commands accept invalid slot #s
	Workaround:
	None. Before executing the softswitch or switchback commands make sure that the slot numbers are valid by executing the dspred command and verifying the slot numbers and their states.
	Further Problem Description:
	The softswitch and switchback commands do not check for valid sot numbers before executing the command. So, the slot might get reset even though the slot is not the primary of the redundancy group or the secondary of the redundancy group for the switchnack command.

Bug ID	Description
CSCdp23328	Symptom:
	Inconsistency in the syntax used for dsplns vs addln/delln/dspl n Conditions:
	The commands that are used to configure the PXM physical interfaces have inconsistency in their syntax. Some commands require a '-' sign before the line type parameter. The others do not.
	Workaround:
	Check the help text for the commands or refer to the command help in the manual before using the command.
	Further Problem Description:
	Some commands expect the '-' sign before the line type parameter. After Other commands do not require the '-' sign. After the fix, all commands will have a consistent parameter syntax.
CSCdp30538	Symptom:
	When memShow command is displaying the detailed memory statistics on all partitions, the PXM hangs when
	Conditions:
	When executing memShow with a non-zero argument (E.g. memShow 1) from the cli prompt. memShow without any argument works fine. But that will display only the summary information on the memory blocks. The detailed display can be executed only with a non-zero argument.
	Also, while recreating the problem, it was observed that WHEN THE PAGEMODE IS OFF, the user has more chances of hitting the problem.
	Workaround:
	Do not execute memShow with arguments from the cli prompt. From the VxWorks shell the command works fine. Also, do not execute the command with arguments when the PAGEMODE is OFF. Further Problem Description:
	When memShow with arguments is issued, either the process which is handling the output or the memShow routine infinitely waits. The reason for this infinite wait is currently unknown. After the problem occurs, the shelf cannot be "ed or 'telnet'ted into. The Active PXM has to be rebooted by pulling out the card.
CSCdp31043	Symptom:
	dspalm on FRSM-HSSI card need the x21 as the interface type for HSSI interface.
	Condition:
	The alarms for the FRSM-HSSI card for the line require x.21 in stead of hssi as the interface type for dspalm command. The CLI dspalm should except option -hssi on the card FRSM-HSSI but it accepts x.21 option.
	Workaround:
	-x.21 option can be used for HSSI interface. This is only for user level but after taking the option it has been taken care to use appropriate MIB object to display the required info for the CLI dspalm.

Bug ID	Description
CSCdp35123	Symptom: When adding 50th user to a single node, the last user becomes a "Not a valid user" after a short time (and/or before that user gets a chance to login into that node).
	Workaround. None
	Description: Array that keep all valid users' password (userPassword[]) was overflowing because of coding error. Since, the password was not getting saved, the newly added user id was also getting dropped from valid user list. Fixing the bounds of the array, fixed this problem.
CSCdp37528	Will be fixed in 1.1.31
	Symptom: At softswitch for FRSM-VHS cards (hotSatndby case) two traps are seen. primary to secondary trap number is 50045, secondary to primary trap number is 50046. Duplicate 50045 traps sent when softswitch executed on FRSM-2CT3 Conditions: softswitch "from" "to"
	Workaround:
	There is no workaround.
	Further Problem Description:
	If switchover occurs due to fault condition, there is only one trap sent out, which is correct functionality. Only when softswitch is done manually through CLI or SNMP will traps 50045 or 50046 will be sent twice.
CSCdp38293	Symptom:
	dspcd on SRM will show the 800 number from the backcard in the FrontCard FabNumber field.
	Workaround: None.
	Further Problem Description:
	In cli session, if a user issues a dspcd command on any SRM slot, besides getting other useful information it used to list 800 Fabnumber of the backcard as the fabnumber of the SRM front card.
	Fix: Added a new field which will show the SRM front card's fab number. Renamed the old field to be the fab number for the SRM backcard.
CSCdp41488	Symptom:
	secLineModuleMismatchTrap is not generated.
	Conditions:
	When 2 half height back cards are inserted that the full height front card doesn't support. e.g. when PXM (full height) card is inserted with 2 FRSM-8T1 back cards (half height).
	Workaround:
	This does not have any workaround. This needs further investigation and currently does not have any impact on the functionality. This is a negative test condition.

Bug ID	Description
CSCdp42525	Symptoms: dspfwrevs command does not display boot code versions Conditions: Happens always. Workaround: Currently no workaround.
CSCdp43643	Symptom: Under the condition given below you cannot add any configuration, but the PXM does not show any the card or even slot to be present through dspcds. Conditions: After pulling out PRM slot and then if a half height card (SM) is inserted in the bottom half of that slot it comes up. Workaround: Currently not available. Has been fixed in 1.1.31
CSCdp45431	**dspcurclk** does not update from external clock to internal OSC when the external clock fails.
CSCdp46345	Symptom: When the active PXM back card is pulled out, the active PXM does not switchover to the standby. Conditions: When the active PXM backcard is pulled out. Workaround: None Further Problem Description: Intelligence needs to be put in, so that for T3/E3 back cards or if there is no APS protection, we cause a switchover on back card removal.
CSCdp51956	Symptom: No online diagnostics are available to check the health of PXMs and SRMs in the system. Conditions: Any. Workaround: None.
CSCdp57090	This needs further investigation and currently does not have any impact on the functionality.

Bug ID	Description
CSCdp57673	Symptom: RPM removal trap will show incorrect functionModuleState (ACTIVE). Conditions: RPM removal. Workaround: None.
CSCdp60418	This needs further investigation and currently does not have any impact on the functionality. There is no known workaround for this.
CSCdp66005	Symptoms PXM UNI connections added on a port which is in alarm remain in alarm even after the port alarm is cleared. Conditions This problem is reproducible. If connections already existing on a clear port are put in alarm by causing a port alarm, the alarms get cleared on clearing the port alarm. Only connections added on a port in alarm remain in alarm state even after clearing the port alarm. This problem was first seen in image 1.1.21Lc. Workaround Before adding UNI connections originating from any SM, make sure that the ports at the two endpoints are clear of any alarms. Alarms on a connection can also be cleared by doing an SM reset.
CSCdp69136	Access Violation errors reported during tftp of ComMat.dat file
CSCdp69188	Symptom: snmp query "get" on "mibVersionNumber" returns incorrect value. Invalid response issued when an snmp query is performed on 8850 Conditions: snmp query "get" on "mibVersionNumber" returns incorrect value. Invalid response issued when an snmp query is performed on 8850 Workaround: Get MIB version number from platform firmware version by CLI command version. Cisco CCO has details of which MIB version goes with which firmware version number.
CSCdp70729	Symptom: None. Conditions: A new feature to provide SNMP set switchCoreCard. This feature was added to the (POP1PRET5) 1.1.31 release. Workaround: None.

Bug ID	Description
CSCdp71073	Symptom: Customer has performed a softswitch with redundancy setup between slot 22 and slot 30. After reviewing the logs, they noticed that the wrong slot numbers are referenced in the log. They believe that axis slots are being referenced rather then popeye slots. Conditions: This bug can be reproduced after doing a softswitch or a normal reset of the card. Workaround: There is no workaround for this bug. Further Problem Description: The desplog shows the wrong slot number for some of the log messages , this is because the slot number has not been updated from the PXM at this point .
CSCdp77492	Inconsistency in behavior of port status reporting when local loops put up on line. In one case, the port came out of alarm, and stayed that way even when loop removed In another, port stayed in alarm when loop put up.
CSCdp91401	Symptom: Customer cannot execute a BERT test on an AUSM card that has an IMA port defined on it. Only after the port is deleted can a BERT test take place. There are physical T3 loopbacks placed on the SRM cards and all links are defined. Conditions: Configure BERT test on any line with IMA port defined on it. Workaround: No workaround.
CSCdp97387	When the dspegrqs command was issued to display the egress ports of the FRSM-2T3 slot on popfnj46 MGX node, the system displayed. This command is valid only when egress service type is Weighted Fair Queueing.
CSCdp99436	Symptom: On the FRSM-VHS2T3 ? shows dspportstats as command but there is no such command. Condition: Happens always. Workaround: Do not use the cli dspportstats for FRSM-VHS2T3 and FRSM-VHSHS2 cards.
CSCdr05045	Symptom: Trap varbinds missing in ChanOAMLpbkStatus Trap 50311. As per the mib trap 50311 is defined with 16 varbinds but received trap shows only 14 varbinds. The two varbinds functionModuleType and genericTimeStamp are missing. Conditions: Configure the RasOam loopback, status change will generate the trap. Workaround: No workaround for this.

Bug ID	Description
CSCdr07250	APS: Lower priority external request asserted after higher priority req clears Workaround: None
CSCdr08987	This problem is observed when no line is added on the BPX side and APS is added on the MGX side. Also the sigD threshold has to be of the order of 8 or 9. SigD levels of 7 or under does not result in this problem. No known workarounds.
CSCdr09138	Symptom and Problem description: Whenever a yellow alarm is sent on the line side, or in other words whenever a line is alarm because of RcvRAI, the port remains in Active state. The port is expected to go in alarm. Fix and Unit test: When the line is in alarm in RcvRAI state, the port is now put in alarm. To test this, Unit Test: 1) a) bring a line to RCV_RAIS state. (connect a CERJAC or HP tester to the line and generate RAI). b) add a port to that line. On dspport, this port should be in "Line alarm" state and not in active state. 2) a)add a line such that its active. b) add a port on that line and check if its active. c) bring a line to RCV_RAIS state. (same method as in 1) On dspport, this port should be in "Line alarm" state and not in active state.
CSCdr09927	Symptom: AUSM configured with an IMA port sends the trap 50231 on softswitch. The trap contains the varbind imaPortState.0 (Integer): failedDueToImaSigFailure. The description for 50231 says "Indicates that IMA group is active" that contradicts with the value of the varbind imaPortState seen in the trap. Conditions: AUSM is in 1:N redundancy and it has an IMA port configured. Workaround: No workaround. Further Problem Description: 50231 is sent when an IMA port is added. But the description for 50231 "Indicates that IMA group is active" leads to misinterpretation by the user. On softswitch, secondary AUSM downloads the configuration and adds the lines, ports, IMA groups, etc. Hence, this trap is sent.
CSCdr12555	Symptom: Required Support for ZERO CIR connections on FRSM-HS1. Condition: Present HS1 SM does not support Zero CIR connections and does not provide to configure Service rate and EIR of the zero CIR connections. Workaround: None.

Bug ID	Description
CSCdr15892	addlnloop on the PXM causes sonet line alarms, which sometimes do not clear when the loop is removed.
CSCdr17560	Symptom:
	Shelf reset while executing a switchcc command or if executing an SNMP get. This was due to (the creation of) a null pointer in the SNMP system data structure.
	Conditions:
	You will run into this problem only if you are running the PXM image from the 1.1.22Ll or 1.1.22Lo (internal) Releases.
	Resolution: A fix for CSCdr17560 was checked in to both 1.1.23 and 1.1.31 Releases. This fix provides the check of the return code of the function querying the shelf model number and thus allows the correct data to be registered for use later on. The SNMP system data structure is then initialized based on the model number found. The defaults are provided just in case if an error occurs during the query of the system model number.
CSCdr18819	Symptom:
	PXM prompt gets misaligned after adding a connection.
	Fixed-in: 1.1.24
	Workaround:
	None
CSCdr19336	Symptom:
	Unable to configure service rate after reducing the line rate using **cnflnsubrate**.
	Conditions:
	Reduce PortSpeed (which is same as LineSpeed for unchannelized cards) using **cnflnsubrate.** Unable to modify the service rate after a line subrate modification. This applies only to Zero CIR connections.
	Workaround:
	Per connection policing parameters are not adjusted when the portspeed is reduced dynamically. For correct policing parameter, the s card has to be rebooted and then modify using **cnfchaneir**.
CSCdr21154	Symptom:
	The time on the FRSM-8 card shows day as 00.
	Conditions:
	In the year 2000, on the last day of every month, the day will show up as 0.
	Workaround:
	There is no workaround, the date will get corrected the next day.

Bug ID	Description
CSCdr22345	Symptom: Voice call gets dropped, line alarm is seen on SM after a PXM switchover Conditions: Happens only when the SRM has link to the SM, the secondary SM is Active and there is an SRM/PXM switchover. Workaround: Switchback the SM so that the Primary SM is Active, before doing the PXM switchover Further Problem Description: HotStandby SRM's link points to the Primary SM until the new SRM becomes Active
CSCdr22910	Customer is concerned that the dspfst text does not match the cnffst text exactly. The dspfst output is missing the word "interval" after RTD.
CSCdr23908	Connection failures are not indicated in the system event log.
CSCdr33265	Symptoms: After copying the new bootflash to the bootflash directory, the command 'dir bootflash:' is used to find out whether the new boot flash is loaded correctly. The date is incorrectly shown as the old date, which may lead to confusion for the user. Also, if show clock is used on the RPM then the wrong date and time is displayed. Description: Currently there is no real-time synchronization between the RPM and the PXM card. Because of this, the RPM always sets to some default 'time' whenever it resets and the same 'time' is reported as the 'time' of modification for the File. The solution to this bug required sending of the current date and time from PXM as a part of HELLO_BOOT_ACK mesg. RPM upon receiving the date and time from PXM shall set its own date and time to that of PXM and hence it gets synchronized to PXM's date and time. Workaround: Set the date and time at RPM using **clock set hh:mm:ss** command.
CSCdr35833	Symptom: Both active and standby AUSM cards in a 1:n red config reset after a softswitch Conditions: Statistics collection should be enabled. Work around: This problem doesn't occur always, user has to try softswitch once again, if it fails again disable stats and do softswitch.
CSCdr36153	Creating an LOS condition on aps line caused multiple event log entries and traps
CSCdr38808	Available as a part of 1.1.31. No workarounds.

Bug ID	Description
CSCdr41646	Symptom: No traps indicating SRM in Standby State is sent. Conditions: This occurs when PXM comes to Standby state after reset. Workaround: No workaround. Further Problem Description: After the Standby PXM card was reset and coming back up, traps were generated to indicate that the PXM card is back in Standby.However, no traps were received for the associated SRM cards to indicate
CSCdr42000	Symptom: A lot of error message showing on the screen after clrsmcnf command Condition: If you have a SM with a lot of connections on mgx8850 shelf, then after the clrsmcnf command this problem will happen. Workaround: None. However, those error messages are harmless, user should simply ignore them.
CSCdr43004	Symptom: The Ima Group goes down as soon as a local loop is initiated Conditions: This happens when one of the lines on the side which is configured for looptiming is put into local loop. Workarounds: Resetting the card. Further Problem Description: This is because the loopback programming for the LIU was not being done in case of BERT.
CSCdr43525	Symptom: Error Messages: CAN'T decrement portLcnUsed[cntrlType], already 0, slot 7, port 0 CAN'T decrement port lcnUsed, already 0, slot 7, port 0 appear after delchan of a management conn. Conditions: Seen in 1.1.24 Workaround: None

Bug ID	Description
CSCdr45284	Symptom:
	While executing the command clrsrmcnf there is no check before prompting the user the confirmation. The error checking is done at a later stage.
	Conditions:
	When the command clrsrmcn is executed with wrong SRM slot number.
	Workaround:
	Should enter valid srm slot number. Has been fixed in 1.1.31.
CSCdr46692	Symptom:
	Queue Engine on pxm1 hardware supports programmable values for minimum rate and max rate for the virtual interface (VI is mapped to a port)
	Currently, max rate is default to 100% of line bandwidth.
	Conditions:
	This is always the case, A new parameter has to be added in CLI/MIB to make this configurable.
	Workaround:
	None
CSCdr46699	Symptom:
	pxm1 has t3 interface. one conn. is added from vhs card at full t3 rate to pxm1 line1 another conn. is added from frsm8t1 card at full t1 rate to pxm1 line1 when data was sent at full rate on both connections, since pxm1 line1 is congested, cells are dropped. but cells were dropped only for t3 full rate connection, all cells for t1 rate connection went through. to be fair, proportional amount of cells should get dropped from both connections.
	Conditions:
	This is always the case, for the above setup.
	Workaround:
	None
	Further Problem Description:
	By modifying the vi,qbin,vc thresholds, some amount of fairness can be achieved.
CSCdr47445	Symptom:
	Ethernet netmask reverts back to 255.255.255.0 after switchcc
	Conditions:
	Happens whenever the netmask in bootChange and cnfifip are different
	Workaround:
	Set the bootChange ip address to have same netmask by adding a colon followed by a hex netmask. Example: '172.29.36.99:ffffff80' The default netmask in the boot line is 'ffffff00' which is equivalent to 255.255.255.0

Bug ID	Description
CSCdr48918	Symptom: The PXM will not be able to clock from the T1s in the IMA group. Conditions: When configuring clock using cnfclksrc on the PXM from a line in an IMA group in AUSM, you must select the line with the same number as the label of the IMA group. If the IMA group label is not the same as one of the lines in the group, then the PXM will not be able to clock from the T1s in the IMA group. Workaround: Configure the IMA group such that its label is the same as one of the lines being used (example, IMA group 1 with lines 1,2,3, and 4). Then configure the PXM to clock from line 1.
CSCdr50184	Description: clrsmcnf on RPM resets RPM. Condition: Not applicable. Workaround: Clearing RPM config can be done in 2 steps. 1. Erase NVRAM config on RPM. 2. clrsmcnf for RPM.
CSCdr56159	Symptom: CWM EM may show a physical line on PXM, even if the line is deleted. Description: No physical line delete trap is sent to CWM when the line is manually deleted by CLI or SNMP. Workaround: Currently not available.
CSCdr58168	Symptom: Some of the lines in IMA group become unavailable. Conditions: This happens when the AUSM card was in bulk mode. Workaround: None. Further Problem Description: After a switchcc on PXM, the AUSM-8T1 card started displaying Minor Alarm. On further investigation, it was found that some of the lines configured as a part of the IMA group became unavailable. The respective AUSM-8T1 card was in bulk mode.

Bug ID	Description
CSCdr58663	Symptom: The cli command restoresmcnf wont work after SM redundancy is deleted (in bulk mode). Description: When the SM is in bulk mode restoresmcnf won't go through. Condition: Same as the above description. Work around: Currently not available. This bug has been fixed in 1.1.31
CSCdr59398	Symptom: PVCs get deleted after the cli cnfportrscprtn Conditions: This condition results on use of the cli 'cnfportrscprtn' if the new vpi range specified is shrinked beyond the existing values of the resource partition and existing PVCs use vpi values which lie between the old range and the new range. Seen in 1.1.23 Workaround: No workaround. Care should be taken to provide a 'proper' vpi range so that all PVCs lie within.
CSCdr59813	Symptom: The FRSM T1/E1 module has an egress HDLC queue scheduler which scheduled frames onto the logical egress queue. The rate at which this runs is not aligned with the logical port speed. Workaround: Further Problem Description: Suggested fix is to have the queue scheduler schedule traffic out onto the HDLC framer queue at a rate aligned with the logical port speed.
CSCdr61374	Symptom: 1. The idle flag in dspchans seems to constantly toggle from Yes to No (even though Detection and suppression is disabled) 2. The on/offhook indicator seems to toggle when dspchancnt is viewed. 3. The throughput of the channels go down. Conditions: The situation is triggered when idle suppression related cells are received by Cesm under the erroneous behavior of the network. Workaround: Deleting the erroneous connection and re-adding should solve the problem.

Bug ID	Description
CSCdr61803	Symptom:
	While clrsmcnf is in progress, entering control-c to stop the CLI will cause subsequent clrsmcnf on that same slot being aborted.
	Description:
	While clrsmcnf is in progress, entering control-c to stop the CLI will abort the clrsmcnf process and leave the slot in reserved state. After reseting the SM in the slot and card comes back to active, clrsmcnf can not be resumed (aborted).
	Workaround:
	Wait until the clrsmcnf to complete and don't issue control-c to stop.
CSCdr63304	Symptom:
	On the reception of segment loopback oam cells on the ausm port the counter gets incremented (PortXmtSgmtLpbkCells), On clearing the port counters this counter does not clear.
	Conditions:
	When segment loopback oam cells are received on the AUSM port.
	Workaround:
	None.
	Further Problem Description:
	This counter was not being cleared. This has been fixed in the fix.
CSCdr63533	Symptom:
	When a line is configured in remote loopback, dspcd does not indicate remote loopback.
	Condition:
	Happens every time remote loopback is configured.
	Workaround:
	No workaround.
CSCdr69994	Problem: foresight parameters do not get modified on the standby card.
	Symptom:
	Standby card mir/pir/qir do not get changed when they are changed on theactive card.
	Workaround:
	Do a softswitch and switchback

Bug ID	Description
CSCdr70797	Symptom:
	When a line is put in remote loopback the port is put into alarm and hence the connections, in which case AIS as well as data traffic are sent to the CPE.
	Conditions:
	This happens when the line is put into remote loopback.
	Workaround:
	No workaround.
	Further Problem Description:
	Due to a hardware limitation the data traffic cannot be stopped from going to the CPE, hence the AIS transmission will be stopped in case the line is put into remote loopback. We will not put the port and connection into alarm just like local loopback.
CSCdr70820	Symptom:
	In 1.1.24 PXM in a SweetPea chassis came up as MGX8830 and as a routing node.
	Description:
	This has been fixed, so that it comes up as MGX8230 and the default configuration is changed to be feeder node.
	WorkAround:
	If dspswfunc shows the node to be routing node it can be configured to feeder using cnfswfunc.
CSCdr72963	Symptom:
	When PSU fails, alarm event does not appear in dsplog.It appears on Eventlog of CWM.
	Conditions:
	This occurs when there is a power supply failure.
	Workaround:
	Get the PSU failure information from NMS, CWM. Also CLI command dspshelfalm gives status of PSU.
	Further Problem Description:
	Only trap is sent to CWM, the event is not logged.
CSCdr74393	Symptom:
	APS bidirection non-revertive mode Interoperability with Sentient does not work.
	Condition:
	APS interoperability with the Sentient
	Workaround:
	None

Bug ID	Description
CSCdr76747	Symptom:
	When using CNFBERT local loop or no loop due to having a hardware loop on the physical ports of a FRSM 8E1, it is observed that the bert test does not run error free. Tests show that the local loop bert test errors when using 1.1.23 but in previous 1.1.12 has zero bit error count. Test was re-performed using AUSM in 1.1.23 and zero bit errors were recorded.
	Conditions:
	Lab environments of both heavily loaded nodes or nodes with only PXM,FRSM,SRM
	Workaround:
	None.
CSCdr76819	No known workarounds. Fixed in 1.1.31
CSCdr77088	Symptom:
	Node hangs due to the back card going bad.
	Conditions:
	Sometimes when the back card is going bad, the line oscillate between ok and LOS condition. When this happen, there are flood of messages between the active and standby PXM.
	Workaround:
	Remove the bad back card.
CSCdr80198	Symptom:
	oldiags fails the framer test when run on a PXM1 with an OC3 daughter card and debug level 3 is used.
	Conditions:
	PXM1 with OC3 daughter card and oldiags is invoked with debug level 3.
	Workaround:
	Don not run oldiags with debug level 3. Use debug level 0-2.
CSCdr81334	Symptom:
	VxWorks heap may have some leaks and some allocations of memory will fail.
	Conditions:
	This problems only occurs when there is a memory corruption or the memory partitions are full (or nearly full).
	Workaround:
	Reset the PXM.

Bug ID	Description
CSCdr83869	Symptom: There is no command to display trunk utilization. Condition: Applies to PXM release prior to 1.1.31. Workaround: None. Further Info: The command that has been introduced is dspportutil <port#>. The output of the command looks like this: mgx524.1.7.PXM.a > dspportutil 1 Avg CPS Rcv to XmtQ = 1 Utilisation = 0 % Avg CPS Xmt to Port = 1 Utilisation = 0 % Note that due the h/w limitations, the CPS and %util are only available for the egress direction. The first line is for the egress cells coming to the switch fabric and the second is for the egress cells leaving the switch fabric towards the physical ports. For a description of the h/w limitation refer to bug CSCdp03385 The %util is with respect to the physical line cell rate. To clear the counts use the existing commands: clrportcnt or clrportcnts. There is no mib support to access the counters. The counters are displayed only via the CLI command.
CSCdr86099	Symptom: clrportcnt does not clear the counter EgressPortQFullDiscardCells. Condition: When there is EgressPortQFullDiscardCells in the rt-vbr connection. Workaround: No workaround. Further Problem Description: This counter was not being cleared, this has been cleared in the fix.
CSCdr86885	Symptom: Frames get DE Tagged even though DE Tagging is disabled. Conditions: When user pumps traffic greater than CIR, and Bc bucket becomes full, frames get DE tagged even though DE tagging is disabled. Workaround: There is no workaround.

Bug ID	Description
CSCdr87800	Problem Description:
	PVCs could be added on reserved VCCs i.e. with VPI = 0 and VCI between 0 and 31 without an appropriate warning message.
	Fix:
	A warning message is displayed now whenever a PVC is added on a reserved VCC.
	Unit test:
	Add a connection with VPI = 0 and VCI between 0 and 31. See that appropriate warning message is displayed, but channel addition goes through.
CSCdr88653	Symptom:
	chanDEtoCLPmap resets to default value whenever channel configuration is changed.
	Conditions:
	This will occur when ever user modifies the channel configuration after configuring chanDEtoCLPmap to the required value.
	Workaround:
	Whenever user wants to modify the channel configuration, chaneDEtoCLPmap has to be included in the channel configuration.
	Further Problem Description:
	This occurs because, whenever the user modifies the channel configuration, chanDEtoCLPmap is reset to default values when user does not provide value to this object. So whenever user modifies other channel configuration, this object has also to be set to required value.
CSCdr89017	Symptom:
	oldiags will eventually use up all file descriptors on the system when run in a loop.
	Conditions:
	Run oldiags in a continuous loop.
	Workaround:
	None.
CSCdr90273	Symptom:
	Connection gets added even though DLCI for the remote FR Port is not specified. This connections gets added with remote end's DLCI taken as 0.
	Conditions:
	This occurs when addcon command is executed without specifying the remote end's DLCI.
	Workaround:
	User has to enter the remote end's DLCI while adding the connection.
CSCdr90635	xcnfcon displays the range of VPI/VCI as VPI 1-4095 sometimes 0-255 VCI 1-65536. Sometimes the display is Hex based as 0xff and 0xffff. The info needs to be correct and made consistent through out.

Bug ID	Description
CSCdr90909	Symptom: oldiags running on a MGX8230 refers to slots 7 & 8 as PXM slots. Should be slots 1 & 2. Conditions: Issue oldclralm and the usage message is: USAGE: oldsplog <slot_number (7, 8) Workaround: None.
CSCdr95869	Symptom: Programming the new Novram fails. Condition: The new Novram(AT93C66) required a different programming sequence. Workaround: None.
CSCdr98433	Symptom: pxm log is required for addition and deletion of SM redundancy Condition: No logs while adding and deletion redundancy for SM. Workaround: Made changes to the code so that the logging will take place whenever addition or deletion of SM redundancy happens files changed redUI.c and cliRedundancy.c in POP1PRET5 branch
CSCdr98519	Symptom: Login, logout and all user commands must be logged Condition: Rate limit was there for all the commands so login, logout and all user commands were not logged everytime. Workaround: login, logout and all user commands will be logged from now on files changed cli_msgs.h in pop1pret5 branch
CSCds00987	Symptom: The display format for CLI dspchans was mis-aligned. Condition: Happens when the CLI dspchans executes in the presence of rt-vbr connections. Workaround: None.

Bug ID	Description
CSCds01023	Symptom: **xcnfportq** with the option qa=0 disables the corresponding egress port Q Condition: This display inconsistency exists in all firmware releases prior to 1.1.31. Workaround: Use **cnfportq** instead of **xcnfportq**. Further Problem Description: Even though an option of 0 is not displayed for the "-qa" option in xcnfportq, a value of 0 if specified is taken and the specified port queue is disabled. This seems to be conflicting with the range specified in the help. The help has now been fixed in 1.1.31 to display the extra option of setting qa to 0 to disable the queue.
CSCds01417	Symptom: There is no range checking for port and queue numbers in case of CLI dspportq. Condition: When executing the CLI dspportq. Workaround: No workaround. The fix is taking care of range checking for port and queue numbers in CLI dspportq
CSCds01472	Symptom: The help string shows that the MaxLcn parameter for the cli's **cnfrscprtn**, **cnfportrscprtn,** and **xcnfrscprtn** has a range of 1 to 1000, but 0 is accepted. Conditions: This happens whenever **cnfrscprtn**, **cnfportrscprtn** and **xcnfrscprtn,** are configured with MaxLcn as 0 Workaround: Do not use MaxLcn as 0 while configuring **cnfrscprtn**, **cnfportrscprtn,** and **xcnfrscprtn**.
CSCds35958	O/p drivers are getting disabled when rd_bcE2prom is invoked
CSCds03756	Symptom: The object chanServType is missing in the tftp config upload file. Conditions: When user uploads the tftp config file, he can see chanServType object missing. Workaround: There is no workaround.

Bug ID	Description
CSCds03905	Symptom:
	Prior to the 1.1.31 release the default display for the shelf banner upon booting up is as following:
	SES for SES-IGX product MGX8830 for MGX8230 or MGX8830 (hence SWEETPEA family) MGX8850 for MGX8250 or MGX8850 (hence POPEYE1 family)
	Conditions:
	With the 1.1.31 release onward, the default display for the shelf banner upon booting up is as following:
	SES for SES-IGX product MGX8230 for MGX8230 or MGX8830 (hence SWEETPEA family) MGX8250 for MGX8250 or MGX8850 (hence POPEYE1 family)
	The reason for changing the default banners from MGX8830/MGX8850 to MGX8230/MGX8250 in the 1.1.31 release is because the PNNI is required to be available in the 1.X release in order for the MGX8250 and MGX8850 products to be available. And the PNNI is not currently available in the 1.X release. So it makes sense to default the shelf banner to the currently existing products (hence using 1.X image).
	Workaround:
	None.
CSCds04145	Symptom:
	FRF.5 NIW frames may get dropped in the egress direction, because incoming DLCI is not set to 1022.
	Condition:
	When the FRF.5 NIW Interworking function switch looks for incoming DLCI and if it is not 1022, then it may drop the NIW frame.
	Workaround:
	None.
	Problem Description:
	While sending the FRF.5 NIW frame to the network, the DLCI is not set to 1022 as per the standard. So when the frame reaches the other end, NIW Interworking function may look for incoming DLCI, and it may drop if it isnot set to 1022.
CSCds04697	Trap couldn't see beyond 700 connections because PXM only allowed up to 700 table entries. The size of this table now allows 2000 entries.

Bug ID	Description
CSCds05006	Symptom: If a srm line with loopback is deleted, next time when this line is added again, the loopback value will not have the default 'noloop'. it will be the previous loopback value. Condition: Anytime delete a srm line and add again. The loopback value will be the previous value in stead of default value Workaround: Configure the desirable loopback value after adding a line.
CSCds05374	Symptom: When user adds pvc on MGX service module to feeder trunk and leaves out the remote vpi.vci in the syntax the system accepts the command and adds a pvc with a remote vpi.vci of 0.0 The system should not accept this command and make the user add it again with correct syntax of remote node.slot.port.vpi.vci
CSCds06755	Problem Description: The ausm "xcnfilmi" CLI command options do not match the "usage" message- the "mei" and "-ar" options are not displayed as available command line options. Also, option "-pti" is shown as usage option "-pt".
CSCds07411	Symptom: FEAC DS3 OOF are seen at the far end of a FRSM-2T3 Workaround: Call the TAC. The workaround requires very experienced personnel. Further Problem
CSCds09808	rpmChanMidLow and rpmChanMidHigh are referred as message ID for PVC connections. They are read only numbers and are generated by addconn command. So this is why you can not change its content after it has been assigned by PXM. 0 is an invalid number, this is due to the connection wasn't made successfully across from one PXM to another PXM via a BPX. When you do dspconn, ABIT ALARM shown next to a connection is an indication that connection wasn't made across.

Bug ID	Description
CSCds11325	Symptom and Problem Description:
	There were cases reported where the AUSM-8 card reset on its own mostly when SNMP sets were being done on the card. The AUSM-8 card used to report a "WatchDog Timeout Reset" to the PXM in these cases, which could be seen using the command 'dsplog' on the PXM.
	Conditions:
	It was noted that in most cases, the WatchDog Timeout reset happened when SNMP scripts doing snmpsets were being run on the card. For example, when an SNMP script was continuously adding connections on the card using snmpsets.
	Workaround:
	None.
	Detailed Problem Description and attempted fix: The "WatchDog Timeout resets" were intermittent and did not happen very often. Though it could not be recreated in the Lab premises, some potential causes were identified and were fixed accordingly. With these fixes, the problem is not expected to happen. Apart from these fixes, some additional logging utility has been added to the image so as to log additional information about the WatchDog reset if the reset happens again.
CSCds11410	Symptom:
	xcnfalmcnt command accepts any parameters and does not display any error messages.
	Conditions:
	When xcnfalmcnt command is executed with invalid parameters.
	Workaround:
	There is no workaround.
	Problem Description: xcnfalmcnt command does nothing with the input parameters as this is feature is not implemented.
CSCds13806	Symptom:
	Whenever a SM card is reset & the card remain stuck in boot state even though the firmware versions of the SM are on disk.
	Conditions:
	This happens everytime a "dspsmcnf" command is issued on the PXM just before resetting an SM card.
	Workaround:
	Do not use the "dspsmcnf" command at any time. If it has to be used then the shelf will have to be reset for the condition not to occur.

Bug ID	Description
CSCds18765	1. cnfupcabr on the AUSM-8 currently does policing on PCR(0+1) as the first leaky bucket and on SCR as the second leaky bucket. The second leaky bucket has to be changed to MCR, with an option of choosing the type of policing needed (already available).
	Typically Standard ABR connections need to be policed only on one bucket i.e. the PCR(0+1) bucket. Currently VBR, rt-VBR and Foresight ABR connections have two buckets each for policing - PCR(0+1) and SCR. Standard ABR policing needs to be done on PCR(0+1) only. But for consistency with the PXM (cnfupcabr), Std ABR policing will be done on PCR(0+1) as the first bucket and with ABR-MCR as the second bucket, with an option in cnfupcabr to turn second bucket policing off (as is with SCR for ForeSight ABR).
	But it is important to note that during firmware Upgrade, especially for existing abr.1 connections (Transparent ABR connections with ForeSight disabled), policing will still be done based on SCR value immediately after Upgrade. This is to avoid sudden traffic pattern changes during Upgrade. The user should know that for all commands executed here after (after Updrage) whenever the ABR MCR value is changed, the policing function will get affected since policing for Standard ABR connections will be done on MCR.
	The command help for cnfupcabr has been modified. The new cnfupcabr has changes in the SCR parameter description.
CSCds22296	Symptom and Problem Description: atmfAtmLayerMaxVciBits object returns a value of 12 when queried from the CPE via ILMI. Because of this Vci's greater that 4095 cannot be added to interoperate with the CPE.
	Workaround:
	None
	Fix made: Changed atmfAtmLayerMaxVciBits to 16 from 12.
	Test setup: 1. do an snmp query on atmfAtmLayerMaxVciBits and check if it returns 16
	2. there should be no problems in adding a PVC on the router with vci greater than 4095
CSCds22476	Symptom:
	The port takes a long time to come out of failure even though ilmi Keep Alive polling is enabled on both ends.
	Condition:
	The incoming pdu's id is not checked against the ilmi request id.
	Workaround:
	No workaround.

Bug ID	Description
CSCds22479	Symptom: The port will not change state even though the Keep Alive ilmi polling is enabled/disabled. Condition: When the ilmi Keep Alive polling is enabled/disabled the port status does not change accordingly i.e. it does not go into ilmi signalling failure/ come out of ilmi signalling failure Workaround: No workaround.
CSCds22483	Symptom: The address registration is not disabled when ilmi signalling is disabled. Condition: When disabling ilmi on a port using the cnfilmi cli the address registration option is enabled. eg. cnfilmi \<portno> 2 0 16 2 1 2 2 Workaround: While disabling ilmi on a port also disable addressregistration. eg. cnfilmi \<portno> 2 0 16 1 1 1 1
CSCds22489	Symptom: If a port, down due to ilmi failure is deleted and added again the ilmi failure on the port does not clear. Condition: The port alarm is not cleared when the ilmi is cleared. Workaround: The ilmi port alarm should be clear by enabling ilmi keep alive polling and then the port is to be deleted.
CSCds23602	Symptom: The BERT pattern test for FRSM-8T1 and CESM-8T1 cards reports a high Bit Error Rate Conditions: No specific conditions. Problem happens every time a BERT test is run on FRSM-8T1 and CESM-8T1 cards. Workaround: On Active PXM, inside shellConn set the flag newPxmWithOldSmPre1130 to 1

Bug ID	Description
CSCds23604	Symtom:
	In AUSM, the xcnfilmi command has a couple of display errors.
	1. vpi <VirtualPathId> where VirtualPathId = 1 - 255. The VPI range should be 0 - 255
	2. pti <PortNum> where PortNum = 1 - 8. The actual option should be -pt and -pti is not accepted
	Condition:
	This display error is present in all firmware releases prior to 1.1.31.
	Workaround:
	None.
CSCds24045	Symptom:
	RPM connections are lost after an upgrade from 1.1.24 to 1.1.30(1.1.24Or)
	Condition:
	It happens under all conditions.
	Workaround:
	None
	Further Description:
	The customer upgraded a single PXM shelf from 1.1.24 to 1.1.24Or. After the upgrade dspcons shows connections but on RPM it shows that the connections only exist in RPM. Now a resetsys after this point causes all the connections to disappear.
CSCds24602	Symptom:
	Data loss after a AUSM E1 card reset.
	Condition:
	This problem happens on all AUSM E1 cards with firmware version prior to 1.1.31.
	Workaround:
	Execute the cnfplpp command and disable the scramble option. Note that though dspplpp shows no scrambling, the actual framer programming is not done. cnfplpp command takes care of that problem.
	Unit test after fix:
	One test that can be done is to have an IMA group active on the card with the lines in the IMA group configured in the "No Scramble" mode. Have connections on this IMA group with traffic flowing. Do a resetcd and confirm that the IMA group is not down, and traffic continues to flow on the connections.
CSCds25992	The command **cnfplpp** configures a line even when the line has not been added/enabled.

Bug ID	Description
CSCds26096	Symptoms: The **dspplpp** command asks the user to enter the "port_num" instead of "phy_port_num" as in **xcnfportq**. This can be confusing since the physical port number corresponds to the line number, and port number corresponds to the logical port number (which can be different from phy port number). Conditions: This is a display error, and is present in all firmware releases except prior to 1.1.31. Workaround: None. Further Problem Description: Since the **dspplpp** command prompts the user to enter port_num, it is possible that the user enters the logical port number, and does not get the expected display. This has been corrected now to display "phys_port_num".
CSCds27682	Symptom: **dspalmcnt** on an AUSM/B on an 8250 does not seem to register code errors on the physical line. Conditions: Happens on 1.1.25 AUSM firmware on POPEYE Workaround: None
CSCds32838	Information on this anomaly is unavailable at this time.
CSCds38406	Symptom: After a **switchcc** the prompt still shows "s" (for standby), when the card is actually active. Conditions: When using the console port for accessing the node. Workaround: Cc to any other card and cc back. Further Problem Description This problem does not occur when the node is accessed during telnet sessions.
CSCds49185	**dspcds** commands occassionaly hung, causing access to the telenet and maintenance ports to be blocked. This bug was resolved in Release 1.1.31.

Problems Fixed in Release 1.1.25

Bug ID	Description
CSCdr19456	Symptom: The CLI of the AUSM card hangs and then the AUSM card reboots when a number of ILMI (**atmfVpcVpi**) requests are received by the card. Condition: The time gap between two ILMI (**atmfVpcVpi**) requests arriving at the card is too small (the rate at which the ILMI requests arriving is high). Workaround: The rate at which the ILMI (**atmfVpcVpi**) requests to be received by the card should be less than 2 requests per second.
CSCdr42989	Symptom: The AUSM card generates excessive traps. Condition: PLPP, port, and IMA link traps are generated in excess for small bit errors on the line. Workaround: None.
CSCdr45128	If the primary clock is configured as inband, the **dspclkinfo** hardware status may shows the clock as internal even though it is inband.
CSCdr61335	Symptom: The card gets reset. Conditions: The card gets reset when a continuous getnext operation on the atmfVccEntry MIB group is done via the ILMI protocol from the CPE side. Workaround: None. Further Problem Description: This is happening because one of the semaphores was not being released. Another thing was that the maxilmicells was changed from 100 to 6. This was done in order to prevent the ILMI task from hogging the CPU.

Bug ID	Description
CSCdr63753	Symptom:
	The Stratacom Axis Shelf correctly translates Q.933 PDUs from ATM to FR. The Axis shelf correctly translates an X.25 PDU ATM to FR to pass. X.25 PDUs with I Frame values of '0x03 0x08' FR to ATM are incorrectly translated to Q.933 PDUs. The Axis Shelf discards all X.25 1490 PDUs with and I-Frame not equal to '0x03 0x08'. When PDUs are discarded, Stratacom View (9.0.03.SOL.Patch1) does show PDUs were received/transmitted but fails to show that they were discarded. Using the CLI command **dspchancnt**, the statistics 'Frames Discarded:' and 'RcvFramesUnknownProtocols/XmtFramesUnknownProtocols' were pegged on the Axis Shelf.
	Conditions:
	Workaround:
CSCdr72788	Symptom:
	When an ATM port is added with different line and port numbers, the ATM cell delineation alarm never clears.
	Condition:
	This occurs when the ATM port is added with different line and port numbers.
	Workaround:
	Use the same number for both the line and port numbers. This has been corrected in the fix.
CSCdr82101	Symptoms:
	On an ABR.1 connection (ABR with ForeSight disabled), the PCR(0+1) was changed (after adding the connection to something lower than the value it currently holds), further operations on this channel (via CLI or **snmpset**) fail.
	Conditions:
	On an ABR.1 connection (ABR with ForeSight disabled), the PCR(0+1) was changed after adding the connection to something lower than the value it currently holds, further operations on this channel (via CLI or **snmpset**) would fail. This is because the PCR(0+1) change would change the values of ForeSightPIR and ForeSightQIR, but leave the value of ForeSightMIRunchanged. ForeSightMIR used to have a higher value than ForeSightPIR & ForeSightQIR (after the **snmpset**) thereby causing further commands on this channel to fail.
	Workaround:
	This problem has been corrected. When PCR(0+1) is changed, it will be reflected in all 3 values (ForeSightPIR, ForeSightQIR, and ForeSightMIR).

Bug ID	Description
CSCdr82560	Symptom:
	When FRSM-2CT3 and FRSM-8 are connected on the line side and CLLM is enabled between them, FRSM-8 drops the CLLM messages sent by FRSM-CT3. Also FRSM-2CT3 cannot support CLLM timers as low as 40ms.
	Conditions:
	The CLLM messages FRSM-8 drops do not carry congestion information. Hence it does not affect any thing. But if the FRSM-8 is sending in CLLM messages at 100ms then FRSM-2CT3 starts drop LMI/CLLM messages as the queue for both is common. This may lead to port alarm transitions.
	Workaround:
	For the first issue of FRSM-8 drop the CLLM messages there is no workaround but this problem is fixed in 1.30 For the case where FRSM-2CT3 cannot handle CLLM messages at 100ms, the CLLM timer has to be set at least 250ms as 2CT3 cannot support anything less.
CSCdr86692	The PXM is stuck in the initialized state due to a bad back card and a PXM7cold solder problem.
	Workaround:
	None.
CSCdr89759	Symptom:
	Traps are sent with reversed VPI and VCI values.
	Conditions:
	This occurs when a VCC is setup or deleted.
	Workaround:
	None. This has been fixed.
CSCdr89898	Symptom:
	Card gets reset during connection provisioning using SNMP.
	Conditions:
	Back-to-back SNMP connection ADD requests will cause a reset to the FRSM-2CT3.
	Workaround:
	There is no concrete workaround. Introduce enough delay in the SNMP connection provisioning script.
CSCdr90170	This only happens when data flow is required between rpm and pxm over IPC channels, such as dir c: file transfer type of activities. This error message posts a warning due to IPC master and slave but does not impact IPC operations. The message appears on the console but not on the PXM syslog.

Bug ID	Description
CSCdr92751	Symptom: The card gets reset. Conditions: In case of softswitch. Workaround: None. Further Problem Description: We are ignoring the config change trap when the card is not active. Also, the **addimagrp** trap is not sent during any card rest /softswitch. Note that statistic requests are only processed after the card is active.
CSCds01770	During a manual **switchCC**, as the standby PXM is active, a few non reentrant APIs are called by tasks that were waiting to go ACTIVE on standby pxm. SnmpFeRx is an example. This task calls system_initialize(). During this period, if an SNMP request is made by NMS for the MIB-2 SYstem group, the request calls the same API. As the API is non reenterant, it causes an exception and the snmpAgent task is suspended which causes PXM to reset. Workaround: None.
CSCds02301	Symptoms: None Workaround: A new feature to provide SNMP set switchCoreCard. This feature was backported from the 1.1.31 release to the 1.1.25 so that the PXM image can be built successfully.
CSCds16745	GR253 standards are not adhered to in APS unidirection mode mismatch conditions. Workaround: None
CSCds24088	Symptom: Memory leaks on the hotstandby card leads to the resetting of the standby. Conditions: Channel row status is CHAN_ADD and a connection resync starts on active. Workaround: 1. Before you run out of memory, use a channel modify to change the chanRowStatus from CHAN_ADD to CHAN_MOD. This should be done immediately after adding the connection. 2. If you are already out of memory or have very low memory, then do a softswitch and switchback.

Problems Fixed in Release 1.1.24

Bug ID	Description
CSCdp55281	Symptom: Missing RPM resource partition (**rpmrscprtn**) line in configuration file. Conditions: When trying to add PVCs to an RPM module, you may be prevented from doing so. This is caused by a missing **rpmrscprtn** line in the configuration file running the configuration. This problem can occur if the PXM is busy when it receives an **rpmrscprtn** command update from the PXM. If the RPM times out after a request to the PXM, the **rpmrscprtn** configuration line will be missing from the running configuration file. This problem does not affect traffic or the addition of new connections. Workaround: Ensure that the **rpmrscprtn** configuration line is present in the running configuration file before resetting the RPM card, then save the running configuration file to the startup configuration. This will avoid the confusion of this line not being present in the running configuration. This command can be reexecuted on the RPM if it is missing. Please ensure that the parameters match with the PXM side. This can be checked by displaying the resource partition view on the PAR.

CSCdr05630	Symptom:
	
	MGX 8850 Switch shelf resets with an TlbLoadException error from tDispatch as follows:
	
	`Tlb Load Exception`
	`Exception Program Counter: 0x80127fac`
	`Status Register: 0x3000ff01`
	`Cause Register: 0x00000008`
	`Access Address : 0xc8787854`
	`Task: 0x82a485b0 "tDispatch"`
	
	Conditions:
	
	The shelf resets when the RPM is stressed; specifically, 3000-byte UDP packets loaded at -9.8 MB on e1/4 and approximately 170 kbps worth of s on e1/1.
	
	Workaround:
	
	None.

Bug ID	Description
CSCdr19633	Symptom:
	On an AUSM-8T1e1, the IMA group name matched to an individual line forces the group to go down.
	Conditions:
	When a line is configured with the IMA group name, then the entire IMA group goes down if the line goes down.
	Workaround:
	Do not use the same name for the IMA group as the name given to the lines used.
	Evaluation:
	For AUSM card, when a line goes down, if there is a port(s) within the line, AUSM always send a porttrap to PXM. If the line is one of the links in an IMA GROUP, there is no porttrap except if the available number of links is less than the configured minimum.
	This means that when PXM receives linetrap, for AUSM card, it does not need to generate porttrap. And that will fix the problem.
CSCdr34252	Symptom:
	Management PVC between the MGX8850 and remote equipment fails after softswitch of AUSM cards.
	Conditions:
	After softswitch is performed the PVC that passes management traffic between devices stops passing through the PXM.
	Workaround:
	None.
	Further Problem Description:
	Management IP connections added from service modules to 7.34 fail to pass data after a switch over occurs from the primary to the secondary.
CSCdr35117	Symptom:
	The PXM shelf resets when the RPM is under stress.
	Condition:
	This problem occurs when the RPM is loaded with an enclosed configuration and traffic is generated toward CARed interfaces with CBWFQ.
	Workaround:
	None.
	Further Problem Description:
	The IOS IPC code on PXM was not handling NAK messages from RPM correctly. The code was not checking to see if the port (polling port) the NAK is received for still exists or not (checking for NULL pointer). This cause access to invalid address and eventually shelf reset.

Bug ID	Description
CSCdr38391	Symptom: Running the **clrsmcnf** command on a CESM and resetting the standby PXM causes the card to come up in cardinit state. Workaround: None. The code has been modified to pass LCN index zero instead of **firstdatalcn**.
CSCdr42987	Symptom: End-to-end OAM cells are dropped by the AUSM-8T1E1 card. Conditions: As of release 5.0.11, AUSM-8T1E1 dropped end-to-end loopback cells other than AIS, RDI and Loopback function types in Fault Management OAM cell type. This problem is now corrected so that the end-to-end OAM cells pass through the AUSM-8T1E1 card though the card does not monitor all of them. Workaround: None.
CSCdr49478	Symptom: After a sequence of adding and deleting service module redundancy and issuing the **clrsmcnf** command, and connection deletion/addition, the command **tstcon** does not pass on certain connections. Conditions: This problem occurs when a 1:1 redundancy is configured between VHS cards in slot 1 and slot 2. Card 1 is active, and card 2 is standby. Connections are added from 1 to 5. Then, redundancy deleted and connections deleted both on slot 1 and on slot5 using the **clrsmcnf** command. Redundancy was then added between slots 1 and 5, and subsequently deleted. Note that the connection addition was done in an environment wherein no connections existed either on slot 5, slot 1 or slot 2. Workaround: 1. Use CWM or the CLI to delete connections on both slots when a service module is configured with redundancy. 2. Then issue the command **clrsmcnf** to clear the port/line configuration.
CSCdr51248	Symptom: A mismatch is reported due to a MIB corruption since the new versions of VISMs need larger allocation of memory for the MIB. Workaround: None.

Bug ID	Description
CSCdr55023	Symptom: ARP translation doesn't work on FRSM-2CT3. Both the destination and the source IP addresses get corrupted in the ARP reply. Conditions: This problem occurs when ARP request is initiated from he ATM side. This problem does not occur if ARP request is initiated from the FR CPE side. Workaround: One of the following: 1. Use a static IP address instead of ARP. 2. Initiate ARP request from FR CPE.
CSCdr61548	Symptom: The card resets/fails when more than 600 connections are added when LMI is configured on the port. Condition: LMI packets gets corrupted after 600 connections, and subsequently, leads to problems during the ESE-SAR handshake. This causes ESE to stop. Workaround: No workaround for more than 600 connections.
CSCdr62285	Symptom: The CESM module generates a general error. Conditions: When the command **cnfbert** is issued, the causes the CESM module to generate the error. Workaround: None.

Problems Fixed in Release 1.1.23

Bug ID	Description
CSCdp20616	Cell-loss on pxm-uni conn on switchover caused by srm-back card removal
CSCdr11405	PVC alarms on FRSM-2CT3 cleared by softswitch
CSCdr15904	Frames drop on FR-ATM PVCs
CSCdr12167	Pulling active SRM causes IMA PVC to lose traffic w/o alarm
CSCdp50541	pxm-trunk-clocking goes bad on pxm-switchover,Periodic cellloss on fdr-conns
CSCdp51846	INCS1.5 - Slot failure on SRM brings down voice services CSCdp52180 MGX SRM fail/switchover outage time is unacceptable. CSCdp53887 Feeder connections could not be added via snmp on AUSM

Bug ID	Description
CSCdp58707	**dspbecnt** command does not work correctly for the non-active line currently.
CSCdp65557/ CSCdp75117	Softswitch on ausm causes 29 sec channel outage. When you perform a softswitch from Primary AUSM to Secondary AUSM in non-bulk mode, if system is very busy, the remote equipment may notice LOF or LOS. It is intermittent.
CSCdp69416	Removal of backcard on active aps line causes trunk and conn failure
CSCdp70976	Arbitrary number of voice calls are dropped due to switchcc on PXM
CSCdp82888	PXM reset/switchcc causes the ausm port to fail
CSCdp84773	Symptom: The resource partition does not get registered on the PXM card. Conditions: The resource partitioning of the AUSM card on the PXM is registered as zero instead of a value of three. This process takes place automatically with the AUSM card. On the VISM, it is done by issuing the command **addrscprtn**.
CSCdp88526	FRSM-2CT3 cards fail when script run to add close to 4000 conns.
CSCdp88046	Slow tftp GET and corrupted CF file checksum for SM with 3920 active chans
CSCdp99561	Cannot disable policing on the FRSM-2CT3 if Bc & Be set to max
CSCdp92627	Cannot add redundancy from primary ausm slot 19 to 30.
CSCdp99581	FRSM-CT3 egress queue build up causing the ingress Vc q to start discard even though traffic was being generated at PIR, with no other VCs active.
CSCdr07429	**restoresmcnf** not completely working
CSCdr08552	Not able to delete connections from SM after switchcc.In case of UNI connections able to delete connections but **dspcons** still shows the connections.
CSCdr09310	VxWorks Ping hangs on receiving ICMP unreachable message from NMS
CSCdm12468	PXM CLI cannot read nvram data for UI back card and trunk back card
CSCdm73868	New IMA link failure trap 50251 is generated.
CSCdm82756	The MGX 8850 stores user passwords in clear text. Any person with IP connectivity to the MGX 8850 can TFTP the userPassword.dat file from the MGX 8850 and view all the passwords. Password are encrypted before saving in the database.
CSCdm83076	IMA Group failure status is Ne start up, whereas Ne is operational.
CSCdp12290	when deleting port, no trap should be sent if rsc partition diskupdate fails. Return value for resource partition deletion diskupdate message, as part of port deletion, is not checked before sending out the subsequent resource partition config change trap. Also, when one of the resource partition diskupdate fails, the port deletion process should stop.
CSCdp14073	**dspabit** type command on Popeye

Bug ID	Description
CSCdp43334	The Bert on the FRSM-VHS require the **xcnfln** which has misleading parameters for the FRSM-T3 and FRSM-E3 service module. Although some parameters like-ds3enb (dsx3LineBERTEnable) also appear under the **xcnfln** for the FRSM-E3 card but bert could not be started with this parameter and it require a different parameter -ds3ben(dsx3LineBERTEnable).
	Some other times when Bert is enabled on one line, you could not delete the bert from this line using deldsx3bert and hence forth Bert cannot be enabled on any other line.
CSCdp46146	Can not delete RPM-RPM connection from the PXM
CSCdp47079	Policing defaulted to off on certain PXM connection (VBR and ABR)
CSCdp54765	Cannot add a port to a slot until card reset on FRSM-8T1E1
CSCdp57974	Need varbind for Configured Links in certain IMA traps.
CSCdp62456	database integrity commands do not catch incomplete master cons
CSCdp62652	No updated information about IMA Rx grp ID on AUSM
CSCdp63757	FunctionModuleFailed Trap 50006 keeps repeating twice
CSCdp65370	The port on the CESM-T3/E3 is in active state but the line is in RcvLOS alarm. When a T3 or E3 line indicates an alarm condition, the corresponding port state is not updated correctly. Port State is still displayed as active instead of failed due to line
CSCdp65651	Need to support a new VSI force Del passthru to handle connection timeout. During the connection addition, if the timeout occurs in VSI slave, SPM will clean up all the resources allocated for the connection. It then sends HD Update Fail message to the SM. Both SM & SPM do not have the connection anymore but PAR still has the connection in its database. If the user try to read the connection, PAR will reject the request. The user can not delete the connection either since there is none in the SM.
CSCdp69367	Need to disable CLI session timeout when issuing **clrsmcnf**. The fix involves disabling the session timeout before **clrsmcnf** or **restoresmcnf** commands are carried out and re-enabling the session timeout period when complete.
CSCdp80104	**dspapsln** shows both lines in R_AM after alarm on one line was cleared
CSCdp77244	support port rate modification without deleting connections
CSCdp76372	FRSM-2CT3 **dspchancnt** does not have KbpsAIR field
CSCdp75879	Signalling bits toggle in case of voltage disturbance on T1 input lea
CSCdp75844	LMI timeout values specified via the **cnflmitimer** value not correct. Prior to this fix LMI timers had to be configured (using **cnflmitimer** command) to double the desired value of LMI timeout.
CSCdp75827	values specified via **cnflmitimer** not preserved after switchcc/**resetsy**
CSCdp80130	**dspapsln** shows both aps lines to be OK when alarm exists
CSCdr15904	Frames are getting dropped on FR-ATM PVC, reason is not shown
CSCdr07460	**addlnloop** on the PXM causes a bidirectional loop
CSCdp99795	**k:dspservrate** does not show correct values
CSCdp96495	FRSM-2E3 does not support G.751 clearchannel format

Bug ID	Description
CSCdp91587	dsx3LineXmtClockSrc cannot be set to localClk on PXM T3
CSCdp87088	CESM-8t1e1Clock change to async mode on line causes bit errors on another line
CSCdp84676	When the service module tries to do graceful upgrade PXM crashes
CSCdp81859	Introduce **dspfail** command to display failed connections
CSCdp81205	When Protection Line was unplugged, it went into P_B state
CSCdp80154	**dspapsln** shows one line in R_AM when both are
CSCdr25595	/vob/psm/switchmgm/rmeptsm.c
	In func rmRebindLcnEpt(), modified the code not to init the pEptBlk->state, pEptBlk->lmiStatus, pEptBlk->lmiChangeFlag if EptBlk already exists.

Compatibility Notes

MGX 8230/8250/8850 Software Interoperability with other products

Platform Software:	PXM 1.1.31 Note: Release1.1.31 incorporates a fix for bug CSCds49185; otherwise, Release 1.1.31 is identical to Release 1.1.30.
MGX 8220 Firmware:	Rev: 4.1.09 or 5.0.15(Refer to the MGX 8220 Release Notes)
Compatible Switch Software:	Switch software 9.1 release and switch software 9.2 (9.2.34) release for BPX and BXM firmware—MFF (Refer to the Switch Software Release Notes)
Network Management Software:	CWM 10.3 (which is not targeted for General Availability). Refer to the CWM 10.3 Release Notes.
CiscoView:	CV 10.3. Refer to the CWM 10.3 Release Notes.
The MGX 1x feeder to MGX 2x	MGX 2.0.11 or MGX 2.0.12

MGX 8850 Firmware Compatibility

System Release 1.1.31

PCB Description	CW2000 Name	Latest F/W	Min F/W
PXM1	PXM-1	1.1.31	1.1.31
PXM1-2-T3E3	PXM1-2T3E3	1.1.31	1.1.31
PXM1-4-155	PXM1-4OC3	1.1.31	1.1.31
PXM1-1-622	PXM1-OC12	1.1.31	1.1.31
MGX-SRM-3T3/B	SRM-3T3	n/a	n/a
AX-CESM-8E1	CESM-8E1	10.0.20	10.0.12
AX-CESM-8T1	CESM-8T1	10.0.20	10.0.12
MGX-AUSM-8E1/B	AUSMB-8E1	10.0.20	10.0.12
MGX-AUSM-8T1/B	AUSMB-8T1	10.0.20	10.0.12
MGX-CESM-T3	CESM-T3	10.0.20	10.0.12
MGX-CESM-E3	CESM-E3	10.0.20	10.0.12
AX-FRSM-8E1/E1-C	FRSM-8E1	10.0.20	10.0.12
AX-FRSM-8T1/T1-C	FRSM-8T1	10.0.20	10.0.12
MGX-FRSM-HS2	FRSM-HS2	10.0.21	10.0.12
MGX-FRSM-2CT3	FRSM-2CT3	10.0.21	10.0.12
MGX-FRSM-2T3E3	FRSM-2T3	10.0.21	10.0.12
MGX-FRSM-2T3E3	FRSM-2E3	10.0.21	10.0.12
MGX-FRSM-HS1/B	FRSM-HS1/B	10.0.20	10.0.12
MGX-VISM-8T1	VISM-8T1	2.0.(0)	1.5.05
MGX-VISM-8E1	VISM-8E1	2.0.(0)	1.5.05
MGX-RPM-128M/B	RPM	12.1(3)T	12.1(3)T
MGX-RPM-PR	RPM-PR	12.1.(5)T	12.1.(5)T
CWM		10.3	10.3

MGX 8250 Firmware Compatibility

System Release 1.1.31

PCB Description	CW2000 Name	Latest F/W	Min F/W
PXM1	PXM-1	1.1.31	1.1.31
PXM1-2-T3E3	PXM1-2T3E3	1.1.31	1.1.31
PXM1-4-155	PXM1-4OC3	1.1.31	1.1.31
PXM1-1-622	PXM1-OC12	1.1.31	1.1.31
MGX-SRM-3T3/B	SRM-3T3	n/a	n/a
AX-CESM-8E1	CESM-8E1	10.0.20	10.0.12
AX-CESM-8T1	CESM-8T1	10.0.20	10.0.12
MGX-AUSM-8E1/B	AUSMB-8E1	10.0.20	10.0.12
MGX-AUSM-8T1/B	AUSMB-8T1	10.0.20	10.0.12
MGX-CESM-T3	CESM-T3	10.0.20	10.0.12
MGX-CESM-E3	CESM-E3	10.0.20	10.0.12
AX-FRSM-8E1/E1-C	FRSM-8E1	10.0.20	10.0.12
AX-FRSM-8T1/T1-C	FRSM-8T1	10.0.20	10.0.12
MGX-FRSM-HS2	FRSM-HS2	10.0.21	10.0.12
MGX-FRSM-2CT3	FRSM-2CT3	10.0.21	10.0.12
MGX-FRSM-2T3E3	FRSM-2T3	10.0.21	10.0.12
MGX-FRSM-2T3E3	FRSM-2E3	10.0.21	10.0.12
MGX-FRSM-HS1/B	FRSM-HS1/B	10.0.20	10.0.12
MGX-VISM-8T1	VISM-8T1	2.0.(0)	1.5.05
MGX-VISM-8E1	VISM-8E1	2.0.(0)	1.5.05
MGX-RPM-128M/B	RPM	12.1(3)T	12.1(3)T
MGX-RPM-PR	RPM-PR	12.1.(5)T	12.1.(5)T
CWM		10.3	10.3

MGX 8230 Firmware Compatibility

System Release 1.1.31

PCB Description	CW2000 Name	Latest F/W	Min F/W
PXM1	PXM-1	1.1.31	1.1.31
PXM1-2-T3E3	PXM1-2T3E3	1.1.31	1.1.31
PXM1-4-155	PXM1-4OC3	1.1.31	1.1.31
PXM1-1-622	PXM1-OC12	1.1.31	1.1.31
MGX-SRM-3T3/B	SRM-3T3	n/a	n/a
AX-CESM-8E1	CESM-8E1	10.0.20	10.0.12
AX-CESM-8T1	CESM-8T1	10.0.20	10.0.12
MGX-AUSM-8E1/B	AUSMB-8E1	10.0.20	10.0.12
MGX-AUSM-8T1/B	AUSMB-8T1	10.0.20	10.0.12
MGX-CESM-T3	CESM-T3	10.0.20	10.0.12
MGX-CESM-E3	CESM-E3	10.0.20	10.0.12
AX-FRSM-8E1/E1-C	FRSM-8E1	10.0.20	10.0.12
AX-FRSM-8T1/T1-C	FRSM-8T1	10.0.20	10.0.12
MGX-FRSM-HS2	FRSM-HS2	10.0.21	10.0.12
MGX-FRSM-2CT3	FRSM-2CT3	10.0.21	10.0.12
MGX-FRSM-2T3E3	FRSM-2T3	10.0.21	10.0.12
MGX-FRSM-2T3E3	FRSM-2E3	10.0.21	10.0.12
MGX-FRSM-HS1/B	FRSM-HS1/B	10.0.20	10.0.12
MGX-VISM-8T1	VISM-8T1	2.0.(0)	2.0.00
MGX-VISM-8E1	VISM-8E1	2.0.(0)	2.0.00
MGX-RPM-128M/B	RPM	12.1.(5)T	12.1.(5)T
MGX-RPM-PR	RPM-PR	12.1.(5)T	12.1.(5)T
CWM		10.3	10.3

Compatibility Matrix

This multiservice gateway comparison matrix is designed to identify capabilities supported in the MGX 8220, 8230, 8250 and 8850 platforms.

Card Slot Capacity	8220	8230	8250	8850, PXM1
Slots for Processor cards	2 single height	2 double height	2 double height	2 double height
Slots for Service modules	10 single height	8 single height or 4 double height	24 single height/ 12 double height combination	24 single height/ 12 double height combination
Slots for SRM (Service resource module) cards	2 single height	2 single height	4 single height or 2 double height	4 single height or 2 double height
Total number of Slots	16 single height (2 slots reserved for BNM)	14 single height or 7 double height	32 single height or 16 double height	32 single height or 16 double height
Physical Attributes	**8220**	**8230**	**8250**	**8850**
Height (in inches)	8.75	12.25	29.75	29.75
Width	17.45	17.72	17.72	17.72
Services	**8220**	**8230**	**8250**	**8850**
IP VPNs		Future	4	4
Voice		Future	4	4
ATM	4	4	4	4
Frame Relay	4	4	4	4
PPP Access	4	Future	4	4
Frame Relay-to-ATM network interworking	4	4	4	4
Frame Relay-to-ATM service interworking	4	4	4	4
Circuit emulation	4	4	4	4
Local Switching	**8220**	**8230**	**8250**	**8850**
	No	Yes	Yes	Yes
PNNI Routing	**8220**	**8230**	**8250**	**8850**
	No	Future—will require Upgrade	Future—will require Upgrade	Future on PXM1
BPX Feeder	**8220**	**8230**	**8250**	**8850**
	Yes	Yes	Yes	Yes
Automatic Protection Switching (APS 1+1)	**8220**	**8230**	**8250**	**8850**
	No	Yes	Yes	Yes
Switching Capacity	**8220**	**8230**	**8250**	**8850**
	320Mbps	1.2Gbps	1.2Gbps	1.2Gbps

Card Slot Capacity	8220	8230	8250	8850, PXM1
Trunk Interfaces	**8220**	**8230**	**8250**	**8850**
T3/E3	1	2	2	2
OC-3c/STM-1	1	4	4	4
OC-12c/STM-4		1	1	1
n x T1/E1	4	4	4	4
Front Cards	**8220**	**8230**	**8250**	**8850**
AX-FRSM-8T1	4	4	4	4
AX-FRSM-8E1	4	4	4	4
AX-FRSM-8T1-C	4	4	4	4
AX-FRSM-8E1-C	4	4	4	4
MGX-FRSM-HS2	4	4	4	4
AX-FRSM-HS1	4			
MGX-FRSM-HS1/B	4	4	4	4
MGX-FRSM-2T3/E3		4	4	4
MGX-FRSM-2CT3		4	4	4
AX-AUSM-8T1	4			
MGX-AUSM-8T1/B	4	4	4	4
AX-AUSM-8E1	4			
MGX-AUSM-8E1/B	4	4	4	4
AX-IMATM-8T1/B	4			
AX-IMATM-8E1/B	4			
AX-CESM-8T1	4	4	4	4
AX-CESM-8E1	4	4	4	4
MGX-CESM-T3E3		4	4	4
AX-SRM-T1E1/B	4			
AX-SRM-3T3	4			
MGX-SRM-3T3/B	4	Future	4	4
MGX-VISM-8T1		Future	4	4
MGX-VISM-8E1		Future	4	4
MGX-RPM-128M		Future	4	4
MGX-RPM-400M-256		Future	4	4
MGX-RPM-400-512		Future	4	4
MGX-SRM-3T3/C	4	Future	4	4
Backcards	**8220**	**8230**	**8250**	**8850**
AX-SMB-8E1	4	4	4	4
AX-RJ48-8E1	4	4	4	4
AX-RJ48-8T1	4	4	4	4

Card Slot Capacity	8220	8230	8250	8850, PXM1
AX-R-SMB-8E1	4	4	4	4
AX-R-RJ48-8E1	4	4	4	4
AX-R-RJ48-8T1	4	4	4	4
MGX-12IN1-4S	4	4	4	4
MGX-BNC-2T3		4	4	4
MGX-BNC-2E3		4	4	4
MGX-BNC-2E3A		4	4	4

Special Installation and Upgrade Requirements

Existing customers should use the upgrade procedure on page 101 to upgrade from 1.1.22/1.1.24/1.1.25 to 1.1.31. For new customers the image will be pre-installed as 1.1.31 and they need to use the PXM installation procedure to upgrade to future maintenance releases.

A graceful upgrade from any release previous to 1.1.31 is supported. However, a graceful downgrade or aborts during the upgrade is not supported.This also implies that if you have to abort after newrev command (and the commit command), you have to do an ungraceful downgrade.

Below is the procedure for ungraceful downgrade:

Step 1   Save your current configuration.

Saveallcnf

Step 2   **clrallcnf**

Step 3   Reload old PXM's firmware and boot code.

Step 4   goto shelcom do on both PXMs:

   a.   setPXMPrimary "version"

   b.   setPXMSecondary "version"

Step 5   Install bt <version>

Step 6   Load all the old firmware and BT of SM cards.

Step 7   **resetsys**

Step 8   **restoreallcnf**

Note   If there is not a saved config, follow Steps 1 through 6.

Single PXM Installation Procedure

Step 1   Save your current configuration.

Saveallcnf

Step 2   Get the filename by listing the CNF directory:

```
node-prompt> ll "C:/CNF"
  size          date        time       name
--------       ------      ------     --------
    512     APR-08-1999   08:16:18    .                <DIR>
    512     APR-08-1999   08:16:18    ..               <DIR>
    512     APR-09-1999   05:26:42    TMP              <DIR>
  45433     APR-09-1999   05:28:42    NODENAME_0409990528.zip
  45433     APR-09-1999   05:28:42    NODENAME.zip
In the file system :
   total space :  819200 K bytes
   free  space :  787787 K bytes
```

Step 3   On the workstation, upload the saved configuration to the workstation:

```
unix-prompt> tftp shelf.ip.address
tftp> bin
tftp> get CNF/NODENAME_0409990528.zip
Received 45433 bytes in 0.4 seconds
```

Step 4   Download the 1.1.31 PXM runtime image to the PXM.

```
tftp <node_name or IP address>
bin
put <image> POPEYE@PXM.BT
quit
```

Step 5   Download the `ComMat.dat` file to the `C:/fw` directory of the Active PXM. Use the tftp **put** command:

```
tftp <node_name or IP address>
bin
put ComMat.dat
quit
```

Step 6   On the PXM type the following when the transfer is done:

```
copy ComMat.dat /FW/ComMat.dat
```

Step 7   Execute the install bt 1.1.31 then execute **install 1.1.31** command.

Step 8   Answer **Yes** to the question the install command will ask.

Installation Procedure For Redundant PXMs

This section applies to upgrades from 1.1.23, 1.1.24 or 1.1.25.

⚠️
Caution   Do not remove old firmware until the upgrade is done.

During graceful upgrade procedure, if after the **newrev** command, the non-active card enters the "MISMATCH" state, do the normal commit command. You will get a warning message:

> other card not found,
>
> do you still want to complete the commit operation

Answer yes and then reset the non-active card.

If you get the MISMATCH during the upgrade process, after you finish, you will also get the MISMATCH. To correct the mismatch, you must check your backcards, they must be identical.

✎
Note   First you must ensure that the shelf IP address and the PXM IP address are set. The PXM must have its own unique IP address and there must be a another unique IP address for the shelf.

To set the PXM address, use the bootChange command:

```
node-prompt> bootChange
'.' = clear field;  '-' = go to previous field;  ^D = quit
boot device         : lnPci
processor number    : 0
host name           :
file name           :
inet on ethernet (e) : 172.29.37.220:ffff00
inet on backplane (b):
host inet (h)       :
gateway inet (g)    : 172.29.37.1
user (u)            :
ftp password (pw) (blank = use rsh):
flags (f)           : 0x0
target name (tn)    :
startup script (s)  :
other (o)           :
```

Set the "inet on ethernet (e) :" field with the first part of the entry (before the :) as the IP address, and the second part as the subnet mask.

Set the "gateway inet (g)   :" with the gateway address.

This must be done on both PXMs. This can also be done in backup boot from the VxWorks prompt "->".

To set the shelf IP address:

```
node-prompt> cnfifip 26 shelf.ip.address subnet.mask broadcast.address
```
The second argument is the shelf IP address.

The third argument is the subnet mask.

The fourth argument is the broadcast address.

Step 1 Save your current configuration.

Saveallcnf

Step 2 Get the filename by listing the CNF directory:

```
node-prompt> ll "C:/CNF"
  size          date       time       name
--------       ------     ------     --------
    512     APR-08-1999  08:16:18   .                 <DIR>
    512     APR-08-1999  08:16:18   ..                <DIR>
    512     APR-09-1999  05:26:42   TMP               <DIR>
  45433     APR-09-1999  05:28:42   NODENAME_0409990528.zip
  45433     APR-09-1999  05:28:42   NODENAME.zip
In the file system :
   total space :  819200 K bytes
   free  space :  787787 K bytes
```

Step 3 On the workstation, upload the saved configuration to the workstation:

```
unix-prompt> tftp shelf.ip.address
tftp> bin
tftp> get CNF/NODENAME_0409990528.zip
Received 45433 bytes in 0.4 seconds
```
Step 4 Verify that one PXM is Active and the other Standby.

Step 5 On the workstation, download the PXM FW:

```
unix-prompt> tftp pxm.ip.address
tftp> bin
tftp> put pxm_1.1.23.fw POPEYE@PXM.FW
put <image> POPEYE@PXM.BT
Sent 1982672 bytes in 18.3 seconds
```

Make sure that the transfer is successful, by looking at the message displayed on the PXM console after the transfer:

```
Program length = 1982672
Calculated checksum = 0xd9779bc6 stored checksum = 0xd9779bc6
Fw checksum passed
```

Step 6 Download the `ComMat.dat` file to the `C:/fw` directory of the Active PXM. Use the tftp **put** command:

```
tftp <node_name or IP address>
bin
cd fw
put ComMat.dat
copy ComMat.dat to FW directory on the PXM.
quit
```

Step 7 After the transfer is done, type the following on the PXM:

```
copy ComMat.dat /FW/ComMat.date
```

Step 8 Do install bt <newrev>> then, do install <newrev>.

Step 9 After the Standby card is reset and successfully enters the hold state, on the Active PXM, do "**newrev** 1.1.31."

The Active card will be reset and go to hold state.

After the **newrev** the firmware should now show the new revision on **dspcd**.

Step 10 After the Active PXM is reset and successfully enters the hold state, on the new Active PXM, do "commit 1.1.31".

Service Module Firmware Download Procedure

Step 1 Download the selected revision of service module firmware into the service module in the selected slot.

```
tftp <node_name or IP address>
bin
put <backup boot> POPEYE@SM_1_0.BT
quit
tftp <node_name or IP address>
put <FW file> POPEYE@SM_1_0.FW
quit
```

You cannot do two puts in the same tftp session.

Step 2 Install bt SM <slot> <version> then do install SM <slot> <version>

Step 3 Answer **Yes** to the question the **install** command will ask.

Step 4 Reset the card.

> ✎
> **Note**   To upgrade all the SM, load all the firmwares and BTs to the node then do **resetsys**. Make sure that the configuration is saved.

> ✎
> **Note**   Please consult your Support Representative before performing any software upgrade.

Manual Configuration of Chassis Identification

MGX as a Standalone Node

If any MGX box is to be used as a standalone node for testing, the intended model number from the PXM firmware configuration should be matched MANUALLY by running the "runConfigurator" utility.

Example: ipfrnj40 was running 1.1.24 as a 8850 node:

If the node's model number is set to 8250 by default after a 1.1.31 firmware upgrade, but the ipfrnj40 is still configured as a 8850 standalone node on the CWM side, then CWM will reject the node on discovery, and the node will remain undiscovered.

Solution: On every standalone node, manually verify that the runConfigurator settings match the switch.

Chassis Identification During a Firmware Upgrade

On the CWM side, the emd.conf must be modified to a 1 second wait time so it can help clean up the emc process's internal cache and CWM database (regarding any slot that has sent the functional removal trap). This ensures that CWM will sync up whatever is current with the switch after the upgrade.

Before a firmware upgrade is begun, complete the following steps:

Step 1   Change the following line in emd.conf:

"Hold for **300** secs before deleting the card after a func module trap is received".

to

"Hold for **1** secs before deleting the card after a func module trap is received".

> ✎
> **Note**   This prevents race conditions in updating the database table from the firmware version upgrade.

Step 2   After emd.conf is changed, send HUP signals to all emc processes.

Step 3   Revert the changes after the firmware upgrade is complete.

Step 4   Send HUP signals to emc processes to confirm the changeback.

Service Module Installation/Upgrade and Flashdownload Requirements.

⚠
Caution   Service Module downgrade from 1.1.31 to any downlevel version is not supported.

If you are moving service modules from an existing MGX 8220 platform to the MGX 8850, the MGX 8220 service modules (AX-FRSM-8T1/E1, and AX-CESM-8T1/E1) need to have the boot flash upgraded to MGX 8220 Release 5.0.00 common boot code (1.0.01 version) before they can be plugged in the MGX 8850 chassis. All MGX-8220 service module versions that use Release 4.0.xx of boot code and earlier are not supported in the MGX 8850.

SPARE DEPOT - Customers receiving a replacement service module via the TAC (through the RMA process) will have the common boot code image that works for MGX 8220 Release 4.x, 5,x and MGX 8850 installed on legacy service modules. (Spare service modules received directly from manufacturing through the normal ordering process will have the correct boot code image already loaded.)

If loading of the correct common boot code image is required then it will have to be performed on an MGX 8220 chassis, and cannot be performed on an MGX 8850 chassis. Please refer to the procedure below, which is also outlined in the *Cisco MGX 8850 Installation and Configuration Guide* on the documentation CD.

Use ftp to port the Axis 5 common boot image for the service module to a workstation

Plug in the card into the MGX 8220 shelf

Download the proper MGX 8220 shelf Release 5.0 boot image using the following commands from the workstation:

```
tftp <ip address of the MGX 8220 shelf >
bin
put <boot filename> AXIS_SM_1_<slot#>.BOOT
```
Now you must insure that tftp downloaded the appropriate boot code by verifying the flash checksums.

Login to the shelf.

```
cc <slot #>'
chkflash'
```
Verify that the two checksums are the same.

If NOT, repeat the process until they are the same. If they are the same, then you can safely remove the card. At this point the service module can be used in the MGX 8850 shelf.

Service Module Upgrades

The following steps need to be followed for service module upgrade. Service module firmware images cannot be downloaded as specific versions in MGX 8850 Release 1.1.31 because only one image can be present on the disk at one instance. Hence the user cannot revert back during the installation process.

Step 1   Download the service module firmware to the shelf:

```
unix-prompt> tftp shelf.ip.address
tftp> bin
tptp>put frsm_8t1e1_10.0.01.fw POPEYE@SM_1_0.FW
Sent 1982672 bytes in 18.3 seconds
```

Make sure that the transfer is successful, by looking at the message displayed on the PXM console after the transfer:

```
Program length = 1982672
Calculated checksum = 0xd9779bc6 stored checksum = 0xd9779bc6
Fw checksum passed
```

Repeat for each service module type and for each slot independent firmware.

For a slot-specific image (in this example the service module is tied to slot 1),

```
tftp <ip address of the MGX 8850 shelf >
bin
put frsm_<version>.fw POPEYE@SM_1_1.fw
```

for a slot-dependent image,

> **Note** If the checksums are not the same when you remove the service module then the service module will not boot when it is plugged in and the service module will have to be RMA'ed.

- MGX 8850 MGX-FRSM-HS2, MGX-FRSM-2CT3, MGX-FRSM-2T3E3 need to have Release 10.0.01 firmware for the runtime image and Release 10.0.01 firmware for the backup boot image.

- If you need to upgrade both flash and runtime image of MGX 8220 Release 4.0.xx service modules to Release 10.0.01 to operate within the MGX 8850 chassis please follow the procedure below, which is also outlined in the *Cisco MGX 8850 Installation and Configuration* publication on the documentation CD.

Step 2 For non-graceful upgrades, just reset the card and the service module will come up with the new image.

Step 3 For graceful upgrades, a secondary card should be backing up the service module that needs to be upgraded. Configure the redundancy and issue the command:

```
install sm <slot> <version>
```

where <slot> is the service module that is being upgraded

and <version> is the service module image on the disk.

> **Note** The concept of version is redundant here, since there is only one service module image on the disk. However we do check that the version given by the user matches the image on the disk to make it consistent with PXM upgrade/downgrade.

```
newrev sm <slot> <version>
```

where <slot> is the service module that is being upgraded

and <version> is the service module image on the disk.

```
commit sm <slot> <version>
```

where <slot> is the service module that is being upgraded

and <version> is the service module image on the disk.

Note   There is no abort command for service module upgrade.

Known Anomalies for Platform Software and Service Module Firmware

The following is the list of known anomalies in the MGX 8850, Release 1.1.31 delivery. Included with each is a brief discussion of the problem. A more in depth discussion is available in the release note enclosure of the problem record in Bug Navigator

.

Bug ID	Description
CSCdk54268	Symptom: When sending cells with VPI=0, VCI=0 and CLP=1 on a UNI port, **dspportcnt** reports the cells as being discarded due to VpiVciErr and the cellrate also gets updated. However, CLP=0 cells are discarded gracefully and no port stats reported. Conditions: The local port is an ATM port. The other end is configured as IMA port. Workaround: Configure the other end of the port as an ATM port.
CSCdk71643	Symptom/Condition: This is suppose to be an added feature that gives robust end to end connectivity with full recovery in cases of error. But unfortunately, with the current design it will take some extra effort and time to provide this. It will be part of future enhancement and may be available in the next release. Just a little note about why, any Traps sent to PAR are directed by LCN number which is not available without a complete end to end connection, which currently limits the generation of Traps for incomplete connections (after a stipulated timeout period). For now, due to absence of these traps a little more responsibility goes to the end user who is creating end to end connections. It is important that if and when a connection is added or removed both Master and Slave end of the connection should be added or removed respectively. Only one side of a connection should not be removed to create a new connection with the other side. Hence creating and deleting connections under any circumstance is complete only with the creation and deletion of both end of the connections. Failure to do this can result in unneeded dangling connections.

Bug ID	Description
CSCdk86638	Symptom: When using CWM to add connections, if the connection addition request times out, subsequent addition of the same connection may fail as well, complaining that the connection already exists (even though it timed out). Description: This is caused by two factors: 1. CWM assumes that when time out, connections are not added on the switch on which the timeout occurs, and thereby only removes other segments of the timed out connection on other involved nodes. 2. On MGX switch, when CWM reports connection timeout, it does not necessarily mean a timeout on the switch. The CWM timeout may be caused, for example, by the network delay etc. from switch and CWM. The connection may actually be provisioned on the switch. Workaround: Don't use the same vpi/vci/dlci used by the timed out connections. This can be fixed by CWM to perform a retrieval to check if the connection is actually provisioned or not on the switch, after connection addition times out.
CSCdm05358	Symptom: When modifying a particular protected memory address on CESM8p which causes CESM HW watchdog reset, PXM got reset or lost SAR functionality. Description: When this happens, CESM sent a huge amount of traffic onto the management connection which is supposed to be used for intercard communication activities such as polling. This traffic causes the SAR to spend all its resources on doing the cleaning/flushing in ISR (interrupt service). This address should never be modified using the shellConn 'modify' command. It was used unknowingly in debug/test process. Workaround: Don't try to modify this protected address in shellConn (m 0xb300060) (0xb300060 is ATMizer CPU address for SAR on CESM8P). As a general guideline, shellConn commands like 'modify memory' should not be used by the customer.

Bug ID	Description
CSCdm10722	Symptom/Condition:
	The install, newrev and commit commands for service module upgrade (there is no concept of downgrade here, as there exits only one valid, service module image on the disk at a time), do not follow, the same state machine as PXM commands in the current release.
	Hence, it is mandatory, that for service modules, these commands are given in the documented order, which is:
	(1) install
	(2) newrev
	(3) commit
	WARNING: If these, commands are not given in the above specified order, we can be in a situation where we can have two different images running on the primary/secondary combination. However, on the disk, there is only one valid image for the service modules.
	Workaround:
	Assuming, that these commands were given out of order, and now we have two different images, running, on primary / secondary combination.
	f1 - Old image version
	f2 - Newly downloaded image
	(1) Reset the secondary card, so that it comes up, with f2.
	(2) Do a softswitch between the two cards, so that secondary takes over and becomes active. At the same time, primary is reset, and comes up with f2.
	(3) If you may, you can now, do a softswitch, to revert back to the original primary, to restore normal state.
CSCdm11410	Symptom:
	When listing a directory, some filenames contain either illegal characters or a timestamp for the name instead of a standard dos file name. These file entries will fail to be removed when passed to the remove command.
	Conditions:
	No specific known conditions are responsible for this problem.
	Workaround:
	Tools are available to clean condition up on the disk. Contact Cisco engineering.

Bug ID	Description
CSCdm22510	Symptom: Connection traps are not sent out when receiving A bit update from CPE. Conditions: The end result of this is that CWM will not be notified about the channel status change (failure or normal), neither will PXM/PAR. The remote end is notified via in band OAM. This applies to all service modules. Workaround: No Workaround For more information on this bug, refer to CSCdm22510, page 135.
CSCdm31437	Conditions: SV+ needs a trap when a line is added or deleted. Symptoms: In a Feeder case, SV+ is informed of a line addition through Inband communication. However, in case of stand-alone configuration SV+ needs a trap to determine addition or deletion of lines. Workaround: There is currently no Workaround for this.
CSCdm33351	Symptom/Condition: For VISM. When an endpoint is added to a line that is already in an alarm condition, an Endpoint Added Trap message and an Endpoint is Active message are sent to the manager from VISM. However, the Endpoint Failed Indication Trap message is not sent. Workaround: None.
CSCdm33605	Symptom/Condition: For VISM. When a switchover to a redundant VISM card takes place due to a reset/failure of the active VISM card, the display on CWM is not correct. Workaround: None
CSCdm33638	Symptom/Condition: For VISM. When a switchover to a redundant VISM card takes place due to a reset/failure of the active VISM card, the switchover takes place but the display of active lines is not consistent between the shelf and CiscoView. Workaround: None.

Bug ID	Description
CSCdm42849	Symptom: An execution of the **dlmi** command to display LMI messages results in a system reboot. Conditions: Enable lmitrace using **lmitrace** command in order to start capturing LMI messages. **dlmi** results in system reboot. Workaround: **dlmi** is a debug command which should not be used when large number of connection are present in the system. This problem is only seen with large number of connections.
CSCdm43053	Symptom: Connection addition fails. Conditions: 200 connections are already provisioned in the FRSM-HS1. Workaround: None. Further Problem Description: FRSM-HS1 card only supports a maximum of 200 connections on Popeye1. Memory limitations in HS1 SRAM and DRAM place an upper limit on the number of Popeye connection data structures which can be stored in memory.
CSCdm48639	Symptom: Better error checking needs to be provided for SM boot and firmware download. It's possible to download the boot image as firmware and vice versa. Workaround: The boot images must be downloaded with the .BOOT extension and the firmware with the .FW extension.
CSCdm53758	Symptom: Channel alarms do not get propagated to the middle segment if NNI signaling is enabled. Conditions: This happens when the channel level traps are disabled. This will be fixed once a bulk trap mechanism is implemented to indicate channel alarms. Workaround: None.

Bug ID	Description
CSCdm56094	Symptom
	The far end device can not be put into a loopback using the "Far End Inband Loopback" or the "Far End ESF Loopback" options under the "DEVICE TO LOOP" menu in the "cnfbert" command. If these options are chosen as part of a BERT pattern test, then the test will not be configured as it will fail to sync the pattern.
	Condition
	The inband and ESF loopbacks are activated/de-activated by transmitting the loopback codes for the minimum number of seconds specified by the ANSI T1.403 specification. However, due to variations in the way time is measured by the AUSM and the far-end devices, some devices do not detect the code for the desired number of seconds and hence they do not activate/deactivate the loopback.
	Workaround
	This problem may not be seen on all (far-end) devices. If it is seen, then there is no workaround other than trying to repeat the test configuration till it is successful.
CSCdm85931	Symptom:
	There are display errors for FRSM-HS1 card for **dspchancnt** 17.
	Condition:
	Unknown. This happens very rarely.
	Workaround:
	None.
CSCdm91930	The LED status in CWM are different for lines in same status in Active card and hotstandby.
CSCdm92345	Symptom/Condition:
	The VHS SM have either DAX or FEEDER connections on the logical port which is simulated with some kind of signalling. Now if simulate line in logical (diagnostic) loopback the CWM shows connections Failed but after deleting the diagnostic loopback from line connections do not come back in OK state event although traffic runs well through the connections. CLI shows the correct status of the connections but CWM does not show the correct status of the connections ones connections go to the Fail state.
	Workaround:
	None.
CSCdp00912	Core redundancy should be allowed in mismatch state
	Workaround: None
CSCdp11859	Symptom:
	The ABCD bits that are produced on the egress of a CCS-to-CAS connection seem to have a random/unpredictable pattern. As this also applies to the MFA signal, attached devices might go OOMF.
	Workaround:
	There is currently no Workaround for this.

Bug ID	Description
CSCdp32043	Sv+ node sync always failed because of timeout, dut to tftp very low. This condition was caused by manually issuing multiple **switchccs** on the active PXM during config uploads from a SM to CWM. This condition happens when at least three such uploads to a SM is terminated by the **swithchccs**. Hitting this window is extremely rare as config uploads start and finish with in a very short duration. The recovery from this condition is to reboot the SM. The chances of happening this in the field is very remote. Engineering has a solution for this problem, which would be thoroughly tested before it is released.
CSCdp34543	Install backup boot fails when it tries to program the flash on the standby card.This problem is with the database manager and the file transfer code. If an active PXM gets reset while the database manager is copying files to the standby, the new active card database manager will be left in a state where it cannot mirror files to the standby. Workaround Before trying the install command, use the shellconn **dbmFileShow** command on the active. If it shows any file in the state of being copied, you will have the problem. Do a switchcc to clear the problem.
CSCdp35772	Not enough information to find the cause. This should not affect the normal running of the system as the background memory check checks for memory corruption and leaks.
CSCdp36477	Symptom: switchcc on 8850 causes a Sig_F aps line switch on BPX Conditions: This happens rarely on our shelves. Workaround: None
CSCdp39894	The software error is logged as a result of an attempt to refer to a transaction that is already complete. Such an attempt is due to a retry resulting from a timeout. Since the transaction is already complete, the error is logged only for information and has no serious implication in this case.
CSCdp39900	The software error is logged when trying to allocate a msg buffer to send VSI commit for a connection. Buffer allocation problem was fixed by bug CSCdp29728. Retest the problem with the fix for bug CSCdp29278. If the problem doesn't exist, we can close the bug.
CSCdp42349	Symptom: A PXM1-155 alarm is issued. Conditions: This problem occurs under the following scenario: Port3 Rx <----> Port4 Tx Port3 Tx <----> Port4 Rx When Port3 Rx is removed, and the command **dsplog** is issued, the log does not indicate the correct alarm status. Note that when the **dspcds** command is issued, the shelf integrated alarm field is clear.

Bug ID	Description
CSCdp44837	Symptom: When deleting a large number of connections using a script, it was found that for some connections, the resources were not properly freed. Workaround: Do switchcc.
CSCdp46927	Symptoms: VISM card in alarm after **addcid** Conditions: This problem occurs when the **addcon** command is issued on a line in alarm. Workaround: Reset the VISM card.
CSCdp48790	This problem has not been reproducible. It was primarily a display issue observed on a one time occurrence.
CSCdp50045	Symptom: During boot time, vc create failed message will be displayed Conditions: This message appears when there is vc configuration in the configuration file. Workaround: There is no impact on the functionality.
CSCdp50317	Problem: Information displayed using the **dsphotstandby** command is not consistent. Symptoms: When one of the cards in a 1:1 Hotstandby pair is pulled, the **dsphotstandby** command displays out, it displays "Slot XX: SM not in Hot Standby state." If you never inserted an SM with Hotstandby following the last shelf reset, it displays a slightly different message. "Slot XX :SM linked by 1:1 Redundancy. HSB not supported." Workaround: None required. If there is no SM in the slot, both the messages indicated that there is no Hotstandby in this slot.
CSCdp51707	Removing a Service Module, then inserting an RPM in the same slot causes the RPM to go to Active State instead of Mismatch. Workaround: Issuing the command **resetcd** will sometimes correct this problem. However, it's better to issue a **clrsmcnf** command for the RPM slot.
CSCdp52549	This software error has been a one time occurrence when deleting a connection. The cause of the software error is a retry attempt to delete a connection which is already in the process of deletion. The error is just a warning and has no side effect on the connection which is deleted.

Bug ID	Description
CSCdp52776	Symptom: New CLI command to **delportrscprtn** for the AUSM and the FRSM. Conditions New command to delete the port resource partition to be implemented on AUSM and FRSM. Workaround: None.
CSCdp53342	Information on this anomaly is unavailable at this time.
CSCdp53347	Symptom/Condition If 2 different HS1 SM have too many master and slave connections, deleting some 15 slaves first f None.
CSCdp59851	Customer is currently BLOCKED. 2 channels have deleted automatically. Per the log messages, PAR failed, followed by PVC deletion.
CSCdp60443	Symptom: A data outage occurs on the FRSM-2CT3, up to 15 seconds in length. Conditions: This problem is observed during a switchover induced by removing the back card of the standby card. Workaround: User has to do either a softswitch or issue the **resetcd** command and remove the back card of the standby card.
CSCdp63530	Symptom: FRSM-2T3 fails after upgrading causing switchover to secondary Condition: If two FRSM-2T3 cards are set for 1:1 redundancy and a graceful upgrades occurs on PXM, then the Primary FRSM card goes into a fail state and switch over occurs. This always happens in the above scenario. Workaround: None.
CSCdp63922	Connections could not be added successfully from a SM, with a particular port/DLCI combo that did not seem to be used.
CSCdp63924	SYSTEM ERROR 20102 (PV_DB_RMV_ERR) is reported when we try to refer a completed transaction. This is duplicate of the bug CSCdp39894
CSCdp65639	This is needed in cases of abnormalities such as excessive error logging which are more prevalent when the product is in development in engineering environment. Conditions such as these are not expected to occur in released software. Existence of any such problem that can lead to time out scenario described in the bug report would be the one to be addressed as the root cause. There are no known outstanding issues of such nature at this time in released software.

Bug ID	Description
CSCdp65652	The ImaGroupRxImaId is not updating properly on the AUSM when the TxImaGroupId parameter is manually changed via the Kentrox CPE.
CSCdp71408	No information is available about this anomaly at this time.
CSCdp75846	Problem description:
	In the AAL1 cells generated by CESM for a Structured T1 CAS connection, the AAL1 pointer may not be pointing to the first 125 us frame of the multiframe.
	Symptom.
	Analog modem calls which are transported over the Structured T1 CAS CESM connections may experience may more bit corruptions than on a normal TDM link. This may even exceed the tolerable Signal to Noise Ratio (SNR) for some modems and might result in modem calls getting dropped.
	Workaround.
	Use unstructured CESM connections if analog modems drop calls due to excessive bit corruption.
CSCdp77451	Inserting standby PXM can cause the telnet to be lost on the active PXM
	Workaround:
	1) On active card issue bootchange command and change the Ethernet IP address to something different than the one displayed by **dspifip** for the ethernet interface. This can be any spare IP address on that network.
	2) Insert new standby card and wait for it to become standby.
	3) On active card change bootchange IP address back to original IP address of shelf.If this process is not followed than the newly inserted standby card could end up bringing up the ethernet interface with the same IP address as the active and broadcast its mac address so that all ethernet connectivity is lost on the active card. To correct this situation if it occurs, do the following:
	1) Telnet and log into the console on the active card.
	2) Reset the standby card by using **resetcd** or reinsert the card.
	3) Go into shellConn
	4) Enter arpEnetUpdate at shellconn prompt.
	Ethernet connectivity via telnet and tftp to the active card should be restored.
CSCdp81287	**clrsmcnf** says unsupported SM for CESM-8E1

Bug ID	Description
CSCdp84145	When add a connection from CWM using local and remote nodename which is different from the one configured on the node (because CWM is not synced with Popeye 1) , the **addcon** request erroneously passes and the connection gets added.This is because of the fact that the some service modules are not doing the checking for the Local Nodename. It just passes the Local Nodename without checking whether it is valid or not. When the **addcon** request comes to PAR, we check whether the local and remote NSAP match or not, in case they match we allow the **addcon** to go through. PAR assumes the Local nodename to be correctly passed from Platform.
	The error is not seen when we try to add a connection from CLI with incorrect remote nodename. In case of CLI, we don't have to specify the Local Nodename, it is extracted from the database by the respective Service Module. This problem is only seen when we use CWM (to reproduce the problem one can use SNMP set as well).
	We need make sure that Service Modules are doing the validity check for Local Nodename before sending the Hard Disk Update to Platform or not.
CSCdp84773	It has been found out that the Resource Partitioning of an AUSM card on the PXM is registered as zero instead of a value of three. This process takes place automatically with the AUSM card, and on the VISM it is done with a command of **addrscprtn**.
CSCdp86479	Symptom:
	PVCs shown as UP on RPM even when they are deleted remotely.
	Conditions:
	PXM ver: 1.1.0 RPM ver: 12.1(0.7)PI PVCs are added between two RPMs through a ls1010 (ATM Switch)
	Workaround:
	None.
CSCdp89717	In some cases, when RPM fails, it is not declared as failed on PXM.And any attempt to **cc** to this FAILED card fails, even though it is showing ACTIVE on PXM. So this is not a **cc** problem, but the card state should be changed from ACTIVE to FAILED.
	Workaround:
	Check the console of RPM and if it has failed, reset the card either from console (using **reload** command) or from PXM (using **resetcd <slotno>** command).
CSCdp92736	Symptom:
	The line, port, channel counters are reset to zero, and start counting from 0, after a **switchcc**.
	Conditions:
	This is always the case, even in the case of a sm switchover.
	Workaround:
	CWM maintains a copy of the counters, in 15 minute bucket intervals, after the switchcc, the previous values can be retained from CWM DB

Bug ID	Description
CSCdp93004	When a connection fails, the a-bit status displayed on the connection manager for the particular connection always stays as "ok". The PXM does not send the A-bit information to the connection manager. So the A-bit information does not reach the connection manager and the channel status is not reflected in the CWM. It is displayed as "ok" even if the channel is in failed state.
CSCdp94060	Receiving user connection modification traps 25015 for no reason
CSCdp96632	Symptom: The table rpm_port parameter will have -1 value, even if the port is in the active state. Workaround: Table rpm_port parameter will have -1 value even the port is in active state. rpm_port parameter table is having wrong value because the status given by RPM does not match with the values expected by MIB definations.As a result this the retrieved values show wrong status.
CSCdp99496	Symptom: When the help command (?) is issued in the following manner: FRSM-VHS2T3? The return display shows that **dspportstats** is a command. However, no such command exists. Condition: Happens always on a FRSM-VHS2T3. Workaround: Do not use the CLI **dspportstats** for FRSM-VHS2T3 and FRSM-VHSHS2 cards.
CSCdr00016	Symptom/Condition: This problem was encountered sometimes when deleting more than 500 connections using a single **delchans** command. Workaround: It is recommended not group such a large number of connections in each **delchans** command. Restricting to 50 or 100 connections per **delchans** would help workaround this problem.
CSCdr01410	PXM resets if holding down the return key while cc'ed to a service module. Workaround: Don't hold the return key.
CSCdr01426	Symptom: Error logs overwritten and no core dump. Information is not retained on reset. Condition: One time occurrence.
CSCdr02667	When IMA ports are configured on AUSM via SRM (BULK distribution), execution of **switchcc** causes IMA port failure. Workaround None.
CSCdr04154	Customer has come upon a failed PXM in there shelf and would like to have EFA done on it to determine the root cause of the failure.

Bug ID	Description
CSCdr05471	Softswitch caused FRSM-CT3 cards to goto failed state. ed map in the PXM had the same slot number for both the entries.
CSCdr06052	**dspcd** in PXM would show the FAB number as 800-XXX which is actually the PCB Number. Workaround: The **dspnovram** command would help in reading the FAB Number.
CSCdr10332	Upon switchcc AUSM in bulk mode receives wrong vpi-vci cells. The setup includes AUSM to AUSM DAX connection. An ATM tester is connected to one AUSM and traffic is pumped through it. The other AUSM is configured in bulk mode. Traffic is being pumped on 4 ports of the card. When a switchcc is done some ports of AUSM get cells with wrong vpi-vci. Some recover and some not.this was observed more frequently when a back card was inserted in the AUSM slot configured in bulk mode. This was also observed when the back card was not present.
CSCdr11454	PVC alarm status was not reported correctly after a softswitch was executed on fRSM-2cT3.
CSCdr14672	Standby FRSM shows not available under redundancy and hot standby table. Happened once. User was performing a lot of operations such as softswitch, switchcc, **delapsln**, **addapsln**, **switchapsln**, **dspred** and **dsphotstandby** command outputs however, show one slot to be empty and second one available as hotstandby respectively. It is not possible to softswitch from one to the other since one is not available as a standby.
CSCdr15892	addlnloop on the PXM causes SONET line alarms, which sometimes do not clear when the loop is removed.
CSCdr16499	Symptom: RPM sends Trap 50600 after resetcd Conditions: PXM ver: 1.1.22Ll RPM ver: 12.0 Workaround: None

Bug ID	Description
CSCdr16720	Problem Description:
	Softswitch caused the standby FRSM-VHS to Failed state. (Though softswitch succeeded according to the CLI it really didn't occur.
	Setup:
	FRSM-2T3 cards in Slots 1 & 2, configured for 1:1 redundancy with Y cable and connected to ADC-Kentrok DSU. Traffic was pumped from Tekelec tester to the cards. FRSM-2T3 in Slot 1 was in Active and FRSM-2T3 in Slot 2 was in Standby.
	Steps involved:
	With the traffic present, configured cnflnsubrate on FRSM-2T3 on the Active card i.e Slot 1. The configuration went fine. Now did a softswitch. The softswitch cli got executed and the dspcds cli executed immediately after the softswitch, showed the Slot 1 as still active and Slot 2 as standby, but the redundancy column was giving the message covering Slot 1.
	The next **dspcds** after sometime, showed the card in Slot 2 as Failed (It was supposed to have come to Active and the card in Slot 1 should have gone to Standby).The card in Slot 1 never got reset and the traffic continuity was perfect.
CSCdr17959	AUSM card hangs if 2 to 3 ILMI requests are sent on a port. It reboots if 5 ILMI requests are sent.
	Workaround:
	Disable ILMI.
CSCdr19456	Symptom:
	Sending five ILMI requests to an AUSM card makes the directly connected AUSM card reboot. Setting up an HP test set to a directly connected AUSM card. Created a connection to another AUSM card with a loopback plug on that port. After sending only two ILMI requests, the directly connected AUSM card locks up.
	After sending five ILMI requests the directly connected AUSM, the card reboots.
	Workaround:
	None.
CSCdr20239	Symptom:
	When the command **tstcon** is issued, it clears the alarm status of connection when connection is failed due to remote A-bit failure.
	Conditions:
	This problem occurs on with a feeder connection. This problem is not consistent.
	Workaround:
	None. Resetting the card may produce the correct alarm status.

Bug ID	Description
CSCdr21393	Symptom: The AUSM-AUSM loopback connections go into alarm. Conditions: This happens when CCS connections are added between VISM and AUSM. Workaround: None. Further Problem Description: This problem occurs when there are CCS connections added between VISM and AUSM. Only the loopback connections are going into alarm.
CSCdr22375	Symptom/Condition: **added** between SMs fails reporting a feature mismatch but **dspsmcnf** shows identical feature bitmaps for the 2 SMs. Happens only when a graceful PXM upgrade is done to 1.1.23, and no SM upgrade/reset is done after the PXM upgrade and an **addred** is attempted. The IMA feature has been made standard instead of optional in 1.1.23 PXM firmware. Hence a SM which booted while the PXM ran pre-1.1.23 firmware, will maintain its old feature bitmap. But a SM which booted while the PXM ran 1.1.23 firmware (or greater), will show a new feature bitmap. **Addred** will thus fail between two such SMs. Workaround: After the PXM upgrade, reset all the SMs for which **addred** needs to be done, and then do **addred**
CSCdr23964	Symptom: The 50012 trap is sent twice. Conditions: This occurs when the DC power supply is on. Workaround: None. Further Problem Description: The moduleTrapAlarmSeverity is "0" in the first one and "major(2)" in the second one.
CSCdr25038	Symptom: There are times when we are not able to send the cc frame to the RPM card and as such not able to do a cc. Conditions: If SCM is busy talking to RPM then the cc frame gets lost and is not able to go to the card. Workaround: cc is successful the second time.

Bug ID	Description
CSCdr25083	Symptom: Mod Conn fails with error "Wrong OID or problem with Varbind" for FRSM-VHS endpoint connections. Both DAX/NONDAX. Condition: Unknown. This happens with some versions of switch only. Workaround: Upgrade the switch version from 1.1.22 to 1.1.23 will solve the problem.
CSCdr25163	Details on this anomaly is not available at this time.
CSCdr26529	Symptom: Able to restoresmcnf on a different slot Workaround: Be sure to enter the correct slot number (the slot number is part of filename). The filename is formed as: <nodename>_<sm slotnumber>_<cardtype>_<mib version>_<timestamp>.
CSCdr28177	Symptoms: During a switchcc, VISM lines go into yellow alarm for a very short interval. Workaround: None.
CSCdr36469	Symptom: cli required to display the novram contents of all the cards in the MGX8850. Workaround: The **dspnovram** command would display the novram contents of PXM and SRM. The **dspcd** command would display the novram contents for most of the service module except FRSM-HS1 cards. For RPM. the same can be achieved using **show rpm** command.
CSCdr41616	Unable to telnet to the active FRSM card even when there only one cc session initiated to that SM. This problem has been reproduced using two different scenarios that are noted in this case.
CSCdr43216	The stand-by PXM and all service modules go into a failed stated after 64byte packet transmitted from RPM.
CSCdr44024	The MGX and BPX defaults are consistent. The solution is to explicitly configure the framing. AXSM needs to be changed.
CSCdr44337	Symptom: **aveallcnf** creates 2 identical files Workaround: The **saveallcnf** creates one file with timestamp and the same is copied to <nodeName>.zip file. **Saveallcnf** is not restricted to run only once.

Bug ID	Description
CSCdr44487	Symptom: System error is printed on screen Condition: Unknown Workaround: Unknown
CSCdr49478	Symptom: This is a one time occurrence. After a sequence of combination of adding and deleting SM redundancy and **clrsmcnf**, and connection deletion/addition, **tstcon** is not passing on certain connections. Conditions: Occurs when there is 1:1 redundancy configured between VHS cards. Workaround: Use CWM or CLI to delete connections on both slots when SM is configured with redundancy. Then use the command **clrsmcnf** to clear the port/line configuration.
CSCdr53807	Symptom: The LED on a card is green even though the card failed. Condition: It occasionally happens that a card fails, but the LED does not change color, and remains green. Workaround: None.
CSCdr54042	Symptom: **Addred** fails to add a card to a 1:N redundancy set. Conditions: This problem occurs when a secondary card is Active in some other 1:N redundancy set Workaround: Softswitch to make the Secondary as a Standby in the first redundancy set, then perform the **addred**.
CSCdr57422	Symptom: Channel Active or Channel Added trap was not received by CWM. Workaround: None.

Bug ID	Description
CSCdr58123	Symptom: The card gets reset. Conditions: This problem occurs when a continuous **getnext** operation on the atmfVccEntry mib group is done via the ILMI protocol from the CPE side. Workaround: None. Further Problem Description: This problem is a duplicate of CSCdr61335.
CSCdr58189	Symptom: Alarm status is inconsistent for standby PXM card Condition: When there is an alarm on the active PXM, the standby PXM state is also displayed as a minor alarm while issuing the command **dspcds**. Workaround: None. It is working as implemented.
CSCdr60198	The Arbiter PLD on the existing 4E backcards is not compatible with the PCI rev2.1 Port Adapter bridges that are used on the RPM400. However it does work with the older PCIrev2.0 bridges used on the RPM and RPM/B. The new PLD solves the aritration problem at the expense of some performance. Workaround: Use the new RPM 4E/B with the new arbiter PLD for RPM-PR. This card is backward compatible with RPM/B.
CSCdr61309	Symptom: MGX log fills up when the Frame Relay port is in alarm This generates the following error message: 05/27/1999-19:31:38 8 tlmi 4062 MSG Number error : Port: 98
CSCdr61335	Symptom: The card gets reset. Conditions: This problem occurs when a continuous **getnext** operation on the atmfVccEntry mib group is done via the ILMI protocol from the CPE side. Workaround: None. Further Problem Description: This problem is a duplicate of CSCdr58123.

Bug ID	Description
CSCdr61360	Symptom: When the AUSM Card is receiving AIS from the network side as well the A-bit alarm from PXM, it passes the received AID towards the port side as well as generates its own AIS, thus sending duplicate AIS on the port side. Workaround: None. Further Problem Description: The duplication of AIS has to be stopped as part of the fix.
CSCdr61544	No information is available about this anomaly at this time.
CSCdr62285	Symptom: When running BERT tests on CESM lines or ports, the PXM might report a general error. Condition: This problem is caused whenever PXM sends a BERT message to CESM with a Qid = 0. Bert m with Qid = 0 are reserved for intercard purposes in CESM; hence, CESM will not reply to those messages. This causes the PXM to time out. Workaround: None. User has to reinitiate BERT on the port or line.
CSCdr62322	Symptom: Some of the BERT test patterns, for example, QRSS, fail to synchronize with the new CESM-8T1 card. Workaround: None.
CSCdr62361	Symptom: Able to configure line parameters on a FRSM when BERT port tests are running. Conditions: The problem occurs in the following scenarios: Scenario 1: When the line parameters configured and the line parameters given for configuration are the same, the Framer will not be reprogrammed. There is no ERROR returned in this case (irrespective of whether BERT is Enabled or Not). From the BERT point of view, it doesn't mean that line parameters got modified, just because ERROR is not flagged. Scenario 2: When Framer needs to be reprogrammed, for example, when the configured and given line parameters are different, and if BERT is Enabled, an ERROR is flagged. Workaround: None.
CSCdr62370	Symptom: BERT pattern tests on the SRM-3T3-C are intermittently not synchronized with the FRSM-8E1 module. Workaround:

Bug ID	Description
CSCdr66666	Symptom: Some of the lines in IMA group become unavailable. Conditions: After a switchcc on the PXM, the AUSM-8T1 card starts displaying Minor Alarm. Some of the lines configured as a part of the IMA group became unavailable. The respective AUSM-8T1 card is in bulk mode. Workaround: None. Further Problem Description: Note that this problem is a duplicate of CSCdr58168.
CSCdr68155	Symptom: Sometimes the disk update messages for the simulated delete connection/delete port done when the **clrsmcnf** command is issued occurs after the database is removed (as a result of **clrsmcnf**). These update messages are harmless, and do not create any problems. Workaround: None.
CSCdr71479	Symptom: Lines on AUSM/B in slot 9 of MGX 8850 are failed upon switchover to redundant AUSM/B. Conditions: When using 1:N redundant configuration with AUSM/B in slot 9 of MGX 8850, all lines are placed into alarm upon switchover to the redundant card. The line status is correctly returned upon a switchover back to the AUSM/B in slot 9. This was observed in 1.1.21 and 1.1.23. Workaround: Only known workaround is to not use slot 9 for an AUSM/B card.
CSCdr71982	Symptom: CESM addred displays incorrect error msg when the card is in Reserved State. Workaround: None.
CSCdr73483	Information on this anomaly is unavailable at this time.

Bug ID	Description
CSCdr82396	Symptom: **srvovrd** option is not functioning in **cnfchansrvrate** command. Conditions: Add connection on a line. modifying the channel service rate (srvrate) with service override (srvovrd option) disable, the channel service rate is getting updated. But it shouldn't happen. This condition exist: 1) with zero cir connection 2) with non-zero cir connection Workaround: None.
CSCdr90512	Symptom: Not able to collect statistics from the MGX8850 Release 1 shelf. Conditions: All different types of statistics for ports, channels and lines are enabled. Workaround: Reduce the number of statistics collected.
CSCdr90658	Even though through **xaddcon/xcnfcon** displays 38328 cps as the maximum value if calculated correctly it should have been 38312 cps, do not configure it to a maximum of 38328 cps.
CSCdr90871	Symptoms Customer is requesting additional information be provided in the log file when a PVC is deleted. Customer indicates it would make it easier for isolating problems. Currently only the channel number is provided in the log. Conditions Deleting a channel Workaround None
CSCdr90987	Symptom: **cnfclklevel** command succeeds for level 3 even if the old PXM UI backcard is used. Conditions: The problem happens under all conditions Workaround: None Further Description: This is cosmetic in nature. The command actually failed but it did not display the error message to the user. Fix needs to be added to the code to print this error message

Bug ID	Description
CSCdr91331	Symptom:
	Configurations, like bulk mode SRM configurations, seen in unused slots of the shelf.
	Conditions:
	This could happen when configurations like bulk mode SRM configurations exist on a standby PXM which when moved to another standby PXM slot in a new shelf, could cause the original configurations to be retained. These configurations could then become active after a switchcc is performed & the standby PXM becomes active.
CSCdr91665	Symptom:
	displayShelfBanner on Standby PXM does not display the right banner.
	Conditions:
	Irrelevant
CSCdr92373	Symptom:
	PUBLIC community string should be "READ-ONLY", on MGX "PUBLIC" can be used to write by SNMP.
	Conditions:
	SNMP Set to any READ/WRITE MIB Object with community string set to "PUBLIC" will go through. This should return an error.
	Workaround:
	Do not consider SNMPv1 as secure, additional (firewall security) should be provided. There is no workaround except that currently there is no READ-ONLY community string. CWM takes care of this problem.
	Further Problem Description:
	snmpAgent should be fixed to support "READ-ONLY" community string of PUBLIC. Will be fixed in future releases.
CSCdr93342	Details on this anomaly is not available at this time.
CSCdr93376	Details on this anomaly is not available at this time.
CSCdr93664	Symptom:
	Unused slots on 8250 show up as "reserved" even after a **clrallcnf**.
	Conditions:
	This could happen after the active PXM is transferred from an 8230 shelf to an 8250 shelf.
	Workaround:
	None.

Bug ID	Description
CSCdr96138	Symptom: Tried to configure the transmit FEAC code to be 'dsx3SendPayloadCode' on DS1s which should be rejected since DS3 application on PXM is unchannelized. **dsplog** shows that the transmit code is invalid but CLI accepts and configures it. r8250-1.1.7.PXM.a > cnfln -ds3 7.1 -tfeac 3 r8250-1.1.7.PXM.a > Conditions: It happens under all conditions Workaround: None Further Description Check needs to be added in the firmware to see if the card is PXM then do not allow the dsx3SendPayoadCode on DS1s. This option is only applicable for channelized DS3s (SRM 3T3)
CSCdr98578	Symptom: 1. Parameter fields for command **dspalms** is not preceded with a -example: **dspalms** ds3	e3	SONET instead of **dspalms** -ds3	-e3	-SONET 2. Command lists option **plcp** for the alarmtable, which is of no use here. Condition: Executing command **dspalms** Workaround: None.
CSCds03072	The soft reset path on the RPM400 rommon is not re-initializing the TLB correctly that causes RPM400 card not coming up. The new rommon placed a work around on soft reset to look like a POR, which can make sure the card will come up properly.
CSCds04372	Initial Burst Size behavior (IBS) is not functioning correctly for the ABR connections.
CSCds05040	Symptom: The major alarm LED on the active and the standby PXM on MGX8850 are on, while the CLI commands do not show any indication of alarm. Conditions: If the SRM back card in the redundant core card set is removed and reinserted, the alarms on the shelf will be clear, but the MAJ alarm LED alone will be left turned on. Workaround: Perform switchcc to clear the LED.

Bug ID	Description
CSCds05580	Symptom: On doing a **dspcon** on a PXM connection, the remote end LCN is displayed as 0. Conditions: This has been observed once by the submitter of this bug. Workaround: None.
CSCds05593	Symptom: 1. Setup local loopback on SRM and any SM. Both will display AlarmState LocalLoopback This does not show up on **dspcds**. 2. Issue a **clralm** on the SRM and the AlarmState clears. Issue a **clralm** on any SM (AUSM, FRSM, CESM) and the AlarmState does not clear. Condition: Setup local loopback on SRM and any SM. Workaround: None.
CSCds05978	Symptom: On trying to use option "*" for VCI in the **cnfilmi** command as specified in the CLI help, the command returns an error. Conditions: Will happen on attempting to configure ilmi with VCI="*" on ausm-8t1e1 cards. Workaround: Do not use the option "*" for VCI in the **cnfilmi** command.
CSCds07944	Symptom: **clralmcnt** -ds3 does not clear the counters. Workaround: Use **clralms** -ds3
CSCds08528	Symptom: The ports do not go into signalling failure even after the two ports have a signalling mismatch. Condition: This happens when the two ports have been put into a signalling mismatch. Workaround: No workaround. Further Problem Description: Problem still under investigation .

Bug ID	Description
CSCds09036	Symptom:
	The version displays StrataCom instead of displaying Cisco.
	Condition:
	When you execute the CLI "version" .
	Workaround:
	No workaround.
CSCds09448	At present CWM is setting %util values(lper_util, rper_util) to -1. CWM will get these values from * TFTP config UpLoad File * SNMP UpLoad file. CWM will parse these values and update Database. For FSRM(4T, 4E, 8T, 8E.), AUSM, VISM, CESM cards we are not getting lper_util & rper_util values in TFTP upload and SNMP upload fields. But these values are there on CLI. It is required to have these %util values in TFTP & SNMP config Upload files for all cards, so that CWM can prase these values and populate in DataBAse
CSCds10270	Symptom:
	When a OC-12 feeder trunk is configured as 1+1 unidirectional mode, the PXM-622 OC-12 line on slot 7.1 of peartx40 MGX node did not have the option in specifying whether the "working" or "protection" line would be applied upon an external request such as "Manual Switch" and "Forced Switch". This will prevent the capability to allow a user to change a request from "MS: W->P" to "FS: W->P" directly.
	Conditions:
	With APS configured and trying to do **switchapsln**.
	Workaround:
	None
CSCds10279	Symptom:
	Request for user-friendly aps status information.
	Conditions:
	If APS is configured in the system, more information may be required for debugging.
	Workaround:
	Use the **dspapsln** and the **dumpaps** commands. For decoding K1 and K2 information use standards document
CSCds10286	Symptom:
	The PXM displays the incorrect error message when trying to switch aps line using **switchapsln** CLI. The error message seen is "Manual Switching is blocked by SF or SD on PROT line" which is incorrect when the switch is being attempted from Protection line to working line.
	Conditions:
	An OC-12/OC3 trunk/line is configured as 1+1 unidirectional mode on the PXM. When the working line is in LOS and a MS aps switching request is made, the PXM incorrectly shows the request is blocked by SF or SD on protection line.
	Workaround:
	None. This is an erroneous message and can be ignored.

Bug ID	Description
CSCds10287	Symptom: An APS protection switch has occurred because of line alarm and when the status of **dsptrks** and **dspalms** are checked they indicate that the lines are clear. Conditions: An OC-12/OC-3 feeder trunk/line is configured as 1+1 unidirectional mode on the PXM. When the working line is in LOS, both **dspalm** and **dsptrks** fail to display a correct alarm status. Instead, they display "Clear" on the line in failure. Workaround: The **dspapsln** and **dumpaps** commands can be used to obtain the APS and line status. The **dsptrks** will show clear because data traffic is not impacted.
CSCds10377	Symptom: When one of the OC-12/OC-3 lines are in alarm the CLI **dspapsln** shows the line status as "ALM" instead of specifically indicating LOS/LOF. Conditions: When a OC-12/OC-3 line/trunk configured for APS goes into alarm because of LOS or LOF. Workaround: Use the **dspalm** CLI command to obtain the correct alarm status.
CSCds10765	Symptom: Software error 20304 was observed during **resetsys/switchcc**. Conditions: Software error 20304 is logged during resync, when database inconsistency is detected. This is a rare occurrence, not been reproduced. Workaround: None
CSCds11679	No known workarounds. To be fixed in later releases.
CSCds12647	From Cisco Wan Manager, v9.2.07, Connection Manager, customer tries to create a new nrtVBR3 connection on MGX8850. There are three passwords: login, password, and RPM enable password. Customer has verified that: login = PXM login password password = PXM password RPM enable password = RPM enable password In order to connect to this device using Connection Manager, customer must configure on the MGX the RPM vty password and enable password as the same. This is NOT ACCEPTABLE due to a possible security breach. If a customer knows the vty login, then they will also know the enable password to the RPM.

Bug ID	Description
CSCds13629	Symptom:
	Issue **clrallcnf** on PXM, RPM400 failed to erase the connection setup in NVRAM.
	Conditions:
	clrallcnf wasn't able to clear all the connections NVRAM as seen on RPM400 was because **clrallcnf** command was aborted in the mid-way by "corrupted" NVRAM. Two criteria to determine NVRAM is bad, bad NVMAGIC number or checksum error. This is due to the ROMMON was compiled on cosmos branch instead of del_t branch.
	Fix/Workaround:
	I have placed a work round in the new rommon re-initialize rpm400 properly. Eventually when cosmos branch is successfully merged to del_t via del_t_pi4 in the future. All the problem will be gone.
CSCds14812	Symptom:
	During a **switchcc,** the AUSM Secondary active card Leds show LOS for a while.
	Condition:
	During a **switchcc**.
	Workaround:
	No workaround.
	Further Problem Description:
	Problem under investigation.
CSCds15610	Symptom:
	PXM takes long time (10 + mins) to reprogram the connections after power recycle.
	Conditions:
	Lot of connections have been added before the power recycle.
	Workaround:
	None.
CSCds15835	Symptom:
	When a user configures a CESM-T3 or E3 line in a local loopback, the **dspalm** display does not indicate that the loopback is configured on the line.
	Condition:
	The **dspalm** does not reflect the loopback status in all conditions.
	Workaround :
	There is no workaround to this display problem. Configuring local loopback using **addlnloop** will program the line for loopback, similarly, **dellnloop** will bring the line out of the local loopback state.

Bug ID	Description
CSCds16990	Symptom: When issue **clrsmcnf**, an "auto:upLoadBram, Read file failure" can be seen on screen Condition: Unknown Workaround: Unknown
CSCds17001	Symptom: Log file cannot be found for a particular slot Conditions: Use **dsplog** command with invalid option Workaround: Give valid option. Use **dsplog** ? for all valid options Further problem description: When receiving a command with invalid option, system should return error for unknown option.
CSCds18374	Symptom: Reset of a FRSM-HS2 card corrupted the PXM card type matrix and so it started displaying improper card types. Conditions: It's highly likely that some other operations done before this one would have already triggered the problem. So the submitter needs to analyze that and see if the problem can be reproduced. Workaround: Based on the snapshot attached in the Description note, following steps should be followed: Ungraceful: Perform a **resetsys** on the node. This will cause all the cards in the node to get reset. It'll take approx. 5 minutes for the whole node to come up depending upon the load. Graceful: 1. reset Standby PXM first. Wait for it to come up to Standby. 2. Once it is displayed properly in **dspcds** output on Active PXM, perform a switchcc This will reset the current Active PXM. Wait for it to come up to Standby. 3. Now reset all the SMs shown wrongly in the **dspcds** one by one.
CSCds18459	Symptom: The help string shows an incorrect value for the line rate Conditions: Always Workaround: None.

Bug ID	Description
CSCds18513	Symptom: Error message while configuring the line rate gave a misleading reason for failure. Conditions: Whenever the line rate is attempted to be configured greater than 8.192Mbps. Workaround: No workaround as of now.
CSCds18524	Symptom: **Addcon** help for CIR shows a range greater than the ossible line rate. Conditions: Happens every time help is required for CIR of **addcon**. Workaround: No workaround as of yet
CSCds18760	Symptom: Local Connection ID returns wrong VPI on the slave side of **addcon** Conditions: Every time a connection is added. Workaround: None
CSCds19141	Symptom: The card goes into mismatched after the cli **cnfbctype**. Conditions: Happens every time **cnfbctype** is used. Workaround: Use **clrsmcnf** after **cnfbctype**.
CSCds19155	Symptom: **tstcon** passes for a deleted side of connection. Condition: Add both slave and master end of connection. delete the slave end. run **tstcon** from the master end. Workaround: None. SAR does not verify the connection existence before replying for the **tstcon**.
CSCds19333	Symptom: The port loopbacks trap are not generated when the loopback is initiated using bert. Condition: When the ports are configured in Loopback using bert. Workaround: No workaround.

Bug ID	Description
CSCds19363	Details on this anomaly is not available at this time.
CSCds19477	Details on this anomaly is not available at this time.
CSCds19934	Symptom: Port is generating a large number of async updates when the connection is made up/down. Conditions: The async updates begins flooding the port when connections are made up/down. Workaround: None.
CSCds20497	Symtom: An alarm is not raised by the slave end when the corresponding master end is deleted. Conditions: This happens when the master connection of a DAX connection is deleted. Workaround: None.
CSCds25261	Details on this anomaly is not available at this time.
CSCds25992	The command **cnfplpp** configures a line even when the line has not been added/enabled.
CSCds28525	Symptom: The alarm status for the connection shown at CESM and PXM do not match. The clis "tstcon" and "tstdelay" fails for these connections. Conditions: One of the identifed conditions is that this problem appears for a low partial-fill value. Workaround: Assigning the partial-fill value of 47 sometimes solves the problem.
CSCds38687	Symptom: FRSM-8T1E1 takes Invalid (lesser) no. of parameters in the "addcon" cli and does not display any error message. This cli does not require the the user to specify the ServType Field in the "addcon" command. As a result, "dspcons" or "dspcon" output shows the ServType field as blank. Conditions: This happens when you do not specify the ServType Field in the "addcon" cli. Workaround: None.

Bug ID	Description
CSCds47676	Symptom: When the clock level is configured to be STRATUM 3, the PXM trunk card does not receive the STRATUM-3 clock signal. The trunk card still gets the STRATUM-4 clock. Conditions: When the clock level is set as STRATUM-3, the STRATUM3 clock signal does not output to the PXM trunk card. The PXM trunk card still gets the STRATUM4 clock. However, the service modules do recieve the STRATUM3 clock. Workaround: No workaround currently.
CSCds47699	Symptom : cnfupcvbr seting incorrect default ingress % util when parm=0 Condition : when execute the cnfupcvbr with util % = 0 Workaround : None
CSCds47719	Symptom : The xdspconstdabr and xdspcon displayed the contents of the 1st channel, when the channel # was given without the "-chn" prefix. This will cause confusion to the user. Workaround: 1. Accept the channel # without the "-chn", since the channel # is a required value. 2. Or reject the command, promt with the help menu: " xdspcon -chn \<ChanNum> " Workaround: Problem under investigation.
CSCds48610	Symptom: Both the VBR connections are not getting higher bandwidth even when it has higher Maxbwinc values than CBR & ABR VCC's. Conditions: This happens when there are different connections i.e of different service types and the VBR connection's have a higher value of Maxbwinc than the CBR and ABR VCC's. Workaround: Problem under investigation.

Bug ID	Description
CSCds48615	Symptom: The VBR connections are not getting a higher bandwidth even though their CLP-high and CLp-Low values are changed to Q-Max. The cell rate is remaning the same. Changing these values has no effect on the connections cell rate. The problem has been reported for Algorithm 5. Conditions: When the clp-low and clp-high values are changed (increased) to Q-Max , 1000. Workaround: Problem under investigation.
CSCds52875	Symptom: The Ingress/Egress traffic was stopped after the card was reset or upgraded for ports configured for algorithm 4 .The Maxbwinc value is not retained after the reset /upgrade and hence the traffic gets stopped. The value of Maxbwinc is reset to 0 after this action and hence traffic is stopped . Conditions: This happens when the card is reset/upgraded. Workaround: Problem under investigation.
CSCds52894	Symptom: 1. When the port with all queues set to Algorithm 4 & Minbwinc= 64. Changed the rtVBR queue to Algorithm 3, the Minbwinc in nrtVBR, ABR, and UBR were set to 0; and the rtVBR Minbwinc= 447. 2. The Maxbwinc in all queues can total up to more than 512 the maximum increment for the T1 card. Workaround: Problem under investigation.
CSCds53841	Symptom: There are 6 type options to set the CoS. No ConnServiceType option avaialble for rtVBR. Workaround: Problem under investigation.
CSCds56829	Symptom: After switchcc the Standby PXM backcard still shows on. Conditions: This problem sometimes occurs with E3 backcard when switchcc is done. Workaround: None.

Bug ID	Description
CSCds59688	Symptom:
	CESM/T3 & CESM/E3 failed to upgrade to 10.0.20 version. Both cards stayed in Standby mode. The port and connection disappered on CESM, but the PXM7 still retained some connection information.
	Workaround:
	Problem under investigation.
CSCds60827	Symptom:
	The FRSM 2CT3 VCCs were configured with CBR & CIR=4240. Since the FRT tester was pum higher data rate, the committed rate was changed to 50000 bps. All corresponding VCCs segments were changed accordingly. The tstcon failed after the change. Other VCCs without change passed tstcon.
	Workaround:
	Problem under investigation.
CSCds63641	Symptom:
	FRSM/T1 in an MGX1 Feeder node, added 470 CBR VCCs on port 1 with script. Tried to add another 500 rtVBR VCCs on port 2, it failed after VCC (35,790). Tried to add with CLI command manually also got rejected. The Fail Reason;"ConnExceed". The dsptotals showed total VCCs were 761.
	Workaround:
	Problem under investigation.
CSCds64800	Symptom:
	The FRSM/2T3 card was in Active, with 200 VCCs. Then it switched to Standby mode without any cause. The depcd showed it had "Watchdog Timeout Reset". CLI resetcd could not clear it from Standby mode.
	Workaround:
	Problem under investigation.
CSCds65754	Symptom:
	Both PXM modules stuck in boot mode.
	Condition: unknown
	Workaround:
	Clearing the DB directory on slot 7 finally brought slot 7 up. The cause of the problem seemed to be that slot 7 was running 1.1.23 firmware together with the 1.1.31 database.

CSCdm22510

The NNI part of the connection is working correctly. A=0 is being sent from the tester to the local port of the FRSM and the remote port of the FRSM is sending A=0 to the remote port of the tester. However, Test Suite 16 of Bellcore's Frame Relay Protocol Conformance Certification Test Suites states "Since the active /inactive indication is independent of direction, the IUT(FRSM) Local port (DLCI 16) should transmit STATUS messages with ACTIVE status to the local test equipment." In other words port

1(Local port) of the FRSM should also transmit A=1 back to port 1(Local port) of the tester. This is stated in Frame Relay Forum Document No. FRF 2.1 Frame Relay Network-to-Network Interface Implementation Agreement. This was verified by Bellcore Engineer:

The last sentence of the expected results statement: "Since the active/inactive indication is independent of direction, the IUT Local port (DLCI 16) should transmit STATUS messages with ACTIVE status to the local test equipment." is correct as stated. This statement actually reflects a requirement from FRF 2.1 Section 4.2:

"PVC status information from full status reports and optionally from single PVC asynchronous status reports shall be propagated towards the user-to-network interface (UNI) of the multi-network PVC. The PVC status information element active bit state signaled at the NNI is independent of the PVC status information element active bit state signaled in the other direction at the same NNI."

Bidirectional status signaling requires that a user side process and a network side process execute concurrently. Nowhere in the requirements, Annex A, Annex D, FRF 2.1 does it state that these processes share information. They are totally independent. PVC status is signalled to the local user based on the service affecting conditions or PVC status signaled from the remote user side.

       FRF 2.1 Section 4.2 Polling requirements of network-to-network interfaces

Two sets of sequence numbers and local in-channel signalling parameters are administered for the network-to-network interface as shown below; see the table for parameter ranges and default values.

user side procedures - T391, N391, N392, and N393

network side procedures - T392, N392, and N393

The table below summarizes the acceptable values when using bidirectional procedures at the NNI. The default values should be used as the actual system parameter values. Parameter values other than the default values are a subscription time option. Procedures for starting and stop T391 and T392 are described in Q.933 Annex A.

Table 1   NNI System Parameters

Name	Range	Default	Units	Definition
N391	1-255	6	Polling Cycles	Full status (status of all PVCs) polling cycles.
N392	1-10	3	Errors	Number of errors during N393 monitored events which cause the channel/user side procedures to be declared inactive. This number may also be used by the user side procedures as the number of errors during N393 monitored events which cause the network side procedures to be declared inactive.
N393	1-10	4	Events	Monitored events count.
T391	5-30	10	Seconds	Link integrity verification polling timer.
T392	5-30	15	Seconds	Timer for verification of polling cycle.

Both networks are required to initiate status enquiry messages based on T391. A full status report is requested each N391 (default 6) polling cycles. Both networks shall have the same values for T391, T392, N392, and N393 for both user side procedures and network side procedures; N391 is not required to have the same value in both networks.

PVC status information from full status reports and optionally from single PVC asynchronous status reports shall be propagated towards the user-to-network interface (UNI) of the multi-network PVC. The PVC status information element active bit state signaled at the NNI is independent of the PVC status information element active bit state signalled in the other direction at the same NNI.

Note In addition, when a PVC segment's active/inactive status has changed, or a PVC segment has been newly added or deleted, the network should respond to any poll (i.e., status enquiry) with a full status report. Alternatively, the network may generate a single PVC asynchronous status report to convey the PVC segment's status change.

Known Anomalies for RPM release 12.1(1)T

1. The show **rscprtn** command on RPM will always display the state as "out of sync". This does not necessarily mean that the config on the PXM and RPM are out of sync. The PXM software 1.1.23 does not fully recognize a particular message from RPM and hence assumes that it is out of sync.

   The user will still be able to add the connections. The only side effect is that there will be a syslog entry (and a message on the console, if not under telnet) every five minutes.

2. WRED feature on the PA-A3 RPM is not functionally working.

Known Anomalies for RPM Release 12.0(5)T1

These RPM anomalies are tied to its function with the MGX 8850. For generic IOS issues, refer to the 12.0.5T1 release notes.

- Under heavy load conditions from multiple sources, RPM performance may degrade (CSCdk91818)
- Some RPMs may not boot when more than 8 RPMs are booting simultaneously from the PXM hard disk (CSCdm14987)
- UBR connection for RPM is not supported from CWM, even though the CLI can support it

  Note For more details refer to the CWM Release 9.2.05 release notes part number 78-6659-05

- The ABR service type is not supported in 12.0.5T1/120.5.T1 release of MGX/RPM but the CLI does not restrict the provisioning.
- Under heavy load conditions the counter (input queue size, packet output byte size) values reported may be incorrect particularly with Tag VP configuration.
- It is required to allow OSPF and MPLS to converge while adding connections continuously. Otherwise, it will load the CPU and cause CPUHOG condition. Under such condition the IPC channel is not serviced which in turn will cause PXM to declare RPM in Failed state.

  This problem will not occur when either enough time is given to the protocols to converge or the newly added connections are just added without enabling these protocols, and later these protocols are enabled on them.

  To avoid this condition, you may limit the tag PVP connections to 75 or fewer. Above this, the TDP updates may create a CPUHOG condition (with CPU utilization very high). This in turn will break the IPC channel between PXM and RPM, and PXM will declare the RPM as Failed.

- It is not recommended to shut the switch interface. Doing so will remove the connection to the MGX cell-bus and all connections will go down. It also generates some trace back error messages, which are benign. The 120-5.T image does not provide any caution or warning when the command is entered.

- In some instances you may see RPM_VIRTUAL_PORT-3-IPCERR indicating that RPM was not able to convey the existing virtual port information to PXM. This situation is more likely to happen after **clrallcnf** is executed or the card is reset. At this point the connection database gets out of sync between RPM and PXM, and RPM experienced a problem in connection resync. However the connection eventually comes up successfully.

  If not, the saved config needs to be copied to running config by "copy" command.

- In multi-point configuration with inverse ARP, it is recommended to decrease the frequency from the default value of 15 min to 1 min.

- If you are unable to overwrite on an existing config file on PXM disk and are getting the:

  %error opening c: filename (bad file number)

  message then delete:

  (rm <filename>)

  the existing file and then copy the new file.

- In 120-5.T release when RPM re-loads, the "Status" column in the output of the "show switch connections" command show "MISMATCH" for all the connections or for a few connections even though the connections are fine and traffic passes through them without any problem.

  If the PVC leg of the connections is added using the **pvc** command, then the "VCD" is chosen automatically for those PVCs. If the RPM is reloaded, then these VCD values might change. If they do change, then those connections will appear in the mismatched state.

  This condition does not affect traffic. The problem can be avoided by using the **atm pvc** command which requires the user to specify the VCD value explicitly in the command. The "show switch connections **nextvcd**" command can be used to determine a VCD value that can be used with the **atm pvc** command.

  In the event that the **pvc** commands were used and the connections go into the mismatched state, they can be cleaned up by re-adding the affected connections or if all the connections are affected and all of them are in the mismatched state, they can all be re-added using the "copy startup-config running-config" command.

  This problem is fixed in the 120-5.T1 release.

RPM Configuration Examples for MPLS-based Virtual Private Networks

The following are MPLS VPN examples with MGX/RPM. These examples will be included in the online version of the *Cisco RPM Installation and Configuration* publication.
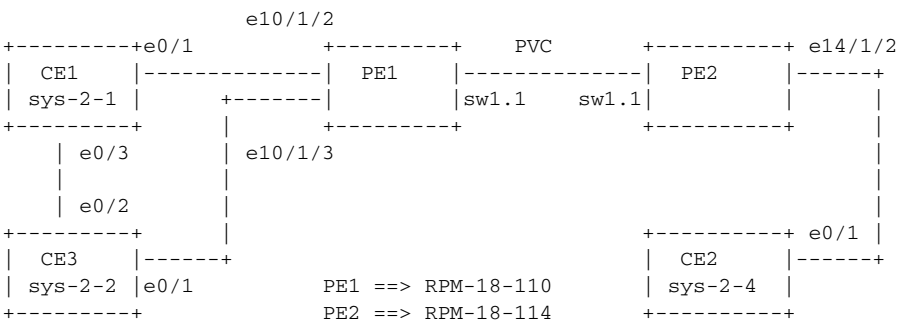
One PE - Two CE Configuration

The following is a one PE and two CE VPN configuration.

Note   Both RPMs are in the same shelf or chassis.

```
                            e10/1/2
      +---------+e0/1              +---------+    PVC           +----------+ e14/1/2
      |  CE1    |-------------|  PE1    |-------------|  PE2     |------+
      | sys-2-1 |      +-------|         |sw1.1    sw1.1|          |      |
      +---------+      |       +---------+              +----------+      |
          | e0/3      | e10/1/3                                          |
          |           |                                                  |
          | e0/2      |                                                  |
      +---------+      |                              +----------+ e0/1 |
      |  CE3    |------+                              |  CE2     |------+
      | sys-2-2 |e0/1          PE1 ==> RPM-18-110     | sys-2-4  |
      +---------+              PE2 ==> RPM-18-114     +----------+
```

One PE - Two CE Configuration - OSPF & IBPG Between PEs & EBGP between PE-CE

CE1 Configuration:

```
sys-2-1#sho run
Building configuration...

Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname sys-2-1
!
boot system tftp mpls/12.0/c3620-js-mz.120-5.0.2.T2 3.3.0.1
logging buffered 4096 debugging
no logging console
!
!
!
!
!
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
ip cef
cns event-service server
!
!
!
process-max-time 200
!
interface Loopback0
 ip address 12.12.12.12 255.255.255.255
 no ip directed-broadcast
!
interface Ethernet0/0
 ip address 3.3.30.1 255.255.0.0
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/1
 ip address 50.0.0.1 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/3
 ip address 52.0.0.1 255.0.0.0
 no ip directed-broadcast
!
interface Serial1/0
 no ip address
```

```
 no ip directed-broadcast
 shutdown
 no fair-queue
!
interface Serial1/1
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/3
 no ip address
 no ip directed-broadcast
 shutdown
!
router ospf 100
 redistribute bgp 101
 passive-interface Ethernet0/1
 network 12.0.0.0 0.255.255.255 area 100
 network 52.0.0.0 0.255.255.255 area 100
!
router bgp 101
 no synchronization
 network 12.0.0.0
 network 13.0.0.0
 network 50.0.0.0
 network 51.0.0.0
 network 52.0.0.0
 neighbor 50.0.0.2 remote-as 100
!
ip default-gateway 3.3.0.1
no ip classless
no ip http server
!
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
!
end

sys-2-1#
sys-2-1#
```

CE2 Configuration

```
sys-2-4#sho run
Building configuration...

Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname sys-2-4
!
boot system tftp mpls/12.0/c3640-js-mz.120-5.0.2.T2 3.3.0.1
logging buffered 4096 debugging
no logging console
!
!
!
!
!
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
ip cef
cns event-service server
!
!
!
process-max-time 200
!
interface Loopback0
 ip address 14.14.14.14 255.255.255.255
 no ip directed-broadcast
!
interface Ethernet0/0
 ip address 3.3.30.4 255.255.0.0
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/1
 ip address 53.0.0.2 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/3
 no ip address
 no ip directed-broadcast
 shutdown
!
router ospf 100
 redistribute bgp 102
 passive-interface Ethernet0/1
 network 14.0.0.0 0.255.255.255 area 100
!
router bgp 102
```

```
 no synchronization
 network 14.0.0.0
 network 53.0.0.0
 neighbor 53.0.0.1 remote-as 100
!
ip default-gateway 3.3.0.1
no ip classless
no ip http server
!
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
!
end

sys-2-4#
sys-2-4#
```

CE3 Configuration:

```
sys-2-2#sho run
Building configuration...

Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname sys-2-2
!
boot system tftp mpls/12.0/c3640-js-mz.120-5.0.2.T2 3.3.0.1
logging buffered 4096 debugging
no logging console
!
!
!
!
!
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
ip cef
cns event-service server
!
!
!
process-max-time 200
!
interface Loopback0
 ip address 13.13.13.13 255.255.255.255
 no ip directed-broadcast
!
interface Ethernet0/0
 ip address 3.3.30.2 255.255.0.0
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/1
 ip address 51.0.0.2 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/2
 ip address 52.0.0.2 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/3
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/0
 no ip address
 no ip directed-broadcast
 shutdown
 no fair-queue
!
interface Serial1/1
```

```
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/3
 no ip address
 no ip directed-broadcast
 shutdown
!
router ospf 100
 redistribute bgp 101
 passive-interface Ethernet0/1
 network 13.0.0.0 0.255.255.255 area 100
 network 52.0.0.0 0.255.255.255 area 100
!
router bgp 101
 no synchronization
 network 12.0.0.0
 network 13.0.0.0
 network 50.0.0.0
 network 51.0.0.0
 network 52.0.0.0
 neighbor 51.0.0.1 remote-as 100
!
ip default-gateway 3.3.0.1
no ip classless
no ip http server
!
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
!
end

sys-2-2#
sys-2-2#
```

PE1 Configuration:

```
rpm-18-110#sho run
Building configuration...

Current configuration:
!
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname rpm-18-110
!
boot system tftp mpls/12.0/rpm-js-mz.120-5.T.bin 3.3.0.1
no logging console
!
!
!
!
!
clock timezone EST -5
clock summer-time EDT recurring
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
!
ip vrf vpn1
 rd 100:1
 route-target export 100:1
 route-target import 100:1
ip cef
cns event-service server
!
!
process-max-time 200
!
interface Loopback0
 ip address 11.11.11.11 255.255.255.255
 no ip directed-broadcast
!
interface Loopback1
 no ip address
 no ip directed-broadcast
!
interface Ethernet1/1
 ip address 3.3.18.110 255.255.0.0
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
!
interface Ethernet1/2
 ip vrf forwarding vpn1
 ip address 50.0.0.2 255.0.0.0
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
 tag-switching ip
!
interface Ethernet1/3
```

```
  bandwidth 100
 ip vrf forwarding vpn1
 ip address 51.0.0.1 255.0.0.0
 no ip directed-broadcast
 no ip mroute-cache
 tag-switching ip
 no fair-queue
!
interface Ethernet1/4
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
!
interface FastEthernet2/1
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
!
interface Switch1
 no ip address
 no ip directed-broadcast
 no atm ilmi-keepalive
!
interface Switch1.1 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 50 50 0 aal5snap
 tag-switching atm vp-tunnel 50
 tag-switching ip
!
interface Switch1.2 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 30 30 0 aal5snap
 tag-switching atm vp-tunnel 30
 tag-switching ip
!
interface Switch1.3 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 60 60 0 aal5snap
 tag-switching atm vp-tunnel 60
 tag-switching ip
!
router ospf 100
 passive-interface Ethernet1/2
 passive-interface Ethernet1/3
 network 11.0.0.0 0.255.255.255 area 100
!
router bgp 100
 no synchronization
 no bgp default ipv4-unicast
 neighbor 10.10.10.10 remote-as 100
 neighbor 10.10.10.10 update-source Loopback0
 !
 address-family ipv4 vrf vpn1
 neighbor 50.0.0.1 remote-as 101
 neighbor 50.0.0.1 activate
 neighbor 51.0.0.2 remote-as 101
 neighbor 51.0.0.2 activate
 no auto-summary
 no synchronization
 exit-address-family
```

```
 !
 address-family vpnv4
 neighbor 10.10.10.10 activate
 neighbor 10.10.10.10 send-community extended
 exit-address-family
!
ip default-gateway 3.3.0.1
no ip classless
no ip http server
!
dialer-list 1 protocol ip permit
dialer-list 1 protocol ipx permit
!
x25 host shorun
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
exception core-file mpls/mgx/dumps/rpm-18-110.core
rpmrscprtn PAR 100 100 0 255 0 3840 4047
addcon vpc switch 1.2 30 rslot 0 3 30 master local
addcon vpc switch 1.1 50 rslot 14 1 50
addcon vpc switch 1.3 60 rslot 0 4 60 master local
end

rpm-18-110#
rpm-18-110#
rpm-18-110#
```

PE2 Configuration:

```
rpm-18-114#sho run
Building configuration...

Current configuration:
!
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname rpm-18-114
!
boot system tftp mpls/12.0/rpm-js-mz.120-5.T.bin 3.3.0.1
no logging console
!
!
!
!
!
clock timezone EST -5
clock summer-time EDT recurring
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
!
ip vrf vpn1
 rd 100:1
 route-target export 100:1
 route-target import 100:1
ip cef
cns event-service server
!
!
process-max-time 200
!
interface Loopback0
 ip address 10.10.10.10 255.255.255.255
 no ip directed-broadcast
!
interface Loopback1
 no ip address
 no ip directed-broadcast
!
interface Ethernet1/1
 ip address 3.3.18.114 255.255.0.0
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
!
interface Ethernet1/2
 bandwidth 100
 ip vrf forwarding vpn1
 ip address 53.0.0.1 255.0.0.0
 no ip directed-broadcast
 no ip mroute-cache
 tag-switching ip
 no fair-queue
!
```

```
interface Ethernet1/3
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
!
interface Ethernet1/4
 bandwidth 100
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
 no fair-queue
!
interface Switch1
 no ip address
 no ip directed-broadcast
 no atm ilmi-keepalive
!
interface Switch1.1 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 50 50 0 aal5snap
 tag-switching atm vp-tunnel 50
 tag-switching ip
!
interface Switch1.2 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 40 40 0 aal5snap
 tag-switching atm vp-tunnel 40
 tag-switching ip
!
interface Switch1.3 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 20 20 0 aal5snap
 tag-switching atm vp-tunnel 20
 tag-switching ip
!
router ospf 100
 passive-interface Ethernet1/2
 network 10.0.0.0 0.255.255.255 area 100
!
router bgp 100
 no synchronization
 no bgp default ipv4-unicast
 neighbor 11.11.11.11 remote-as 100
 neighbor 11.11.11.11 update-source Loopback0
 !
 address-family ipv4 vrf vpn1
 neighbor 53.0.0.2 remote-as 102
 neighbor 53.0.0.2 activate
 no auto-summary
 no synchronization
 exit-address-family
 !
 address-family vpnv4
 neighbor 11.11.11.11 activate
 neighbor 11.11.11.11 send-community extended
 exit-address-family
!
ip default-gateway 3.3.0.1
no ip classless
no ip http server
!
```

```
dialer-list 1 protocol ip permit
dialer-list 1 protocol ipx permit
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
exception core-file mpls/mgx/dumps/rpm-18-114.core
rpmrscprtn PAR 100 100 0 255 0 3840 4047
addcon vpc switch 1.3 20 rslot 0 2 20 master local
addcon vpc switch 1.2 40 rslot 0 1 40
addcon vpc switch 1.1 50 rslot 10 1 50 master local
end

rpm-18-114#
```

One PE - Two CE Configuration - OSPF & IBPG Between PEs & RIP between PE-CE

CE1 Configuration

```
sys-2-1#sho run
Building configuration...

Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname sys-2-1
!
boot system tftp mpls/12.0/c3620-js-mz.120-5.0.2.T2 3.3.0.1
logging buffered 4096 debugging
no logging console
!
!
!
!
!
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
ip cef
cns event-service server
!
!
!
process-max-time 200
!
interface Loopback0
 ip address 12.12.12.12 255.255.255.255
 no ip directed-broadcast
!
interface Ethernet0/0
 ip address 3.3.30.1 255.255.0.0
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/1
 ip address 50.0.0.1 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/3
 ip address 52.0.0.1 255.0.0.0
 no ip directed-broadcast
!
interface Serial1/0
 no ip address
```

```
 no ip directed-broadcast
 shutdown
 no fair-queue
!
interface Serial1/1
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/3
 no ip address
 no ip directed-broadcast
 shutdown
!
router rip
 version 2
 network 12.0.0.0
 network 50.0.0.0
 network 52.0.0.0
 no auto-summary
!
ip default-gateway 3.3.0.1
no ip classless
no ip http server
!
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
!
end

sys-2-1#
sys-2-1#
```

CE2 Configuration

```
sys-2-4#sho run
Building configuration...

Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname sys-2-4
!
boot system tftp mpls/12.0/c3640-js-mz.120-5.0.2.T2 3.3.0.1
logging buffered 4096 debugging
no logging console
!
!
!
!
!
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
ip cef
cns event-service server
!
!
!
process-max-time 200
!
interface Loopback0
 ip address 14.14.14.14 255.255.255.255
 no ip directed-broadcast
!
interface Ethernet0/0
 ip address 3.3.30.4 255.255.0.0
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/1
 ip address 53.0.0.2 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/3
 no ip address
 no ip directed-broadcast
 shutdown
!
router rip
 version 2
 network 14.0.0.0
 network 53.0.0.0
 no auto-summary
!
```

```
ip default-gateway 3.3.0.1
no ip classless
no ip http server
!
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
!
end

sys-2-4#
sys-2-4#
sys-2-4#
```

CE3 Configuration

```
sys-2-2#sho run
Building configuration...

Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname sys-2-2
!
boot system tftp mpls/12.0/c3640-js-mz.120-5.0.2.T2 3.3.0.1
logging buffered 4096 debugging
no logging console
!
!
!
!
!
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
ip cef
cns event-service server
!
!
!
process-max-time 200
!
interface Loopback0
 ip address 13.13.13.13 255.255.255.255
 no ip directed-broadcast
!
interface Ethernet0/0
 ip address 3.3.30.2 255.255.0.0
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/1
 ip address 51.0.0.2 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/2
 ip address 52.0.0.2 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/3
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/0
 no ip address
 no ip directed-broadcast
 shutdown
 no fair-queue
!
interface Serial1/1
```

```
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/3
 no ip address
 no ip directed-broadcast
 shutdown
!
router rip
 version 2
 network 13.0.0.0
 network 51.0.0.0
 network 52.0.0.0
 no auto-summary
!
ip default-gateway 3.3.0.1
no ip classless
no ip http server
!
!
x25 host shorun
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
!
end

sys-2-2#
sys-2-2#
```

PE1 Configuration

```
rpm-18-110#sho run
Building configuration...

Current configuration:
!
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname rpm-18-110
!
boot system tftp mpls/12.0/rpm-js-mz.120-5.T.bin 3.3.0.1
no logging console
!
!
!
!
!
clock timezone EST -5
clock summer-time EDT recurring
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
!
ip vrf vpn1
 rd 100:1
 route-target export 100:1
 route-target import 100:1
ip cef
cns event-service server
!
!
process-max-time 200
!
interface Loopback0
 ip address 11.11.11.11 255.255.255.255
 no ip directed-broadcast
!
interface Loopback1
 no ip address
 no ip directed-broadcast
!
interface Ethernet1/1
 ip address 3.3.18.110 255.255.0.0
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
!
interface Ethernet1/2
 ip vrf forwarding vpn1
 ip address 50.0.0.2 255.0.0.0
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
 tag-switching ip
!
interface Ethernet1/3
```

```
  bandwidth 100
 ip vrf forwarding vpn1
 ip address 51.0.0.1 255.0.0.0
 no ip directed-broadcast
 no ip mroute-cache
 tag-switching ip
 no fair-queue
!
interface Ethernet1/4
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
!
interface FastEthernet2/1
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
!
interface Switch1
 no ip address
 no ip directed-broadcast
 no atm ilmi-keepalive
!
interface Switch1.1 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
atm pvc 50 50 0 aal5snap
 tag-switching atm vp-tunnel 50
 tag-switching ip
!
interface Switch1.2 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 30 30 0 aal5snap
 tag-switching atm vp-tunnel 30
 tag-switching ip
!
interface Switch1.3 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 60 60 0 aal5snap
 tag-switching atm vp-tunnel 60
 tag-switching ip
!
router ospf 100
 passive-interface Ethernet1/2
 passive-interface Ethernet1/3
 network 11.0.0.0 0.255.255.255 area 100
 network 50.0.0.0 0.255.255.255 area 100
 network 51.0.0.0 0.255.255.255 area 100
!
router rip
 version 2
 !
 address-family ipv4 vrf vpn1
 version 2
 redistribute bgp 100 metric 2
 network 50.0.0.0
 network 51.0.0.0
 no auto-summary
 exit-address-family
!
router bgp 100
```

```
 no synchronization
 no bgp default ipv4-unicast
 neighbor 10.10.10.10 remote-as 100
 neighbor 10.10.10.10 update-source Loopback0
 !
 address-family ipv4 vrf vpn1
 redistribute rip
no auto-summary
 no synchronization
 exit-address-family
 !
 address-family vpnv4
 neighbor 10.10.10.10 activate
 neighbor 10.10.10.10 send-community extended
 exit-address-family
!
ip default-gateway 3.3.0.1
no ip classless
no ip http server
!
dialer-list 1 protocol ip permit
dialer-list 1 protocol ipx permit
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
exception core-file mpls/mgx/dumps/rpm-18-110.core
rpmrscprtn PAR 100 100 0 255 0 3840 4047
addcon vpc switch 1.2 30 rslot 0 3 30 master local
addcon vpc switch 1.1 50 rslot 14 1 50
addcon vpc switch 1.3 60 rslot 0 4 60 master local
end

rpm-18-110#
rpm-18-110#
```

PE2 Configuration

```
rpm-18-114#sho run
Building configuration...

Current configuration:
!
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname rpm-18-114
!
boot system tftp mpls/12.0/rpm-js-mz.120-5.T.bin 3.3.0.1
no logging console
!
!
!
!
!
clock timezone EST -5
clock summer-time EDT recurring
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
!
ip vrf vpn1
 rd 100:1
 route-target export 100:1
 route-target import 100:1
ip cef
cns event-service server
!
!
process-max-time 200
!
interface Loopback0
 ip address 10.10.10.10 255.255.255.255
 no ip directed-broadcast
!
interface Loopback1
 no ip address
 no ip directed-broadcast
!
interface Ethernet1/1
 ip address 3.3.18.114 255.255.0.0
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
!
interface Ethernet1/2
 bandwidth 100
 ip vrf forwarding vpn1
 ip address 53.0.0.1 255.0.0.0
 no ip directed-broadcast
 no ip mroute-cache
 tag-switching ip
 no fair-queue
!
```

```
interface Ethernet1/3
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
!
interface Ethernet1/4
 bandwidth 100
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
 no fair-queue
!
interface Switch1
no ip address
 no ip directed-broadcast
 no atm ilmi-keepalive
!
interface Switch1.1 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 50 50 0 aal5snap
 tag-switching atm vp-tunnel 50
 tag-switching ip
!
interface Switch1.2 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 40 40 0 aal5snap
 tag-switching atm vp-tunnel 40
 tag-switching ip
!
interface Switch1.3 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 20 20 0 aal5snap
 tag-switching atm vp-tunnel 20
 tag-switching ip
!
router ospf 100
 passive-interface Ethernet1/2
 network 10.0.0.0 0.255.255.255 area 100
 network 53.0.0.0 0.255.255.255 area 100
!
router rip
 version 2
 !
 address-family ipv4 vrf vpn1
 version 2
 redistribute bgp 100 metric 2
 network 53.0.0.0
 no auto-summary
 exit-address-family
!
router bgp 100
 no synchronization
 no bgp default ipv4-unicast
 neighbor 11.11.11.11 remote-as 100
 neighbor 11.11.11.11 update-source Loopback0
 !
 address-family ipv4 vrf vpn1
 redistribute rip
 no auto-summary
 no synchronization
 exit-address-family
```

```
 !
 address-family vpnv4
 neighbor 11.11.11.11 activate
 neighbor 11.11.11.11 send-community extended
 exit-address-family
!
ip default-gateway 3.3.0.1
no ip classless
no ip http server
!
dialer-list 1 protocol ip permit
dialer-list 1 protocol ipx permit
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
exception core-file mpls/mgx/dumps/rpm-18-114.core
rpmrscprtn PAR 100 100 0 255 0 3840 4047
addcon vpc switch 1.3 20 rslot 0 2 20 master local
addcon vpc switch 1.2 40 rslot 0 1 40
addcon vpc switch 1.1 50 rslot 10 1 50 master local
end

rpm-18-114#
rpm-18-114#
rpm-18-114#
```

One PE - Two CE Configuration - OSPF & IBPG Between PEs & STATIC ROUTES between PE-CE

CE1 Configuration

```
sys-2-1#sho run
Building configuration...

Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname sys-2-1
!
boot system tftp mpls/12.0/c3620-js-mz.120-5.0.2.T2 3.3.0.1
logging buffered 4096 debugging
no logging console
!
!
!
!
!
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
ip cef
cns event-service server
!
!
!
process-max-time 200
!
interface Loopback0
 ip address 12.12.12.12 255.255.255.255
 no ip directed-broadcast
!
interface Ethernet0/0
 ip address 3.3.30.1 255.255.0.0
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/1
 ip address 50.0.0.1 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/3
 ip address 52.0.0.1 255.0.0.0
 no ip directed-broadcast
!
interface Serial1/0
 no ip address
```

```
 no ip directed-broadcast
 shutdown
 no fair-queue
!
interface Serial1/1
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/3
 no ip address
 no ip directed-broadcast
 shutdown
!
router ospf 100
 passive-interface Ethernet0/1
 network 12.0.0.0 0.255.255.255 area 100
 network 50.0.0.0 0.255.255.255 area 100
 network 52.0.0.0 0.255.255.255 area 100
!
ip default-gateway 3.3.0.1
no ip classless
ip route 0.0.0.0 0.0.0.0 Ethernet0/1 50.0.0.2
no ip http server
!
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
!
end

sys-2-1#
sys-2-1#
```

CE2 Configuration

```
sys-2-4#sho run
Building configuration...

Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname sys-2-4
!
boot system tftp mpls/12.0/c3640-js-mz.120-5.0.2.T2 3.3.0.1
logging buffered 4096 debugging
no logging console
!
!
!
!
!
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
ip cef
cns event-service server
!
!
!
process-max-time 200
!
interface Loopback0
 ip address 14.14.14.14 255.255.255.255
 no ip directed-broadcast
!
interface Ethernet0/0
 ip address 3.3.30.4 255.255.0.0
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/1
 ip address 53.0.0.2 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/3
 no ip address
 no ip directed-broadcast
 shutdown
!
router ospf 100
 passive-interface Ethernet0/1
 network 14.0.0.0 0.255.255.255 area 100
 network 53.0.0.0 0.255.255.255 area 100
!
ip default-gateway 3.3.0.1
```

```
no ip classless
ip route 0.0.0.0 0.0.0.0 Ethernet0/1 53.0.0.1
no ip http server
!
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
!
end

sys-2-4#
```

CE3 Configuration

```
sys-2-2#sho run
Building configuration...

Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname sys-2-2
!
boot system tftp mpls/12.0/c3640-js-mz.120-5.0.2.T2 3.3.0.1
logging buffered 4096 debugging
no logging console
!
!
!
!
!
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
ip cef
cns event-service server
!
!
!
process-max-time 200
!
interface Loopback0
 ip address 13.13.13.13 255.255.255.255
 no ip directed-broadcast
!
interface Ethernet0/0
ip address 3.3.30.2 255.255.0.0
 no ip directed-broadcast
 shutdown
!
interface Ethernet0/1
 ip address 51.0.0.2 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/2
 ip address 52.0.0.2 255.0.0.0
 no ip directed-broadcast
!
interface Ethernet0/3
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/0
 no ip address
 no ip directed-broadcast
 shutdown
 no fair-queue
!
interface Serial1/1
```

```
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/2
 no ip address
 no ip directed-broadcast
 shutdown
!
interface Serial1/3
 no ip address
 no ip directed-broadcast
 shutdown
!
router ospf 100
 passive-interface Ethernet0/1
 network 13.0.0.0 0.255.255.255 area 100
 network 51.0.0.0 0.255.255.255 area 100
 network 52.0.0.0 0.255.255.255 area 100
!
ip default-gateway 3.3.0.1
no ip classless
ip route 0.0.0.0 0.0.0.0 Ethernet0/1 51.0.0.1
no ip http server
!
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
!
end

sys-2-2#
sys-2-2#
sys-2-2#
```

PE1 Configuration

```
rpm-18-110#sho run
Building configuration...

Current configuration:
!
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname rpm-18-110
!
boot system tftp mpls/12.0/rpm-js-mz.120-5.T.bin 3.3.0.1
no logging console
!
!
!
!
!
clock timezone EST -5
clock summer-time EDT recurring
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
!
ip vrf vpn1
 rd 100:1
 route-target export 100:1
 route-target import 100:1
ip cef
cns event-service server
!
!
process-max-time 200
!
interface Loopback0
 ip address 11.11.11.11 255.255.255.255
 no ip directed-broadcast
!
interface Loopback1
 no ip address
 no ip directed-broadcast
!
interface Ethernet1/1
 ip address 3.3.18.110 255.255.0.0
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
!
interface Ethernet1/2
 ip vrf forwarding vpn1
 ip address 50.0.0.2 255.0.0.0
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
 tag-switching ip
!
interface Ethernet1/3
```

```
 bandwidth 100
 ip vrf forwarding vpn1
 ip address 51.0.0.1 255.0.0.0
 no ip directed-broadcast
 no ip mroute-cache
 shutdown
 tag-switching ip
 no fair-queue
!
interface Ethernet1/4
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
!
interface FastEthernet2/1
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
!
interface Switch1
 no ip address
 no ip directed-broadcast
 no atm ilmi-keepalive
!
interface Switch1.1 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 50 50 0 aal5snap
 tag-switching atm vp-tunnel 50
 tag-switching ip
!
interface Switch1.2 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 30 30 0 aal5snap
 tag-switching atm vp-tunnel 30
 tag-switching ip
!
interface Switch1.3 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 60 60 0 aal5snap
 tag-switching atm vp-tunnel 60
 tag-switching ip
!
router ospf 100
 passive-interface Ethernet1/2
 passive-interface Ethernet1/3
 network 11.0.0.0 0.255.255.255 area 100
 network 50.0.0.0 0.255.255.255 area 100
 network 51.0.0.0 0.255.255.255 area 100
!
router bgp 100
 no synchronization
 no bgp default ipv4-unicast
 neighbor 10.10.10.10 remote-as 100
 neighbor 10.10.10.10 update-source Loopback0
 !
 address-family ipv4 vrf vpn1
 redistribute connected
 redistribute static
 no auto-summary
 no synchronization
```

```
 exit-address-family
 !
 address-family vpnv4
 neighbor 10.10.10.10 activate
 neighbor 10.10.10.10 send-community extended
 exit-address-family
!
ip default-gateway 3.3.0.1
no ip classless
ip route vrf vpn1 12.0.0.0 255.0.0.0 Ethernet1/2 50.0.0.1
ip route vrf vpn1 13.0.0.0 255.0.0.0 Ethernet1/3 51.0.0.2
ip route vrf vpn1 50.0.0.0 255.0.0.0 Ethernet1/2 50.0.0.1
ip route vrf vpn1 51.0.0.0 255.0.0.0 Ethernet1/3 51.0.0.2
ip route vrf vpn1 52.0.0.0 255.0.0.0 Ethernet1/2 50.0.0.1
ip route vrf vpn1 52.0.0.0 255.0.0.0 Ethernet1/3 51.0.0.2
no ip http server
!
dialer-list 1 protocol ip permit
dialer-list 1 protocol ipx permit
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
exception core-file mpls/mgx/dumps/rpm-18-110.core
rpmrscprtn PAR 100 100 0 255 0 3840 4047
addcon vpc switch 1.2 30 rslot 0 3 30 master local
addcon vpc switch 1.1 50 rslot 14 1 50
addcon vpc switch 1.3 60 rslot 0 4 60 master local
end

rpm-18-110#
rpm-18-110#
rpm-18-110#
```

PE2 Configuration

```
rpm-18-114#sho run
Building configuration...

Current configuration:
!
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname rpm-18-114
!
boot system tftp mpls/12.0/rpm-js-mz.120-5.T.bin 3.3.0.1
no logging console
!
!
!
!
!
clock timezone EST -5
clock summer-time EDT recurring
ip subnet-zero
no ip domain-lookup
ip host ios-lab-fw 3.3.0.1
!
!
ip vrf vpn1
 rd 100:1
 route-target export 100:1
 route-target import 100:1
ip cef
cns event-service server
!
!
process-max-time 200
!
interface Loopback0
 ip address 10.10.10.10 255.255.255.255
 no ip directed-broadcast
!
interface Loopback1
 no ip address
 no ip directed-broadcast
!
interface Ethernet1/1
 ip address 3.3.18.114 255.255.0.0
 no ip directed-broadcast
 no ip mroute-cache
 no keepalive
!
interface Ethernet1/2
 bandwidth 100
 ip vrf forwarding vpn1
 ip address 53.0.0.1 255.0.0.0
 no ip directed-broadcast
 no ip mroute-cache
 tag-switching ip
 no fair-queue
!
```

```
interface Ethernet1/3
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
!
interface Ethernet1/4
 bandwidth 100
 no ip address
 no ip directed-broadcast
 no ip mroute-cache
 no fair-queue
!
interface Switch1
 no ip address
 no ip directed-broadcast
 no atm ilmi-keepalive
!
interface Switch1.1 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 50 50 0 aal5snap
 tag-switching atm vp-tunnel 50
 tag-switching ip
!
interface Switch1.2 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 40 40 0 aal5snap
 tag-switching atm vp-tunnel 40
 tag-switching ip
!
interface Switch1.3 tag-switching
 ip unnumbered Loopback0
 no ip directed-broadcast
 atm pvc 20 20 0 aal5snap
 tag-switching atm vp-tunnel 20
 tag-switching ip
!
router ospf 100
 passive-interface Ethernet1/2
 network 10.0.0.0 0.255.255.255 area 100
 network 53.0.0.0 0.255.255.255 area 100
!
router bgp 100
 no synchronization
 no bgp default ipv4-unicast
 neighbor 11.11.11.11 remote-as 100
 neighbor 11.11.11.11 update-source Loopback0
 !
 address-family ipv4 vrf vpn1
 redistribute connected
 redistribute static
 no auto-summary
 no synchronization
 exit-address-family
 !
 address-family vpnv4
 neighbor 11.11.11.11 activate
 neighbor 11.11.11.11 send-community extended
 exit-address-family
!
ip default-gateway 3.3.0.1
no ip classless
ip route vrf vpn1 14.0.0.0 255.0.0.0 Ethernet1/2 53.0.0.2
```

```
ip route vrf vpn1 53.0.0.0 255.0.0.0 Ethernet1/2 53.0.0.2
no ip http server
!
dialer-list 1 protocol ip permit
dialer-list 1 protocol ipx permit
!
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
exception core-file mpls/mgx/dumps/rpm-18-114.core
rpmrscprtn PAR 100 100 0 255 0 3840 4047
addcon vpc switch 1.3 20 rslot 0 2 20 master local
addcon vpc switch 1.2 40 rslot 0 1 40
addcon vpc switch 1.1 50 rslot 10 1 50 master local
end

rpm-18-114#
```

Obtaining Service and Support

For service and support for a product purchased from a reseller, contact the reseller. Resellers offer a wide variety of Cisco service and support programs, which are described in the section "Service and Support" in the information packet that shipped with your chassis.

Note   If you purchased your product from a reseller, you can access Cisco Connection On-line (CCO) as a guest. CCO is Cisco Systems' primary, real-time support channel. Your reseller offers programs that include direct access to CCO's services.

For service and support for a product purchased directly from Cisco, use CCO.

Cisco Connection On-line

Cisco Connection On-line (CCO) is Cisco Systems' primary, real-time support channel. Maintenance customers and partners can self-register on CCO to obtain additional information and services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco's customers and business partners. CCO services include product information, product documentation, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously: a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and it is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: http://www.cisco.com
- WWW: http://www-europe.cisco.com
- WWW: http://www-china.cisco.com
- Telnet: cco.cisco.com
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.