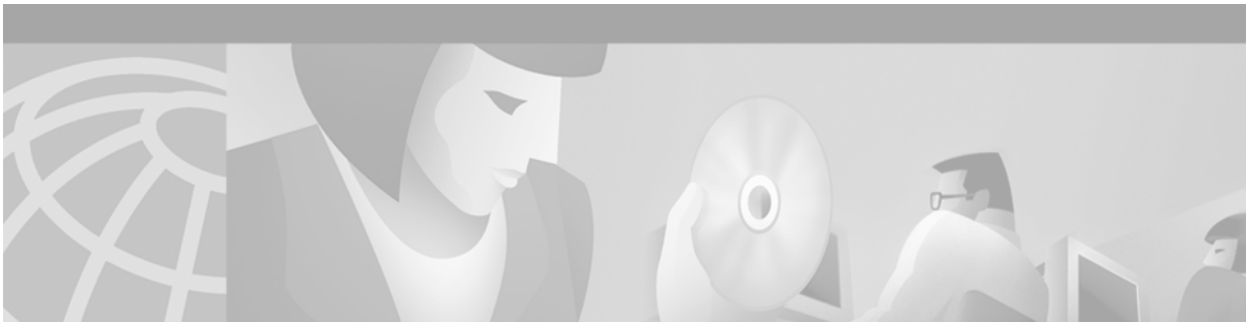

Release Notes for Cisco MGX 8850 Software Version 2.1.79

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About Release 2.1.79

These release notes describe the system requirements, new features, and limitations that apply to Release 2.1.79 for the MGX 8850 multi-service switch. These notes also contain Cisco support information.

Use this document in conjunction with the documents listed in the "Related Documentation" section.

Type of Release

Release 2.1.79 is a maintenance release for the MGX 8850 switch and a hardware and software release for the new MGX 8950 switch.

For information about the MGX 8950, see the "Release Notes for Cisco MGX 8950 Software Version 2.1.79."

Locating Software Updates

Software updates are located at Cisco Connection Online (CCO) at http://www.cisco.com/kobayashi/sw-center/wan/wan-planner.shtml and ftp://ftp.cisco.com/cisco/wan/firmware/mgx/8850/.

Acronyms

Table 1 lists acronyms used in these release notes.

Table 1 Acronyms and Their Descriptions

Acronym	Description
AINI	ATM Inter-Network Interface
APS	automatic protection switching
ATM	asynchronous transmission mode
AXSM	ATM Switch Service Module
B-ISUP	Broadband ISDN User Part
BPX	an earlier Cisco backbone switch
CLI	command line interface
CWM	Cisco Wide Area Network Manager
DSLAM	digital subscriber line access module
IETF	Internet Engineering Task Force
LDP	label distribution protocol
LSC	label switch controller
LSP	label switched paths
LSR	label switch router
MIB	management information base

Table 1 Acronyms and Their Descriptions (continued)

Acronym	Description
MPG	multiple peer group
MPLS	multiple protocol label switching
NCDP	network clock distribution protocol
PGL	peer group leader
PNNI	private network-to-network interface
PXM	processor switch module
RCC	routing control channel
RPM	route processor module
RPM-PR	route processor module - Premium
SCT	service class template
SLA	service level agreement
SM	service module (a card)
SNMP	simple network management protocol
SPVC	soft permanent virtual connection
SVC	switched virtual circuit
UNI	User-Network Interface
VCI	virtual channel identifier
VPI	virtual path identifier

System Requirements

This section describes software compatible with this release, and lists the hardware supported in this release.

Software/Firmware Compatibility Matrix

Table 2 lists Cisco WAN or IOS products that are interoperable with MGX Release 2.1.79.

Table 2 WAN and IOS Software Version Compatibility Matrix

Cisco WAN or IOS Products	Current Release	One release before current release	Two releases before current release
CWM	10.5.10 P2	n/a	n/a
MGX 1	1.2.01	1.1.41	n/a
MGX 2	2.1.79	2.1.75, 2.1.76	2.0.16
BPG/IGX	9.3.36	n/a	n/a
MGX 8220	5.0.18	4.1.12	n/a
SES	1.1.75	1.0.16	n/a
Firmware	latest for all	latest for all	latest

Table 2 WAN and IOS Software Version Compatibility Matrix (continued)

Cisco WAN or IOS Products	Current Release	One release before current release	Two releases before current release
IOS	12.2(8)T4	12.2(8)T2	n/a
VISM	2.2	2.1	n/a

Table 3 lists the software that is compatible for use in a switch running Release 2.1.79 software. Note that the AXSM/B cards use the same software as AXSM cards.

Table 3 MGX and RPM Software Version Compatibility Matrix

Board Pair	Boot Software	Minimum Boot Code Version	Runtime Software	Latest Firmware Version	Minimum Firmware Version
PXM45	pxm45_002.001.079.101_bt.fw	2.1.79	pxm45_002.001.079.101_mgx.fw	2.1.79	2.1.79
PXM45/B	pxm45_002.001.079.101_bt.fw	2.1.79	pxm45_002.001.079.101_mgx.fw	2.1.79	2.1.79
AXSM-1-2488	axsm_002.001.079.101_bt.fw	2.1.79	axsm_002.001.079.101.fw	2.1.79	2.1.79
AXSM-16-155					
AXSM-4-622					
AXSM-16-T3/E3					
AXSM-1-2488/B	axsm_002.001.079.101_bt.fw	2.1.79	axsm_002.001.079.101.fw	2.1.79	2.1.79
AXSM-16-155/B					
AXSM-4-622/B					
AXSM-16-T3/E3/B					
AXSM-2-622-E	axsme_002.001.079.101_bt.fw	2.1.79	axsme_002.001.079.101.fw	2.1.79	2.1.79
AXSM-8-155-E					
AXSM-16-T3E3-E					
RPM-PR	rpm-boot-mz.122-8.T4	12.2(8)T4	rpm-js-mz.122-8.T4	12.2(8)T1	12.2(8)T4

Additional Compatibility Information

The following notes provide additional compatibility information for this release:

- You can gracefully upgrade to Release 2.1.79 from Release 2.0.16 or Release 2.1.76.
- MGX 2.1.79 interoperates with SES PNNI 1.175 plus BPX Switch Software (SWSW) 9.3.30 plus BXM MFN.
- This release supports feeder connections from Cisco MGX 8850 Release 1.1.41 and 1.2.01. Please see the “Release Notes for MGX 8850, 8230, and 8250 Software Version 1.1.40” for feeder feature issues. Release notes can be downloaded from http://www.cisco.com/univercd/cc/td/doc/product/wanbu/index.htm.
- You must use CWM Release 10.5.10 (2) to manage networks that contain MGX switches running Release 2.1.79.
- The RPM-PR software in this release is based on IOS Release 12.2(8)T4.

- The SNMP MIB release for 2.1.79 is mgxmibs2176.tar

Hardware Supported

Table 4 lists the hardware supported in Release 2.1.79.

Table 4 Hardware Supported in Release 2.1.79 for MGX 8850

Product ID	800 Part Number	Minimum Revision
AXSM-1-2488	800-05795-05	-A0
AXSM-1-2488/B	800-07983-02	-A0
AXSM-16-155	800-05776-06	-A0
AXSM-16-155/B	800-07909-05	-A0
AXSM-16-T3/E3	800-05778-08	-A0
AXSM-16-T3E3/B	800-07911-05	-A0
AXSM-16-T3E3-E	800-18519-02	-A0
AXSM-2-622-E	800-18521-02	-A0
AXSM-4-622	800-05774-09	-B0
AXSM-4-622/B	800-07910-05	-A0
AXSM-8-155-E	800-18520-02	-A0
MGX-APS-CON	800-05307-01	-A0
MGX-MMF-FE	800-03202-02	-A0
MGX-RJ45-4E/B	800-12134-01	-A0
MGX-RJ45-FE	800-02735-02	-A0
MMF-4-155/C	800-07408-02	-A0
MMF-8-155-MT	800-04819-01	-A1
MMF-8-155-MT/B	800-07120-02	-A0
PXM45	800-06147-07	-B0
PXM45/B	800-09266-04	-A0
PXM-HD	800-05052-03	-A0
PXM-UI-S3	800-05787-02	-A0
RPM-PR-256	800-07178-02	-A0
RPM-PR-512	800-07656-02	-A0
SMB-4-155	800-07425-02	-A0
SMB-8-E3	800-04093-02	-A0
SMB-8-T3	800-05029-02	-A0
SMFIR-1-622/C	800-07410-02	-A0
SMFIR-2-622	800-05383-01	-A1
SMFIR-2-622/B	800-07412-02	-B0
SMFIR-4-155/C	800-07108-02	-A0

Table 4 Hardware Supported in Release 2.1.79 for MGX 8850 (continued)

Product ID	800 Part Number	Minimum Revision
SMFIR-8-155-LC	800-05342-01	-B0
SMFIR-8-155-LC/B	800-07864-02	-B0
SMFLR-1-2488	800-06635-04	-A0
SMFLR-1-2488/B	800-08847-01	-A0
SMFLR-1-622/C	800-07411-02	-A0
SMFLR-2-622	800-05385-01	-A1
SMFLR-2-622/B	800-07413-02	-B0
SMFLR-4-155/C	800-07409-02	-A0
SMFLR-8-155-LC	800-05343-01	-C0
SMFLR-8-155-LC/B	800-07865-02	-B0
SMFSR-1-2488	800-05490-05	-A0
SMFSR-1-2488/B	800-07255-01	-A0
SMFXLR-1-2488	800-05793-05	-A0
SMFXLR-1-2488/B	800-08849-01	-A0

Hardware Compatibility Matrix

Table 5 shows which back cards can be used with each front card in Release 2.1.76.

Table 5 Back Cards and Connectors Supported by Front Cards

Front Card Type	Back Card Types	Supports APS Connector (MGX-APS-CON)
AXSM-1-2488	SMFSR-1-2488 SMFLR-1-2488 SMFXLR-1-2488	Yes Yes Yes
AXSM-1-2488/B	SMFSR-1-2488/B SMFLR-1-2488/B SMFXLR-1-2488/B	Yes Yes Yes
AXSM-2-622-E	SMFIR-1-622/C SMFLR-1-622/C	Yes Yes
AXSM-4-622	SMFIR-2-622 SMFLR-2-622	Yes Yes
AXSM-4-622/B	SMFIR-2-622/B SMFLR-2-622/B	Yes Yes
AXSM-8-155-E	MMF-4-155/C SMFIR-4-155/C SMFLR-4-155/C SMB-4-155	Yes Yes Yes Yes

Table 5 Back Cards and Connectors Supported by Front Cards (continued)

Front Card Type	Back Card Types	Supports APS Connector (MGX-APS-CON)
AXSM-16-155	MMF-8-155-MT SMFIR-8-155-LC SMFLR-8-155-LC	Yes Yes Yes
AXSM-16-155/B	SMB-4-155 MMF-8-155-MT/B SMFIR-8-155-LC/B SMFLR-8-155-LC/B	Yes Yes Yes Yes
AXSM-16-T3E3	SMB-8-T3 SMB-8-E3	N/A
AXSM-16-T3E3/B	SMB-8-T3 SMB-8-E3	N/A
AXSM-16-T3E3-E	SMB-8-T3 SMB-8-E3	
PXM45	PXM-HD PXM-UI-S3	N/A
PXM45/B	PXM-HD PXM-UI-S3	N/A
RPM-PR-256 RPM-PR-512	MGX-MMF-FE MGX-RJ45-4E/B MGX-RJ45-FE	N/A

New and Changed Information

This section contains a summary of recent features, hardware, or commands that have been implemented in MGX 8850.

New Features and Enhancements in Release 2.1.60 through 2.1.79

Release 2.1.60 contained these new features:

- MGX/BPX automatic protection switching (APS) Interoperability
- Hierarchical PNNI (Multiple Peer Group [MPG])
- 192 Interfaces on PXM45/B
- UNI 4.0
- ATM Inter-Network Interface (AINI)
- LDP on RPM-PR
- Multi-LVC on RPM

- switchredcd command for RPM

MGX/BPX APS Interoperability

This feature verifies that the Automatic Protection Switching (APS) feature operates as described in the Telcordia GR-253 standard on both the MGX and the BPX switches.

Benefits

Cisco's multiservice customers, whose networks started out with the BPX as a backbone switch, have APS operation unchanged as their networks evolve to include the MGX 8850 switch.

Hierarchical PNNI (Multiple Peer Group [MPG])

Hierarchical PNNI (also referred to as Multiple Peer Group PNNI) allows the growth of PNNI networks to a very large size. As a simple example, a network with two levels of hierarchy and 50 nodes in each peer group and 50 groups would have 2500 nodes. Another way to describe this is as 50 peer groups, each containing 50 nodes. Expanding the same design to 3 levels of hierarchy yields 125,000 nodes. While network topology constraints will usually limit the size to smaller numbers, the growth potential is clear.

The practical size of PNNI networks is limited by several factors, all of which use either processor real time, or memory on the node:

- Number of nodes in a peer group.
- Number of “visible” nodes. This is the number of nodes seen by a node that connects to other peer groups. This number includes the number of nodes in the local peer group, as well as all other peer groups that can be seen from a particular node’s view into the hierarchical network.
- The number of PNNI links in a peer group.
- The number of registered ATM addresses in a network.
- The number of connections supported on the local node.
- The average number of 10 links per node and 2000 addresses per node with average of 2 summary addresses per node.

For complete details, refer to the “Cisco MGX and SES PNNI Network Planning Guide” (see “Related Documentation” later in these notes).

The software can support up to 10 hierarchical levels. Testing of 2.1.79 is performed for four hierarchical levels.

To prepare for the future addition of hierarchy to a PNNI network, the addressing scheme should be planned prior to the provisioning of any connections on a PNNI network. If, at any time in the future, hierarchy must be added to a network in which the addressing was not planned properly, connections will have to be re-provisioned using the new addressing scheme.

Benefits

The introduction of hierarchical PNNI enables the building of very large ATM networks. It also enables the growth of flat PNNI networks with the addition of hierarchy. Enabling hierarchy on an existing PNNI network has no impact on existing ATM connections, assuming that the addressing scheme was planned in advance to accommodate hierarchy. Since connections can be managed end-to-end across a hierarchical network, the manageability of networks can be increased in situations that previously required splitting a large network into multiple routing domains.

192 Interfaces on PXM45/B

The PXM45/B module supports up to 192 interfaces. A physical port/trunk, virtual trunk or a logical port is counted as an interface. Among 192 interfaces, up to 100 interfaces can be signaling ports. The other 92 interfaces should be non-signaling ports, such as non self-supporting ports.

Benefits

Support for 192 interfaces allows the ability to completely fill the chassis (12 slots) with broadband service module ports, e.g., AXSM-16-155/B.

UNI 4.0

MGX 8850 switches currently provide UNI signaling compliant with ATM Forum UNI 3.1 (af-uni-0010.002). This feature adds the ability to utilize the UNI 4.0 protocol when connecting to ATM UNI devices that require signaling support. Also included in this feature is support for the ITU signaling specification Q.2931.

Benefits

The UNI 4.0 signaling capability is required to provide complete and standard interoperability with UNI devices in common use. Applications enabled by the full implementation of UNI 4.0 include voice transport, connection to certain class 5 voice switching equipment, and enhanced SVC UNI services including ABR.

AINI

The ATM Inter-Network Interface (AINI) is the new inter-networking standard for PNNI to PNNI, PNNI to B-ISUP, and B-ISUP to B-ISUP internetworking. AINI provides most of the advantages of PNNI networking and allows for a secure interface that does not allow the exchange of network topology and availability information.

AINI provides a resilient interface between networks since it takes advantage of many aspects of PNNI. Despite using static routes, AINI offers crankback, alternate routes, and load balancing across multiple parallel links. Crankback is defined as a mechanism for partially releasing a connection setup in progress, which has encountered a failure. This mechanism allows PNNI to perform alternate routing.

AINI support includes:

- UNI 4.0 based signalling
- Supports UNI 4.0 call types including ABR
- Crankback on AINI links used for Alternate routing
- Load balancing across multiple AINI links
- Path and Connection Trace across AINI links
- Support for Hop Counter Information Element to detect loops
- Configurable VPI/VCI allocator Node (between AINI peer nodes)
- Connection terminates at AINI ports.

Note Support of Path and Connection Trace on AINI links is provided as a configurable option. For standards compliance, it should be disabled.

Benefits

AINI allows two or more carriers to interconnect their PNNI-based networks without exchanging topology information. It provides end-to-end provisioning and resiliency of connections. This provides a significant manageability improvement over the traditional method of interconnecting such networks using standard NNI links.

The DSL Forum has defined AINI as the preferred protocol for interconnecting ATM switches with DSLAMs. This feature allows use of the MGX 8850 in applications such as DSL, wireless, and other aggregation applications.

LDP on RPM-PR

The MPLS label distribution protocol (LDP), as standardized by the Internet Engineering Task Force (IETF) and as enabled by Cisco IOS software, allows the construction of highly scalable and flexible IP Virtual Private Networks (VPNs) that support multiple levels of services.

LDP provides a standard methodology for hop-by-hop, or dynamic label, distribution in an MPLS network by assigning labels to routes that have been chosen by the underlying Interior Gateway Protocol (IGP) routing protocols. The resulting labeled paths, called label switch paths or LSPs, forward label traffic across an MPLS backbone to particular destinations. These capabilities enable service providers to implement Cisco's MPLS-based IP VPNs and IP+ATM services across multivendor MPLS networks.

From an historical and functional standpoint, LDP is a superset of Cisco's pre-standard Tag Distribution Protocol (TDP), which also supports MPLS forwarding along normally routed paths. For those features that LDP and TDP share in common, the pattern of protocol exchanges between network routing platforms is identical. The differences between LDP and TDP for those features supported by both protocols are largely embedded in their respective implementation details, such as the encoding of protocol messages, for example.

This software release of LDP provides the means for transitioning an existing network from a TDP operating environment to an LDP operating environment. Thus, you can run LDP and TDP simultaneously on any given router platform. The routing protocol that you select can be configured on a per-interface basis for directly connected neighbors and on a per-session basis for non directly connected (targeted) neighbors. In addition, a label switch path (LSP) across an MPLS network can be supported by LDP on some hops and by TDP on other hops.

Benefits

- IETF Standards-based Label distribution protocol
- Multi-Vendor Interoperability
- TDP to LDP migration and interoperability

Multi-LVC on RPM

This feature enables support for initiation of Multiple label switched paths (LSPs) per destination on the RPM. Different label switched paths are established for different class of services. This feature enables interface level queueing rather than per-vc level on the RPM based on MPLS class of service policy.

Benefits

Customers can deploy IP VPN services with Class of Service SLAs.

RPM 1:N Redundancy

RPM 1:N redundancy is used to switch configuration and traffic from one RPM card to another. The main benefits are:

- Route processing continues even if an RPM fails and there is no operator or direct access to swap the failed card or fix the problem.
- An RPM card with hardware problems can be fixed while the redundant standby card takes over its functionality.
- Software upgrades are easier and can be done with less downtime.

switchredcd Command on RPM-PR

The MGX RPM-PR now uses the **switchredcd** command to change active cards. This command replaces the **softswitch** command that was previously used and is now obsolete.

Enter the **switchredcd** command to manually change the active card to the standby card. You may want to do this if you need to remove the original active card from the MGX 8850 or MGX 8950 shelf.

Note Before you begin, make sure that the destination card is in Standby mode.

Using switchredcd to Change the Active Card

To change the active cards, follow the steps below, in which the primary or active card in slot 2 is switched to standby or secondary, and the standby card in slot 11 is switched to primary or active.

Step 1 Step 1: Enter the switchredcd command.

```
Unknown.7.PXM.a > switchredcd 2 11
switchredcd:Do you want to proceed (Yes/No)? y
```

where 2 is the active or primary card and 11 is the standby or secondary card.

The card in slot 11 is now the active RPM-PR card, and the RPM-PR card in slot 2 is reset. It comes up in standby mode after a couple of minutes.

The new active card will not revert to standby mode automatically. Enter **switchredcd** to manually switch over the active card back to standby mode. This is the only way the active card will switch over to standby, unless the active card fails.

Step 2 Step 2. Enter the same command to switch the active card back to the original RPM-PR.

```
Unknown.7.PXM.a > switchredcd 11 2
switchredcd:Do you want to proceed (Yes/No)? y
```

where 11 is now the active card and 2 is now the standby/secondary card.

New Features in Release 2.1.70

The following features were new in release 2.1.70:

- OAM Loopback
- ITU-T APS Annex B
- XPVC/XPVP Termination on AXSM-E
- Config Verify

OAM Loopback

This feature allows a PVC or SPVC ATM connection terminating on an AXSM-E card to be put into a loopback mode for testing purposes. Standard or non-standard OAM cell patterns are transmitted toward the AXSM-E with or without a CRC error. These cells are then looped back by the AXSM-E in the opposite direction. At the sourcing device, returning cells are compared to known transmitted cells in order to verify the integrity of the link. Up to 8 loopback connections are supported per AXSM-E card.

This loopback feature is available only on AXSM-E OC-3 cards with SMFIR line modules, and does not apply to VNNI links or SVC connections.

Benefits

This feature is targeted at ATM network applications requiring layer 2 loopback testing.

Limitations

- Currently, this feature is supported through CLI only.
- Only ingress channel loopback is supported.
- Statistics gathering is suspended for a connection in loopback.

ITU-T APS Annex B

Automatic Protection Switching, as described in ITU-T G.783, is supported on the AXSM-E OC-3 card with an SMFIR line module. Interoperability of this feature between the BPX and the MGX is not supported.

Benefit

This feature brings high levels of resiliency to ITU-T compliant network applications.

Limitations

- Currently, this feature is supported through CLI only.
- Interoperability of this feature between the BPX and the MGX is not supported.

XPVC/XPVP Termination on AXSM-E

This feature is intended to support the use of AXSM-E ports as end points for XPVC/XPVP connections in networks evolving from AR to PNNI, starting with MGX Release 2.1.70, BPX 9.3.30 and CWM 10.5.10.

Benefit

This feature further extends the Network Migration 1B capabilities to cover a new card type on the MGX Release 2.

Platforms and Considerations

The minimum release bundle required consists of MGX 8850 R2.1.79 with AXSM-E, BPX 9.3.36, and CWM 10.5.10 patch 1.

Design Guide and Application Notes

Similar to AXSM, AXSM-E does not support ABRFS service type. CWM allows the user to select ABRSTD or ABRFS at the BXM/AUSM-8/FRSM-8 for setting up XPVC/XPVP connections to AXSM-E. In the case of an ABRSTD connection, CWM automatically enables the necessary parameters at the termination points and at the NNI termination points to create a single congestion control loop between AXSM-E termination point and the remote XPVC/XPVP termination point.

For all service modules that do not support ABRSTD, for example, the ones on MGX 8220, FRSM-VHS and FRSM-2CT3 on MGX 82xx, XPVC/XPVB connection with AXSM-E will involve ABRFS segment in the AR domain and an ABRSTD segment in the PNNI domain. Each segment will have its own congestion control loop.

In this case, CWM checks if BXM-E is used for the XLMI link at the BPX gateway node. It automatically enables the corresponding AR termination point in that BXM-E with FCES, and also enables the internal VsVd at the AXSM-E termination point.

For BXM to AXSM-E connections with ABRFS service type, CWM automatically enables FCES at the BXM termination points in the AR segment, and enables internal VsVd at the AXSM-E termination point.

CWM aggregates alarms from the AR and PNNI segments to display the overall condition for the XPVC and for the individual XPVC segments. This is no change of functionality from using AXSM as XPVC/XPVP end points in terms of connections monitoring in the CM GUI.

CWM Service Agent supports the connection management of AR-PNNI type XPVC/XPVP with termination point on AXSM-E. This is no change of functionality from AXSM support.

The WFQ, Policing, VsVd and ABRSTD VsVd parameters in the SCT associated with AXSM-E must be configured prior to provisioning of any XPVC/XPVP. CWM provides the ability to download SCT files to the switch and associate them with AXSM-E.

Limitations

- No support for LMI and hence no feeder shelf can be connected to AXSM-E. The AR-PNNI-Hybrid connection is not supported for the same reason.
- No support for XLMI and ENNI and hence AXSM-E should not be connected physically to BPX, BXM, or BXM-E for the purpose of migration.
- Only AR-PNNI connectivity type is supported since AXSM-E does not support ENNI.
- All CWM 10.5 limitations regarding AXSM support of XPVC/XPVP also apply to the AXSM-E.

References

See the CWM 10.5.10 Release Note, the CWM 10.5 Installation Guide, and the Cisco MGX 8850 Switch Software Configuration Guide, Release 2.1 for the basic feature set of XPVC/XPVP Provisioning.

Config Verify

This is an off-line utility that runs on a Solaris workstation to verify the integrity of configuration files transferred from the hard disk of the MGX 8850 to the Solaris workstation. This tool helps validate uploaded configuration files.

New Features in Release 2.1.79

Release 2.1.79 was a maintenance release.

Release 2.1.76 introduced Multiprotocol Label Switching (MPLS) over ATM using virtual circuit (VC) merge.

Multiprotocol Label Switching (MPLS) over ATM using VC Merge

The virtual circuit (VC) merge facility allows a switch to aggregate multiple incoming flows with the same destination address into a single outgoing flow. Wherever VC merge occurs, several incoming labels are mapped to one single outgoing label. Cells from different virtual channel identifiers (VCIs) going to the same destination are transmitted to the same outgoing VC using multipoint-to-point connections. This sharing of labels reduces the total number of VCs required for label switching.

Without VC merge, each path consumes one label VC on each interface along the path. VC merge reduces the label space shortage by sharing labels for different flows with the same destination. Therefore, VC-Merge connections are unidirectional, and furthermore, all merged connections must be of the same service type.

Note To support VC-merge, the ATM switch requires that AXSM cards allow multiple VC frames to be merged into a single VC without interleaving cells inside AAL5 frames. The RPM is the control point, where LSC resides.

VC Merge is enabled by default when the MPLS over ATM network is configured and is only used when the RPM is used as an LSC (Label Switch Controller). Because it is enabled by default, the only commands necessary are:

no tag-switching atm vc-merge to disable VC Merge

and

tag-switching atm vc-merge to enable VC Merge

For more information, see MPLS Label Switch Controller and Enhancements at http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t8/ftlsc.htm#xtocid15

Enhancements

The product enhancement requests (PERs) in Table 6 were included in MGX 8850 and/or MGX 8950 Releases 2.1.70 through 2.1.76. Refer to the "MGX 8850 and MGX 8950 Command Reference for Release 2.1"at http://www.cisco.com/univercd/cc/td/doc/product/wanbu/8850r21/index.htm for further details about the commands mentioned in these enhancements.

Table 6 List of Product Enhancement Requests in MGX Release 2.1.76

Enhancement Number	Purpose
2832	This enhancement displays Bit Error Counts on AXSM lines. The command is **dspbecnt**. The AXSM-E card supports this command in 2.1.75. The display follows the same style as the PXM1 uplinks.
2835	The **dclk** command is available on the active PXM45 Card in an MGX 8850 node. It provides a display of the Digital to Analog Converter (DAC) value and the Deviation in Parts per Million of the output frequency for the current clock source from the nominal frequency value for the local oscillator on the PXM45 UIS3 card.
2837	After a user enters **tstdelay/tstconseg**, the results should be shown after the command is run.
2836	The node name was not shown in all command displays, and is now added to the following PNNI command displays: **dspcon**, **dsppnni-link**, **dsppnni-neighbor**. Note: Correction to MGX 2.1.70 release notes: The **conntrace** command was removed from this list of commands, but the node name will be shown in **conntrace** in a future release.
2838	(CSCdv27524): Need master/slave filter on **dspconcnt** and **dspcons**. The **dspconinfo** command displays the connection counts by class of service (CSCdt11863), and the new enhancement (CSCdv27524) allows users to get master/slave counts in. The new feature provides a filter "-owner" with (slave/master) as options.
2839	The AXSM card now displays the total number of active lines, ports, and channels. A new CLI command **dsptotals** was added to accommodate this request.

Table 6 List of Product Enhancement Requests in MGX Release 2.1.76 (continued)

Enhancement Number	Purpose
2840	(CSCdt54869): This enhancement was made because **dsppnports** showed confusing DAX counts. The **dsppnports** command now shows three sections. The first section is called Summary of Active connections, the second section is called the Summary of Total Configured SPVC Endpoints, and the third section is called the Summary of Total Active SVC/SPVC Intermediate Endpoints.
2841	Since the SCT default Traffic Parameters (PCR, MCR, SCT etc.) are not used in programming the connection, then it should be removed from the SCT File.
2842	(CSCdu84598): Add threshold and current reset count info in the reset log. This PER has been implemented as requested. The log message associated with MAX_CD_RESET feature should show the threshold for resets that has been configured. The **cnfndparms** command is used to configure the max card reset PER window.
2843	This enhancement raises the priority of the CLI session. Enter ESC-CTRL-2 either while in a CLI session or at the login prompt. The session will remain at a higher priority until the session is terminated by logging out or timeout. This is available for debugging performance problems if a CLI command cannot be executed because the system is too busy. This should NOT be used for normal operations.
2844	The **clrsarcnt** command will clear the SAR Counters which are displayed in **dspsarcnt**.
2845	When a connection is being routed and there is no response to signaling for that connection, a crankback-type message will be generated so that the connection can try alternate routes instead of waiting forever.
2849	The **dspstbyclksrcs** command, available from the standby PXM45 card, displays the state of configured clock sources.
2889	A new command, **checkflash**, checks for data corruption by verifying flash content against its checksum.
2920	This PER is a configuration utility on a Workstation to verify the switch configuration database.
2892	The commands **addlnloop** and **addchanloop** should use the same name convention for Local & Remote loopback.
3092	All commands dealing with alarms should display a logical hierarchy, for example, e.g. **dspcdalms** <*slot #*>
3417	The Trap managers will be automatically deleted if there is no ‘keep alive’ request from CWM for the configured intervals.
3737	This enhancement will display the total number of User Connections, Control Connections, and the sum of User and Control Connections in PNNI command **dsppnports**.
3917	This enhancement adds additional varbinds in the existing trap definitions to identify what kind of device trap has been sent.
5186	This enhancement will report consistent alarm on PXM and AXSM. AXSM standby will not show any alarm.

Additional Software Information

MIB

The SNMP MIB release for 2.1.76 is *mgxmibs2176.tar*.

Service Class Template File Information

The Service Class Template (SCT) bundle in release 2.1.79 includes updates:

- AXSME_SCT.CARD.5
- AXSME_SCT.PORT.5
- AXSME_SCT.PORT.6

The default SCTs provided with release 2.1.79 are as follows:

AXSM and AXSM/B

- SCT 2 - policing enabled, PNNI
- SCT 3 - policing disabled, PNNI
- SCT 4 - policing enabled, MPLS and PNNI
- SCT 5 - policing disabled, MPLS and PNNI

AXSM-E

- SCT 4 - policing enabled, ABR-tag parameter included
- SCT 5 - policing enabled, ABR-tag parameter not included. Use this SCT for upload to CWM workstation, because earlier versions of CWM had a problem uploading SCT files that included the TAG ABR serv type. We currently do not support TAG ABR, but the problem is fixed now. In general, this is for use on UNI ports.
- SCT 6 - port SCT with policing disabled. The card SCT that can be used with port SCT 6 is AXSME_SCT.CARD.5. In general, this is for use on NNI ports.

Note AXSM-E SCT 5 has some changes to the default values (other than TAG-ABR not being present). It is the latest version of the SCT file that is being released with 2.1.79.

New Hardware Supported in Release 2.1.76

No new hardware was introduced in release 2.1.79, however the following new hardware was supported by Release 2.1.76 software:

- AXSM-E module (T3/E3, OC3c/STM1, OC12c/STM4)
- AXSM/B OC-48 (No APS support)

AXSM-E module (T3/E3, OC3c/STM1, OC12c/STM4)

The AXSM-E is a double-height Service Module used on the PXM45-based MGX 8850 platform. The AXSM-E supports ATM cell transfer over various physical interfaces: T3/E3, OC-3c/STM-1, and OC-12c/STM-4. The AXSM-E hardware is implemented with a base card (mother board) and various auxiliary cards (daughter boards) that each define the physical interface (T3/E3, and so on) being used..

AXSM-E card types include:

- AXSM-16-T3E3-E, which supports SMB-8-T3 and SMB-8-E3 back cards
- AXSM-8-155-E, which supports SMB-4-155, MMF-4-155/C, SMFIR-4-155/C, and SMFLR-4-155/C back cards
- AXSM-2-622-E, which supports SMFIR-1-622/C and SMFLR-1-622/C back cards

Note The front card hardware (mother board/daughter board) for each card type can support up to two back cards. But in Release 2.1.76, only one back card (i.e., half the port capacity available in hardware) is supported by software. The full port capacity will be supported with a future software release. No hardware changes will be required.

Benefits

The AXSM-E card's ATM engine supports a variety of Traffic Management features, including Standard ABR with VS/VD and per-VC traffic shaping, along with multilevel statistics. In addition, the AXSM-E allows configurations of ports and trunks on the same card and provides APS, virtual interfaces, VSI support, SVC and SPVC capability.

The AXSM-E supports all these functions while being used as a trunk or port module for the PXM-45 switch fabric in any of the following environments:

- IP+ATM Edge switching
- IP+ATM Core switching
- IP+ATM Standalone switching, working with other MPLS- and PNNI-compliant switches

AXSM-1-2488/B (No APS support)

The AXSM-1-2488/B/(OC-48/STM-16) is a double-height ATM service module that uses serial line traces to access the crossbar switching fabric. It supports 1:1 module redundancy and provides ATM switching and line functions. A future software release will activate the APS capability on the AXSM-1-2488/B.

One port is supported per single-height back card (SMFSR, SMFLR)

Benefits

This card is targeted for service those who prefer to use a single OC-48/STM-16 card type for the MGX 8850.

New and Changed Commands

This section summarizes commands that were added or changed in releases 2.1.60 and 2.1.70. Please refer to the "MGX 8850 and MGX 8950 Command Reference, Release 2.1" (part DOC7812563=) for details about these commands (see the "Related Documentation" section later in these notes for additional documentation that supports this release).

New Commands

Caution We recommend that the **delcons** command should not be used in a production network environment.

The command **switchredcd** is new to release 2.1.79, and makes **softswitch** obsolete. It is used to manually change the active card to the standby card.

These commands were new in Release 2.1.60:

- addapsln
- bringupnewstandby
- clearhelp
- clradjlnalmcnt
- clrconstats
- clrconstats
- clrqosdefault
- cnfainihopcount
- cnfautolndiag
- cnfbert
- cnfcdstat
- cnfcmdabbr
- cnfetherif
- cnfintfvsvd
- cnfpnportloscallrel
- cnfpnportncci
- cnfpswdexpire
- cnfpswdreset
- cnfspvcprfx
- cnfxbaradmin
- cnsainihopcount
- copycons
- deladdrs
- dspadjlnalm
- dspadjlnalmcnt

- dspainihopcount
- dspalm
- dspalmcnt
- dspautolndiag
- dspbert
- dspbertstats
- dspcdsct
- dspcdstatcnf
- dspchanstat
- dspcmdabbr
- dspconfigs
- dspdbsvrdb
- dspdbsvrdbbyname
- dspdbsvrsecdb
- dspdbsvrsecdbbyname
- dspegrbucketcnt
- dspfile
- dsphardwaremastership
- dsphelpver
- dsphwmastership
- dspingbucketcnt
- dsplncnt
- dsplnpmbucketcnt
- dspoamsegep
- dsppnallgrpaddr
- dsppnallgrpmbrs
- dsppnportloscallrel
- dsppnportncci
- dspprf
- dsppswdexpire
- dsppswdreset
- dspsct
- dspspvcaddr
- dspspvcaddr
- dspstbyclksrcs
- dsptotals
- dspversions
- dumpalllogs

- dumpconfigs
- dumpversions
- insbiterror
- installhelp
- reboot
- startbert
- stopbert

These commands were new to Release 2.1.70.

- cnfxbaradmin
- dspadjlnalms
- dspdevalms (was clrxbaralm(s))
- dspdeverr
- dspdeverrhist (was dspxbarerrcnt)
- dspxbarplanealms
- dspxbarslotbwalms

Changed CLI Commands

This command was changed in release 2.1.79:

- **cnfcbclk** will only function when auto cellbus clock rate setting is disabled in the node parameters.

These commands were changed in release 2.1.70:

- dspadjlnalm
- dspalm
- dspapsbkplane
- dspapsln
- dspapslns
- dspxbar
- dspxbarswalms
- switchapsln

These commands were changed in release 2.1.60:

- addapsln
- cnfnodalfd used to be cnffdonaal5
- dspalm
- dspalmcnt
- dspbecnt
- dspcdsct
- dsplnalms used to be dspalms
- dsplncnt

- dspnodalfd used to be dspsigparms
- dspsct
- dspsct
- dspsct

Here are additional details for other commands that have changed in release 2.1.60.

- addcon/cnfcon now blocks the user from specifying frame discard on the slave endpoint
- addpnni-node help information now shows that you can enter *on* or *true* to enable or *off* or *false* to disable.
- clrchancnt and clrchancnts now run on the AXSM-E as well as the AXSM.
- cnfcon now accepts a -1 for maxcost (-mc) and two other parameters. Previously, software would not allow a user to enter a -1, although it would display -1 in some cases.
- cnfuser now has a parameter for specifying a password expiration interval of 1–60 days.
- cnfxbaradmin— *on* or *off* instead *1* or *0*
- core has two new parameters: "?" and "priority."
- dnport and dnallports now have a warning about possible service disruption and a recommendation to use dnpnport instead
- dspalms now has an APS alarm field
- dspapsbkplane now works on the AXSM-E
- dspapsln has a new row (or field)
- dspapsln now shows the state of the working line and protection line.
- dspbert has three new elements in its display (Error Insertion Rate, Tx Pattern Inversion, Rx Pattern Inversion) and has changed from a horizontal display to a vertical display
- dspchanstat on the AXSM-E has been changed to dspchancnt (to match AXSM)
- dspcon executed on the PXM45 now shows the name of the node
- dspconinfo now has three optional parameters: portID, a "detail" switch, and an option for selecting the service class for the display.
- dspcons on the PXM45 has a new filter. It is "sc" for selecting a service class.
- dsperr has a new option for trace in the error log. This option has the syntax: -tr {P|L|N} where the 'P' option stands for 'Pause'. This pauses when it encounters trace data and prompts to determine if it should be displayed. The 'L' option stands for "List." It lists all of the trace-data file names. The 'N' option stands for 'No' and this prints the error log without trace data. The full command syntax is: dsperr -sl <slot #> [Options] Options: -en <error #> -tr <P|L|N>
- dspilmicnt will apply to AXSM-E
- dsplns output now accommodates mixed T3E3 back card arrangements. For parameters that do not apply to E3, the display shows "N/A."
- dsppncons has a new filter added to its "type" parameter: ctrl, to specify control VCs.
- dsppnilmi: One of the various possible states has changed: "Undefined" is now "Not Applicable."
- dsppnni-node-list now includes the level
- dsppnni-reachable-addr and dsppnsysaddr each now have a field called "Physical Desc" which is just the portID. However, if the displayed address is switch level, the contents of this field are "NA."
- dsppnport

- dspportcnt output now shows the last time the counters were cleared and the time since they were last cleared
- dspred now shows the inserted card in brackets on a (new) row below the line that shows the reserved card. This can be important if the reserved card is different from the inserted card.
- dspsct now has “abr” and line type parameters (T3, etc.)
- dspsesn should become visible
- switchapsln has a third failure reason (see the “MGX 8850 and MGX 8950 Command Reference, Release 2.1”)
- upilmi now gives a warning about possible rerouting of connections

Commands with Privilege Changes

The following commands had changes in privileges in release 2.1.60:

- addfdr : ANYUSER -> GROUP
- clralmcnt : SUPER -> SERVICE
- clrbecnt : SUPER -> SERVICE
- clrbucketcstat : SUPER -> SERVICE
- clrcdcnt : SUPER -> SERVICE
- clrchancnt, clrchancnts : SUPER -> SERVICE
- clrchandbgcnt : SUPER -> SERVICE
- clrcosdbgcnt : SUPER -> SERVICE
- clrfdrstat : ANYUSER -> SERVICE
- clrlncnt : SUPER -> SERVICE
- clrportcnt : SUPER -> SERVICE
- clrportcnts : SUPER -> SERVICE
- copychans : SERVICE -> GROUP
- copycons : SERVICE -> GROUP
- delfdr : ANYUSER -> GROUP
- delfdr : ANYUSER -> GROUP
- dnilmi : ANYUSER -> GROUP
- dspbecnt : SUPER -> ANYUSER
- dspcon : GROUP -> ANYUSER
- dspcons : GROUP -> ANYUSER
- dspcosdbgcnf : ANYUSER -> SERVICE
- dspcosdbgcnt : ANYUSER -> SERVICE
- dsplnbucketcnt : CISCO -> ANYUSER
- tstconseg : GROUP -> SERVICE
- tstdelay : GROUP -> SERVICE
- upilmi : ANYUSER -> GROUP

Removed Commands

These commands were removed from release 2.1.70

- dspxbaralm(s) is now dspdevalms
- dspxbarerrcnt is now dspdeverrhist
- dspxbaralarm

Previously Undocumented Commands

The following commands are now documented in the "MGX 8850 and MGX 8950 Command Reference, Release 2.1":

- actaudit
- cnfpnctlvc
- cnfpnportloscallrel
- copycons, copychans
- dspcprotbls
- dspmsq and dspmsgqs
- dsppnctlvc
- dsppnportloscallrel
- routeadd
- routedelete
- routenetadd
- rrtcon
- sesnwatchdog
- smclrscrn
- xbaradmin

Limitations and Restrictions

This section describes the following issues for Releases 2.1.60 through 2.1.79:

- General limitations, restrictions, and notes
- RPM-PR and MPLS limitations, restrictions, and notes
- APS management information and open issues
- Clearing the configuration on redundant PXM45/B cards

General Limitations, Restrictions, and Notes

The following limitations and restrictions apply to this release.

Note

- For a graceful upgrade, you must upgrade from version 2.0.16 or 2.1.75 or above.
- Presently, the PXM CLI allows for provisioning of a PNNI controller (controller id 2) on any slot in the chassis, but for this release, such provisioning should be restricted to slot 7 only.
- APS is not supported on AXSM-1-2488/B.
- Of 192 PNNI interfaces, up to 100 interfaces can be signaling ports. The other 92 interfaces should be non-signaling ports, such as non self-supporting ports.
- AXSM-1-2488 and AXSM-1-2488/B cards do not have a policing function enabled.
- The front card hardware (mother board/daughter board) for each card type can support up to two back cards. But in Release 2.1.76, only one back card (i.e., half the port capacity available in hardware) is supported by software. The full port capacity will be supported with a future software release. No hardware changes will be required.
- In Multiple Peer Group (MPG) mode, when one switches over to the standby on a PGL node with 3 levels, it can take several minutes on the standby card for this PGL to come up and the SVC based RCC to setup. This is normal behavior, because PNNI doesn't support hot redundancy. So on switch over, the entire PNNI database has to be rebuilt. (It is like a reboot for PNNI, even though the active calls are not affected.)
- Trace information captured in the error logs of non PXM slots (seen with **dsperr** -sl <slotnum>) will not translate addresses in the trace to correct symbolic names. Such files with trace data need to be moved off the system using FTP and forwarded to TAC and engineering.
- Support for 3 controllers only (1 for PNNI and 2 for LSC). Controller ID 2 is reserved for a PNNI controller; IDs 3–20 are available for LSC controllers.
- Partition ID 1 is reserved for PNNI.
- The maximum number of logical interfaces (physical trunks, virtual trunks, logical ports) supported in this release with PXM45 cards is 99 and PXM45/B cards is 192.
- If an active AXSM card is stuck in the active INIT state, the standby PXM will not go to the standby Ready state until the active AXSM goes to a steady state. Steady states are: Active Ready, Failed, Mismatch, Empty, Empty Reserved, Standby Ready. With redundancy configured, if a standby AXSM card is stuck in a standby init state, with an active Active AXSM already in a Active Ready state, the standby PXM will go to the standby Ready state without any delay. If both AXSMs in the redundancy pair are not in a steady state, then the standby PXM will not go to the standby Ready state until one or both of the 2 AXSM cards are in the active Ready state.
- AXSM cards are in some other steady state (e.g., FAILED). If the destination address is reachable for both an IISP and a PNNI link from the same node, ABR connections will not route. The current routing algorithm will always choose IISP links over PNNI links because it is local. Since IISP does not support ABR connections, the connection setup will fail.
- In this release, a Service Class Template (SCT) can be changed with connections present. However, if the change affects services in use, the connections will be rerouted.
- When CWM is used to manage the network, the IP address 10.0.x.x cannot be used as the LAN address (lnPci) for the switch.

- Here is information about anomaly CSCdx29956. The release note enclosure contains these fields: Bug CSCdx29956, CSC.mssbu.sw, Enclosure 2 of 2, mgx, Retitled 020413 by ddts. Symptom: Cellbus clock configuration defaults after a power cycle. Condition: Set one of the cell bus clock speeds to 42 MHz and power cycle the node. Workaround: Re-configure cell bus clock after a node rebuild.

Limitations for rteopt via parallel links

The following are limitations for rteopt via parallel link.

link 1 . . . . .link 2

Node A ---------- Node B ---------- Node C

fwd & bwd aw= 500 fwd & bwd aw= 1000

---

link 3 fwd & bwd aw = 2000

Configuration:

- link 1 has forward and backward admin weight set to 500 (via cnfpnni-intf)
- link 2 has forward and backward admin weight set to 1000
- link 3 has forward and backward admin weight set to 2000
- SPVC connection is routed from Node A to Node C (Master endpoint is at Node A) via link 1 and link 2

Scenario 1: Link 2 is down (e.g., via dnpnport), connections are re-routed right away but Node A hasn't had that info updated in the routing tables yet.

So SPVC on Node A will have routing cost = 2*500 + 2*1000 = 3000, but since link 2 is down, Node B will choose link 3. But the routing cost on Node A SPVC is still 3000 as it did the calculation during the route search.

Now if link 2 is up, if you do rteopt on Node A, it gets the new route, the new path selected has a cost of 3000.

Since spvc has 3000, it doesn't re-route through link 2.

Scenario 2: Instead of link 2 down, if there is a crankback on link 2, the same result stated above will happen.

Scenario 3 (for CBR and VBR): link selection is set as maxavcr or maxcr or random on node B (via cnfpnni-selection) If link 2 has less bandwidth than link 3, and the link selection criteria at Node B is set to maxavcr, Node A will still put the cost as 3000 with least aw calculation, but Node B will choose link 3 (even though it is costlier) because it has more bandwidth.

Scenario 4 (for ABR and UBR): link selection doesn't apply to ABR and UBR. (via cnfpnni-selection. This is exactly the same as Scenario 3 as ABR and UBR follow load balancing on parallel links instead of choosing the minaw link.

Workaround

If you **dnpnport** on link 2 (connections will be routed via link 3), after uppnport on link 2, then use **cnfpnni-intf** to change the existing admin weight on link 2 to lesser value, e.g., 800 (from 1000).

So when **optrte** is executed at Node A, routing cost will be = 2*500 + 800(fwd) + 1000 (bwd) = 2800 for the new route of link 2.

Since all SPVC connections have 3000 as the routing cost, connections will be rerouted on link 2.

Important Notes

This section provides general notes that apply to this release, and covers some procedures that are not yet in the manuals.

- You must use the SCT files released with 2.1.79 (number 2 and 3, which were included in version 2.0.13 are similar to number 2 and 3 for 2.1.79) for the Control VC feature. If you are using the MPLS feature, then you will need to change to SCT 4 or 5, which were released with version 2.1.00.
- By default, 900 cps and 543 cps will be reserved for SSCOP and PNNI Signalling VC respectively, even when you disable SSCOP and PNNI. These values are configurable by the **cnfpnctlvc** command.
- Do not execute the **delcontroller** command when connections/ports still exists. The impact of executing **delcontroller** with connections is that the connections cannot be recovered until the controller is re-added using **addcontroller** and the AXSM cards or the entire node has to be reset (otherwise ports remain in the provisioning state). There is now a warning to the user of the impact of the command when there are existing connections/ports.
- Analysis of the code has identified a situation which has a low probability of occurring and in fact has not been encountered in any test scenarios to date. This caution and associated workaround is provided as a precautionary measure. When the link bandwidth for SPVC connections is reaching full capacity, making minimal bandwidth available for new SPVC connections, a condition can be encountered where the initial software check believes there is sufficient bandwidth for the new SPVC connection; however, the final software confirmation for available bandwidth may be rejected because there is no bandwidth available. If this problem occurs, the system will recover when the PNNI updates are refreshed. (This will happen at the default time of 30 minutes.) The user can recover from this problem by making the Administrative weight of that link very high to avoid that link from being used.
- To replace one type of AXSM front card with another type, you must delete all connections, partitions, ports and down lines. If an AXSM card fails, the same type of AXSM card must be installed in its slot.
- When the switch cannot automatically resolve nativity check conflicts, you can force a configuration rebuild from a specific hard disk by establishing a console port session through the corresponding PXM-UI-S3 card and issuing the **shmRecoverIgRbldDisk** command. This command ignores the nativity check and configures the entire switch according to the configuration on the hard disk.
- PNNI default min VCI is 35 unless changed explicitly. The reason for the default is to reserve VCI=32–34 for other control purposes (e.g., MPLS and NCDP). For users who would like to add MPLS controller in future releases of MGX 8850, it is highly recommend to set the min-vci value to be 35 or more for all partitions on the port where the MPLS partition will be added. By doing so, the TDP sig vc for MPLS will be established automatically on 0/32. MinVPI is not negotiated by ILMI, so the user should set this parameter same on both nodes.
- In Multiple Peer Group (MPG) mode, when one switches over to the standby on a PGL node with 3 levels, it can take several minutes on the standby card for this PGL to come up and the SVC based RCC to setup. This is normal behavior, because PNNI doesn't support hot redundancy. So on switch over, the entire PNNI database has to be rebuilt. (It is like a reboot for PNNI even though the active calls are not affected.)

RPM-PR and MPLS Limitations, Restrictions, and Notes

The RPM-PR and MPLS limitations and restrictions that apply to this release are as follows:

- Whenever there are 2 RPM cards on adjacent slots, driven by the same cell bus clock, the clock rate should be set to 42 MHz for traffic shaping, using the command **nfcbclk**. This configuration will be lost if the node rebuilds due to **resetsys** or a power cycle. The user will have to manually re-configure the cell bus clock rate after the rebuild, using the **cnfcbclk** command.
- On an MGX 8850 or MGX 8950 node, when the chassis is loaded with 6 or more RPM-PR cards, and if every card is configured to download the IOS runtime image from the PXM-45 hard disk, occasionally, upon entering a **resetsys** command or after a power cycle, some of the RPM-PR cards may go into the failed state. To reset the failed RPM-PR cards, enter the **resetcd** <*slot #*> command for each failed card.
- **Saveallcnf** (issued on the PXM45/B card) captures configuration data saved by the RPM-PR card (as well as AXSM and PXM45 cards), and saves it on the active PXM45/B card's hard disk. Users must have configured RPM to store its configuration on the PXM45/B hard disk (E:/RPM). That is, on RPM, a user should have this line in its running configuration ("**boot config e:auto_config_slot#**). To ensure that the saved file contains the latest RPM configuration, the user needs to execute the **copy run start** command on each RPM card prior to the **saveallcnf** command. This way, the RPM files on the active PXM45 hard disk will contain the latest configuration to be saved.
- A single RPM-PR can only function as either an Edge LSR or as an LSC, but not as both.
- Total of (OC12 minus T3) Mbps intrashelf traffic for Cell bus based modules are supported.
- To configure redundancy, the primary and secondary RPM-PR cards need to be in the Active state and the secondary card should not have any configuration.
- Removing a back card does not cause RPM-PR switchover.
- After establishing redundancy between two RPM-PR cards with the **addred** command, you must enter the **copy run start** command on the primary RPM-PR card to save the configuration change.
- If a secondary RPM-PR card is redundant to primary cards x and y, you cannot delete redundancy for only card x.
- If you need to enter the **switchredcd** (formerly **softswitch)** and **switchcc** commands, Cisco Systems recommends that you wait at least 5 seconds after issuing the **switchredcd** command, and then enter the **switchcc** command**.**
- IOS software images on primary and secondary RPM-PR cards do not have to be compatible, but the IOS software on a secondary card should be at the same level as the primary card or higher.
- For ELSR to LSC connectivity, default control vc used is 32. If PNNI partition exists with VCI 32 as part of its partition range, then when MPLS partition is added, there are two options to handle the situation:
  - Add MPLS controller and define its partition with available range. On ELSR, define control vc from any VCI value within the range defined in partition. The same VC should be defined on LSC on xTag interface.
  - Reconfigure PNNI partition to spare the control VC usage both on RPM-PR and AXSM, AXSM/B or AXSM-E APS Management Information.
- Whenever the RPM-PR configuration is changed and a user wants to store that configuration, the user must enter the "**copy run start**" command on the RPM-PR. If this is not done, the changed configuration will be lost on RPM-PR card reboot or RPM-PR switchover in case of redundancy.
- Even though RPM-PR can have 1999 sub interfaces, the usage of sub interfaces should be planned in such a way that it does not cross a safe limit of 1985. This is because each sub interface takes one IDB (interface descriptor block) and the number of IDBs available in the card is 2000. Further, a user might need some IDBs for the RPM-PR back card and its ports.
- Image Version Number is:12.2(8)T4. The sizes of the RPM images are as follows:

- rpm-js-mz.122-8.T4 (9028068)
- rpm-boot-mz.122-8.T4 (2753444)

RPM-PR and MPLS Notes

This section contains additional notes on using RPM-PR cards and MPLS in this release:

- RPM-PR back card status may be incorrect (anomaly CSCdt55154).
- For RPM-PR SPVC dax connections, the slave end must be deleted before the master endpoint.

Table 7 lists RPM commands that are different in MGX Releases 1.x and 2.x.

Table 7 RPM Commands that are Different in Releases 1 and 2

Release 1.x (PXM1)	Release 2.x (PXM45)
addcon	switch connection
rpmrscprtn	switch partition
atm pvc	pvc

Configuring the Cellbus Clock (CBC) Rate

When two adjacent RPM-PR cards are on the same cell bus, that is, occupy adjacent slots, the cellbus clock (CBC) rate should be set to 42MHz. If, for any reason, one of the adjacent RPM-PRs goes to Failed or Empty state, the CBC must be reconfigured to 21MHz on the active, live RPM card for Traffic Shaping to work correctly.

If the PXM puts one of the RPMs into failed state, while the RPM is functioning, the RPM must stop sending idle cells to avoid impacting traffic shaping on the remaining functional RPM.

CBC is enabled by default when the RPM is configured. Because it is enabled by default, the only commands necessary are:

rpm-auto-cbclk-change to stop the RPM from sending idle cells in the event of a failure by implementing an automatic cellbus clock change.

and

no rpm-auto-cbclk-change to keep the RPM from initiating an automatic cellbus clock change, when traffic shaping is not required.

The following screen output displays an example of the **rpm-auto-cbclk-change** command.

```
  RPM-11#config  terminal
  Enter configuration commands, one per line.  End with CNTL/Z.
  RPM-11(config)#int sw1
  RPM-11(config-if)#rpm-auto-cbclk-change
  RPM-11(config-if)#end
  RPM-11#write mem
  Building configuration...
  [OK]
  RPM-11#show run int sw1
Building configuration...

Current configuration :142 bytes
!
interface Switch1
 no ip address
```

```
 no atm ilmi-keepalive
 rpm-auto-cbclk-change
 switch autoSynch off
end
! rpm_tag_id Apr 04 2002 02:49:04


  RPM-11#config  terminal
  Enter configuration commands, one per line.  End with CNTL/Z.
  RPM-11(config)#int sw1
  RPM-11(config-if)#no rpm-auto-cbclk-change
  RPM-11(config-if)#end
  RPM-11#write mem
  Building configuration...
  [OK]
  RPM-11#show run int sw1
Building configuration...

Current configuration :145 bytes
!
interface Switch1
 no ip address
 no atm ilmi-keepalive
 no rpm-auto-cbclk-change
 switch autoSynch off
end
! rpm_tag_id Apr 04 2002 02:49:57
```

If traffic shaping is not required, enter the **no rpm-cbclk-change** command, either manually or during card configuration. The following screen output displays an example of the **no rpm-auto-cbclk-change** command.

```
RPM-11#config  terminal
  Enter configuration commands, one per line.  End with CNTL/Z.
RPM-11(config)#int sw1
RPM-11(config-if)#no rpm-auto-cbclk-change
RPM-11(config-if)#end
RPM-11#write mem
Building configuration...
[OK]
RPM-11#show run int sw1
Building configuration...

Current configuration :124 bytes
!
interface Switch1
 no ip address
 no atm ilmi-keepalive
 switch autoSynch off
end
! rpm_tag_id Apr 04 2002 02:52:54

After a reload, it would look like this:

RPM-11#show run int sw1
Building configuration...

Current configuration :142 bytes
!
interface Switch1
 no ip address
 no atm ilmi-keepalive
 rpm-auto-cbclk-change
 switch autoSynch off
```

```
end
! rpm_tag_id Apr 04 2002 02:55:03
```

Note Because **rpm-auto-cbclk-change** is enabled by default, this will be the condition upon resetting or reloading an RPM card. Therefore, if traffic shaping is not required, enter the **no rpm-auto-cbclk-change command** to disable the function.

New Bypass Feature for RPM

Note Information about the bypass feature and the IOS commands used to support it was not available at the time of the printing of the RPM documents; therefore, it is included in the these release notes.

The bypass feature was new in RPM release 2.2(4)T IOS. RPM cards have a maximum storage of 128 KB for the NVRAM. This size limitation creates a problem for customers with large configurations, who find it impossible to store the configurations in the NVRAM, even with compression enabled.

In order to support storage of large configuration files, a new bypass feature was introduced in the 12.2(4)T IOS Release. With the bypass feature enabled, the enhanced "write memory" is used to bypass the NVRAM and save the configuration on:

- For MGX Release 2, the file auto_config_slot## located in E:/RPM.
- For MGX Release 1, the file auto_config_slot## located in C:/RPM.

Where"##" represents the zero-padded slot number in which the RPM card is seated in the MGX chassis.

To enable the bypass feature, issue the command **rpmnvbypass** from the IOS run time image—not in the IOS boot image.

To disable the bypass feature, issue the command **no rpmnvbypass**.

To verify that the bypass feature is either enabled or disabled, issue the **show running-configuration** command. If the bypass feature is enabled, **rpmnvbypass** is seen on the display. If it is not seen, the feature is not enabled.

Example 1 through Example 5 illustrate how the feature is enabled and disabled, and how to validate each of these actions from the configuration display.

Note Since the bypass feature bypasses NVRAM, it is not necessary to compress the configuration file using the command **service compress-config**.

Caution 1) When using the bypass feature, you can only load the run time IOS image from the PXM hard-drive or from the boot flash. 2) Do not execute the command **no boot config** because doing so may prevent the bypass feature from working properly. 3) If the command **write memory** is issued with the bypass feature enabled, and is consequently followed by am RPM reset, previous versions of the boot image will trigger the RPM card to go into boot mode (unable to load run-time IOS).

Example 1 Running configuration without the bypass feature enabled

```
rpm_slot02#show running-config
Building configuration...
```

```
Current configuration : 470 bytes
!
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname rpm_slot02
!
boot system c:rpm-js-mz.122-3.6.T1
enable password cisco
!
ip subnet-zero
!
!
!
!
interface Switch1
 no ip address
 no atm ilmi-keepalive
 switch autoSynch off
!
ip classless
no ip http server
ip pim bidir-enable
!
!
snmp-server community public RO
snmp-server community private RW
!
!
line con 0
line aux 0
line vty 0 4
 no login
!
end
```

Example 2 Enable the bypass feature (rpmnvbypass)

```
rpm_slot02#
rpm_slot02#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
rpm_slot02(config)#rpmnvbypass
The "boot config" statement has been (re)added to your
runing configuration. Do not remove it else risk not
using the nvbypass feature

rpm_slot02(config)#end
rpm_slot02#
```

Example 3 Running configuration with bypass feature enabled (note rpmnvbypass at end of output)

```
rpm_slot02#show running-config
Building configuration...

Current configuration : 515 bytes
!
```

```
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname rpm_slot02
!
boot system c:rpm-js-mz.122-3.6.T1
boot config c:auto_config_slot02    <==== Line added as per output above
enable password cisco
!
ip subnet-zero
!
!
!
!
interface Switch1
 no ip address
 no atm ilmi-keepalive
 switch autoSynch off
!
ip classless
no ip http server
ip pim bidir-enable
!
!
snmp-server community public RO
snmp-server community private RW
!
!
line con 0
line aux 0
line vty 0 4
 no login
!
rpmnvbypass
end
```

Example 4 Disable the bypass feature (no rpmnvbypass)

```
rpm_slot02#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
rpm_slot02(config)#no rpmnvbypass
rpm_slot02(config)#end
rpm_slot02#
```

Example 5 Running configuration after the bypass feature is disabled

```
rpm_slot02#show running-config
Building configuration...

Current configuration : 503 bytes
!
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname rpm_slot02
!
boot system c:rpm-js-mz.122-3.6.T1
boot config c:auto_config_slot02
```

```
enable password cisco
!
ip subnet-zero
!
!
!
!
interface Switch1
 no ip address
 no atm ilmi-keepalive
 switch autoSynch off
!
ip classless
no ip http server
ip pim bidir-enable
!
!
snmp-server community public RO
snmp-server community private RW
!
!
line con 0
line aux 0
line vty 0 4
 no login
!
end

rpm_slot02#
```

Booting the RPM-PR

Refer to chapter 5 of the "Cisco MGX Route Processor Module Installation and Configuration Guide, Release 2.1" (part DOC-7812510=) for complete details on configuring the RPM-PR cards. (See the "Documentation" section for information on how to order a printed copy of this manual or locate the manual online.) A summary of the booting and upgrading procedures is presented here for your convenience.

When the RPM-PR is booted, the boot image must be the first file in the bootflash. If the bootflash does not have a valid boot image as a first file, the card may not be able to boot and can result in bootflash corruption. If the bootflash is corrupted, you will have to send the card back for an external burn with a valid boot image.

You can reboot the RPM-PR from the PXM by entering the command **resetcd** <*card_number*> from the switch CLI, where *card_number* is the slot number of the RPM-PR that is being rebooted.

Note Omitting the card number resets the entire system.

Also, you can reboot the RPM-PR from the RPM-PR using the RPM-PR console port and entering the **reload** command.

Each time you turn on power to the RPM-PR, by inserting the RPM-PR into the MGX 8850, it goes through the following boot sequence:

1. The RPM-PR runs diagnostics on the CPU, memory, and interfaces.
2. The system boot software, which is the boot image, executes and searches for a valid Cisco IOS image, which is the RPM-PR runtime software.

The source of the Cisco IOS image is determined by the configuration register setting. To verify this setting, you can enter either the **show version** or **show bootvar** command. (See the "Viewing the Hardware Configuration" section of the "Cisco MGX Route Processor Module Installation and Configuration Guide, Release 2.1" (part DOC-7812510=).

- If the configuration register is set to the factory-default setting of **0x01**, RPM-PR will come up and stay in boot mode.
- If the configuration register is **0x2**, the RPM-PR will look for the runtime image either in bootflash or on the PXM45/B E:RPM drive.

3. The search for runtime image is determined by which boot system command is entered.

- Entering the **boot system e:**<*runtime_image_name*> command will result in a search for a runtime image in the E:RPM directory on the PXM45 hard disk.
- Entering the **boot system bootflash:**<*runtime_image_name*> will result in a search for a run time image in the bootflash.

4. If the runtime software is not found after three attempts, the RPM-PR reverts to the boot mode.
5. If a valid Cisco IOS image is found, then the RPM-PR searches for a valid configuration, which can reside in NVRAM or as a configuration file either on the PXM hard disk E: drive or in bootflash.

   If you want to load from a specific configuration file, you should enter either the **boot config bootflash:**<*config_file*> command or the **boot config e:**<*config_file*> command.
6. For normal RPM-PR operation, there must be a valid Cisco IOS image on the PXM-45 E: drive or in bootflash, and a configuration in NVRAM or configuration file in bootflash or on the PXM disk.

   The first time you boot the RPM-PR, configure the RPM-PR interfaces and save the configuration to a file in NVRAM. Then follow the procedure described in "Initializing the RPM-PR Card." For information on the Cisco IOS instructions, see Appendix C, "IOS and Configuration Basics." (The section and appendix referred to are in the "Cisco MGX Route Processor Module Installation and Configuration Guide, Release 2.1" (part DOC-7812510=).

RPM-PR Bootflash Precautions

The RPM-PR bootflash is used to store boot image, configuration and "run time" files. The Flash stores and accesses data sequentially, and the RPM-PR boot image must be the first file stored to successfully boot the card. Erasing the boot image or moving it from the first position on the Flash will cause the card to not boot.

The RPM boot image, which comes loaded on the Flash, will work for all RPM IOS images. Therefore, there is no reason to ever delete or move the factory installed boot image.

Caution Erasing or moving the boot image can cause RPM-PR boot failure. When this happens, the RPM must be returned to Cisco and reflashed.

In order to avoid this unnecessary failure, requiring card servicing, you should

- Never erase the boot file from the RPM Flash
- Never change the position of the boot file on the RPM Flash
- Use care when "squeezing" the Flash to clean it up.

As long as the boot file remains intact in the first position on the flash, the RPM will successfully boot.

APS Management Information

The following tips apply to the use of the **dspapsbkplane** command and the APS connector, which is sometimes called a backplane. The APS connector must be installed to enable intercard APS.

The APS commands **dspapsln, dspapslns, switchapsln,** and **dspapsbkplane** were modified in release 2.1.70.

The APS command **dspadjlnalm** was new to release 2.1.70. Refer to the "MGX 8850 Command Reference for Release 2.1" at http://www.cisco.com/univercd/cc/td/doc/product/wanbu/8850r21/index.htm for further details about the commands mentioned in these release notes.

Note The issues in this section are seen only in Operational mode 1+1, bi-directional, Rev/non-Rev. If at least one side is configured as 1+1 unidirectional, these problems do not occur.

The following are some open issues in this release:

- Reset of active AXSM, removal of active AXSM, or AXSM switchover may cause the lines behind that card to be in a LOS status for 20 to 30 ms. If these lines were active at the time, some additional APS switch will occur; and the corresponding lines at the far-end will be in SF alarms before the standby AXSM is coming up. The momentary loss of signal is due to the hardware limitation; no other workaround is available. (Refer to CSCdu41763 -- P-comment and CSCdv01058 -- Eng-Note for more details.)
- If multiple active lines are removed at the same time, one line may not switchover.
  - To recover, either perform lockout of Protection line and Clear from the far end or perform delete APS for the line, then add the APS line back.

Preparing for Intercard APS

The following components are required for intercard APS:

- two front cards.
- two back cards for every bay hosting APS lines. All lines on cards used for intercard APS must operate in APS pairs or use Y cables.
- an APS connector installed between the two back cards for every bay hosting APS lines.

Use the **dspapsbkplane** command on both the standby and active card to verify that the APS connector is plugged in properly. The following example shows the results displayed by the **dspapsbkplane** command when the APS connector is in place:

```
M8850_NY.1.AXSM.a > dspapsbkplane

Line-ID   Primary Card Signal Status       Secondary Card Signal Status
                    Slot #1                          Slot #2
  1.1               PRESENT                          PRESENT
  1.2               PRESENT                          ABSENT
  2.1               PRESENT                          ABSENT
  2.2               PRESENT                          ABSENT

Remote Front Card : PRESENT
Top Back Card     : ENGAGED
Bottom Back Card  : ENGAGED
```

The following example shows the results displayed by the **dspapsbkplane** command when the APS connector is not place:

```
M8850_LA.1.AXSM.a > dspapsbkplane

Line-ID   Primary Card Signal Status       Secondary Card Signal Status
                    Slot #1                          Slot #2
  1.1               PRESENT                          ABSENT
  1.2               ABSENT                           ABSENT
  2.1               PRESENT                          ABSENT
  2.2               ABSENT                           ABSENT

Remote Front Card : ABSENT
Top Back Card     : ENGAGED
Bottom Back Card  : NOT-ENGAGED
```

Note The **dspapsbkplane** command should be used only when the standby card is in the Ready state. When the standby card is booting or fails, intercard APS cannot work properly and this command displays "NOT ENGAGED."

If the **dspapsbkplane** command displays the message "APS Line Pair does not exist," suspect that the APS is not configured on a line.

If the **dspapsbkplane** command shows different values for each of the two cards, suspect that the APS connector is seated properly on one card but not on the other.

The APS connector status is the same for all lines in a single bay because the APS connector interconnects two back cards within the same bay. You need to enter the **dspapsbkplane** command only once to display the APS connector status for both upper and lower bays.

Enter the **dspapslns** command to verify APS configuration. If the working and protection lines show OK, both lines are receiving signals from the remote note.

Managing Intercard APS Lines

In AXSM and AXSM/B intercard APS, either front card can be active, and can be connected to either APS line through the APS connector joining the two back cards. The following process describes how intercard APS communication works:

1. The signal leaves the front card at the remote end of the line. (See Figure 1 and Figure 2.)
2. The signal passes through the APS connector and both back card transmit ports at the remote end of the line. (See Figure 1 and Figure 2.)
3. The signal travels through both communication lines to the receive ports on both back cards at the local end. (See Figure 1 and Figure 2.)
4. The active front card processes the signal that is received on the active line. (See Figure 1 and Figure 2.)
5. The standby card monitors only the status of the standby line. (See Figure 1 and Figure 2.)
6. If necessary, the signal passes through the APS connector to the front card. (See Figure 2.)

Note The front card monitors only one of the receive lines.

Figure 1 shows an example of how this process operates in a standard APS configuration, where the primary card monitors the working line and the secondary card monitors the protection line.

Figure 2 shows an example of how the APS communication process operates in a crossed APS configuration, where the secondary card monitors the working line that is attached to the primary card, and the primary card monitors the protection line that is connected to the secondary card.

Figure 1 Standard APS Configuration

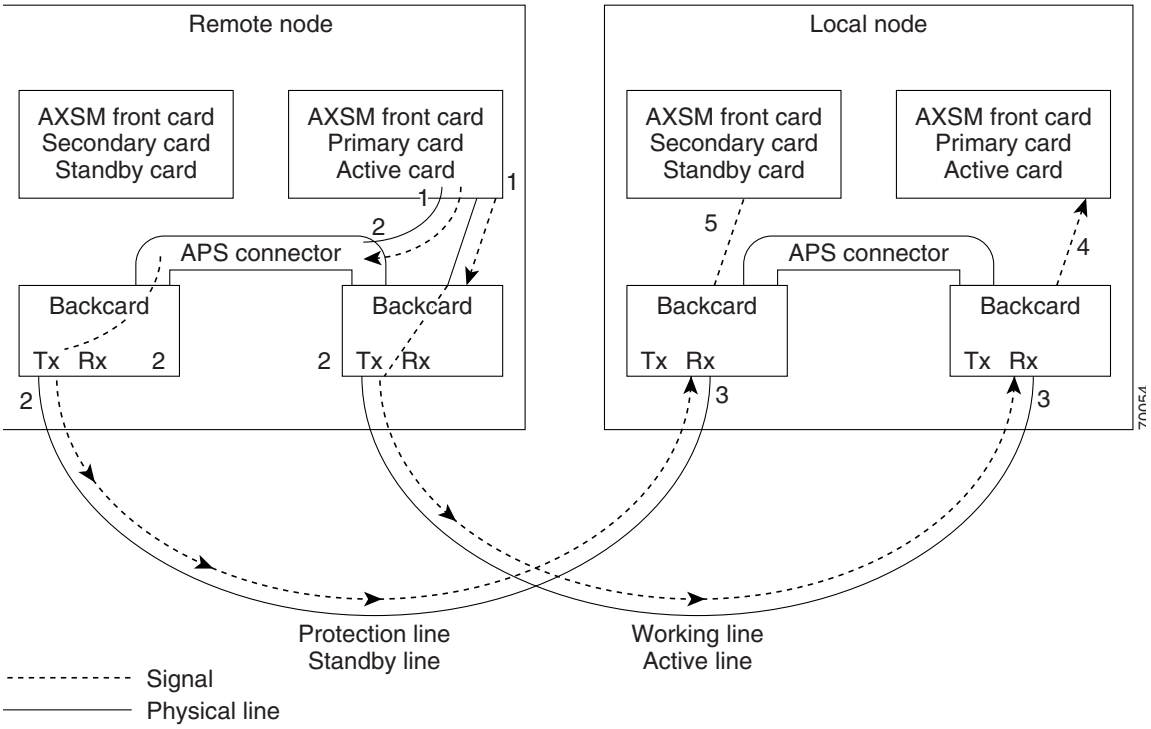
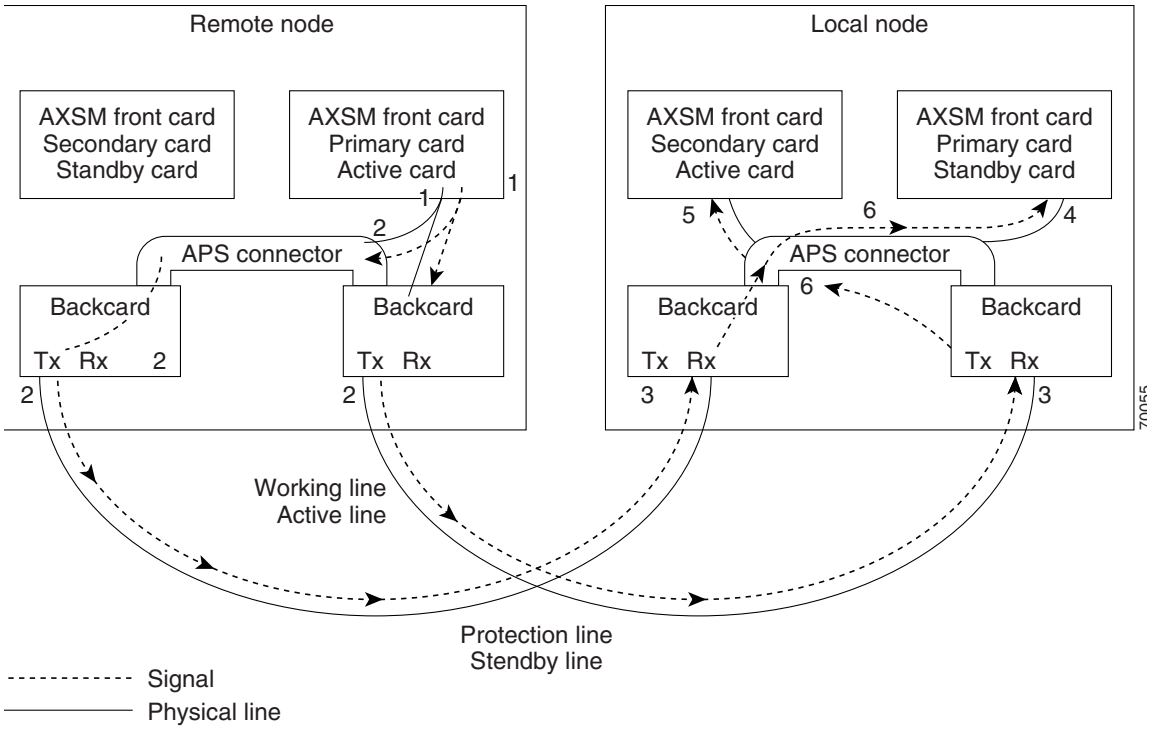


Figure 2 Crossed APS Configuration



Line failures are always detected at the receive end of the line. This is where a switchover occurs when a failure is detected. Two different types of switchovers can occur, depending on whether the APS was configured as unidirectional or bidirectional in the **cnfapsln** command:

- When a failure occurs on a line configured for unidirectional switching, the switch changes lines at the receive end only. A switchover is not necessary at the transmit end because the transmitting back cards send signals on both lines in the 1 +1 APS configuration.
- When a failure occurs on a line configured for bidirectional switching, a switchover occurs at both ends of the line.

If the status of the standby line is good, a switchover from the failed active line to the standby is automatic.

Enter the **cnfapsln** command to enable an automatic switchover back to the working line after it recovers from a failure, as shown in the following example:

```
M8850_LA.1.AXSM.a > cnfapsln -w 1.1.1 -rv 2
```

Table 8 describes the configurable parameters for the **cnfapsln** command.

Table 8 cnfapsln Command Parameters

-w <*working line*>	Slot number, bay number, and line number of the active line to configure, in the format: `slot.bay.line` Example: `-w 1.1.1`
-sf <*signal fault ber*>	A number between 3 and 5 indicating the Signal Fault Bit Error Rate (BER), in powers of ten: • 3 = 10^{-3} • 4 = 10^{-4} • 5 = 10^{-5} Example: `-sf 3`
-sd <*SignalDegradeBER*>	A power if 10 in the range 5-9 that indicates the Signal Degrade Bit Error Rate (BER): • 5 = 10^{-5} • 6 = 10^{-6} • 7 = 10-7 • 8 = 10^{-8} • 9 = 10^{-9} Example: `-sd 5`
-wtr <*Wait To Restore*>	The number of minutes to wait after the failed working line has recovered, before switching back to the working line. The range is 5-12. Example: `-wtr 5`
-dr <*direction*>	Determines whether the line is unidirectional or bidirectional. • 1 = Unidirectional. The line switch occurs at the receive end of the line. • 2 = Bidirectional. The line switch occurs at both ends of the line. **Note** This optional parameter is not shown in the above example because you do not need to set it for a revertive line. Example: `-dr 2`
-rv <*revertive*>	Determines whether the line is revertive or non-revertive. • 1 = Non-revertive. You must manually switch back to a recovered working line. • 2 = Revertive. APS automatically switches back to a recovered working line after the number of minutes set in the -wtr parameter. Example: `-rv 1`

If you want to manually switch from one line to another, enter the **switchapsln** <*bay*> <*line*> <*switchOption*> command, as shown in the following example:

```
M8850_LA.1.AXSM.a > switchapsln 1 1 6
Manual line switch from protection to working succeeded on line 1.1.1
```

Table 9 describes the configurable parameters for the **switchapsln** command.

Table 9 switchapsln Command Parameters

Parameter	Description
bay	The working bay number to switch.
line	The working line number to switch.
switchOption	The method of performing the switchover. • 1 = Clear previous user switchover requests. Return to working line only if the mode is revertive. • 2 = Lockout of protection. Prevents specified APS pair from being switched over to the protection line. If the protection line is already active, the switchover is made back to the working line. • 3 = Forced working to protection line switchover. If the working line is active, the switchover is made to the protection line unless the protection line is locked out or in the SF condition, or if a forced switchover is already in effect. • 4 = Forced protection to working line switchover. If the protection line is active, the switch is made to the working line unless a request of equal or higher priority is in effect. This option has the same priority as option 3 (forced working to protection line switchover). Therefor, if a forced working to protection line switchover is in effect, it must be cleared before this option (forced protection to working line switchover) can succeed. • 5 = Manual switchover from working to protection line unless a request of equal or higher priority is in effect. • 6 = Manual switchover from protection to working line. This option is only available in the 1+1 APS architecture.
service switch	This is an optional parameter. When set to 1, this field causes all APS lines to switch to their protected lines.

Enter the **dspapslns** command to verify that the active line switched over from the protection line to the working line, as shown in the following example:

```
M8850_LA.1.AXSM.a > dspapslns
Working Prot.  Conf  Oper    Active  WLine PLine WTR   Revt Conf Oper LastUser
Index   Index  Arch  Arch    Line    State State (min)      Dir  Dir  SwitchReq
------- -----  ----  -----   ------  ----- ----- ----- ---- ---- ---- ----------
  1.1.1  2.1.1 1+1    1+1    working    OK    OK     5  Yes   bi   bi ManualP->W
```

Troubleshooting APS Lines

Port lights on AXSM and AXSM/B front cards indicate the receive status of APS lines. The active front card always displays the status of the active line. The standby card always displays the status of the inactive line. If only one APS line fails, the line failure LED is always displayed on the standby front card.

Caution When the active front card and the active line are in different slots and the inactive line has failed, it is easy to incorrectly identify the failed line as the line in the standby slot. To avoid disrupting traffic through the active line, verify which physical line is at fault before disconnecting the suspect line.

If the active line fails and the standby line is not available, the switch reports a critical alarm.

If the active line fails and the standby line takes over, the former standby line becomes the new active line, and the switch reports a major alarm.

If an AXSM front card fails, APS communication between the redundant front cards fails. This can result in one of the following situations:

- If both APS lines were working before the failure, an APS line failure causes a switchover to the protection line
- If either APS line failed prior to a front card failure, a failure on the active line does not cause a switchover to the other line. Because the standby front card failed, it cannot monitor the standby line and report when the line has recovered. This means that the active card cannot use the standby line until the standby front card is replaced and the line problem corrected.

Use the following procedure to troubleshoot APS lines.

Step 1 Enter the **dsplns** command to determine if the line in alarm is an APS line. The **dsplns** command shows which lines are enabled for APS:

```
M8850_LA.1.AXSM.a > dsplns
                                                Medium Medium
      Sonet  Line     Line     Line    Frame   Line   Line     Alarm   APS
      Line  State     Type     Lpbk   Scramble Coding Type     State   Enabled
      ----- ----- ------------ ------ -------- ------ -------  -----   --------
       1.1     Up sonetSts12c NoLoop   Enable  Other ShortSMF    Clear Enable
       1.2     Up sonetSts12c NoLoop   Enable  Other ShortSMF    Clear Disable
       2.1     Up sonetSts12c NoLoop   Enable  Other ShortSMF    Clear Disable
       2.2     Up sonetSts12c NoLoop   Enable  Other ShortSMF    Clear Disable
```

If the line in alarm is an APS line, and has always functioned properly as an APS line, proceed to Step 2.

If the line in alarm has never functioned properly as an APS line, verify that the following are true:

- redundant front and back cards are in the appropriate bays and are installed at both ends of the line.

- cable is properly connected to both ends of the line.
- enter the **dspapsbkplane** command to verify that the APS connector is installed properly at both ends of the line.

Step 2 Enter the **dspapslns** command at both ends of the communication line to determine whether one or both lines in an APS pair are bad. Use Table 10 to help you determine which APS line is not functioning properly.

Table 10 Troubleshooting APS Line Problems Using the dspaps Command

Active Line	Working Line	Protection Line	Working Line LED	Protection Line LED	Description
Working	OK	OK	Green	Green	Active card is receiving signal on working and protection lines. This does not guarantee that transmit lines are functioning properly. You must view the status on remote switch.
Protection	SF	OK	Green	Red	Active card is receiving signal on the protection line. No signal received on the working line.
Working	OK	SF	Green	Red	Active card is receiving signal on the working line. No signal received on the protection line.
Working	SF	SF	Red	Red	Active card is not receiving signal from either line. The working line was the last line to work.
Protection	SF	SF	Red	Red	Active card is not receiving signal from either line. The protection line was the last line to work.
Working	UNAVAIL	UNAVAIL			The card set is not complete. One or more cards have failed or been removed. See Table 11 to troubleshoot card errors.

If one or both lines appear to be bad, determine whether the working or protection line is in alarm. Troubleshoot and correct the standby line first. Replace the components along the signal path until the problem is resolved.

- If the **dspapslns** command at either end of the line indicates a front or back card problem, resolve that problem first. (See Table 11 to card problems).
- If the **dspapslns** command shows a signal failure on the standby line, replace that line.
- If the standby line is still down, replace the cards along the signal path.

Table 11 Troubleshooting Card Problems

APS Line Failure	Possible Cause
All lines in upper and lower bays	Suspect a bad or removed front card. If both front cards are good, both back cards may be bad.
All lines in upper bay only. Lower bay APS lines ok.	Suspect bad upper bay back card.
All lines in lower bay only. Upper bay APS lines OK.	Suspect bad lower bay back card.

Clearing the Configuration on Redundant PXM45 Cards

Due to checks to prevent an inserted card from affecting the system, an additional step may be required when inserting two "non-native" PXM45 cards in a shelf. Insert the first PXM45, do a **clrallcnf,** and allow this to become active before inserting the second PXM45.

Recommendations

Cisco Systems provides the following information and recommendations for switch configuration:

- The RPM-PR subinterface ID range is 1 – 32767.
- Apply the default values for PCR, SCR, and so on to the Control VC. If the values are decreased to a low value, there is a chance that the protocol on the interface (SSCOP or PNNI) will not come up.

Installing and Upgrading to Release 2.1.79

You can gracefully upgrade to Release 2.1.79 from Release 2.0.16 or 2.1.75 or above.

The procedures in this section are based on "Appendix A, Downloading and Installing Software Upgrades" in the "MGX 8850 and MGX 8950 Switch Software Configuration Guide, Release 2.1" (part DOC-7812551=). **In this section, references to "chapters" refer to chapters in that manual.**

You can download that manual from http://www.cisco.com/univercd/cc/td/doc/product/wanbu/8850r21/index.htm.

Caution Although graceful upgrades can be aborted with the abortrev command, the abortrev command does reset both active and standby cards, so reverting back to an earlier software release is not graceful. Please see the "abortrev" command description in the "Cisco MGX 8850 Switch Command Reference, Release 2.1" (part DOC-7812563=). A table under that command shows the behavior of cards in a single and redundant configuration.

This section describes how to locate, download, and install software updates for the switch. Because software updates are stored in the switch file system, this section includes a subsection on browsing the file system. This section includes the following subsections:

- Upgrade Process Overview
- Quickstart Procedures for Software Upgrades
- Browsing the File System
- Copying Software Files to the Switch
- Upgrade Procedures for PXM45 and AXSM Cards
- Upgrade Procedures for RPM-PR Cards
- Using XModem to Download Flash to RPM Cards
- Troubleshooting Upgrade Problems

Upgrade Process Overview

This section provides a series of quickstart procedures that describe how to perform graceful and non-graceful upgrades to the switch. To perform a graceful upgrade on a switch card, the card must be operating in redundant mode with another switch card of the same type. When performed properly, graceful upgrades have minimal impact on connections in progress and do not interrupt any established connections.

Note Graceful upgrades to Release 2.1.79 are supported from Release 2.0.16 or 2.1.75 or above.

When a card to be upgraded is not operating in redundant mode, you must do a non-graceful upgrade, which disrupts all traffic that passes through the card. For PXM45 cards, an ungraceful upgrade interrupts all traffic passing through the switch. For all other types of cards, an ungraceful upgrade affects only the traffic that passes through that card.

Each type of switch card runs boot and runtime software. The recommended sequence for upgrading the software (i.e., firmware) on switch cards is as follows:

1. PXM45 boot software
2. PXM45 runtime software
3. AXSM boot software
4. AXSM runtime software
5. RPM-PR boot software
6. RPM-PR runtime software

Note If you plan to upgrade PXM45 cards and AXSM cards, upgrade the PXM45 cards first. Wait until the PXM45 cards are operating in active and standby modes with the correct software before upgrading AXSM cards. The software version used by the PXM45/B cards should be equal to or later than the version used on the AXSM, AXSM/B, and AXSM-E cards.

Typically, the boot software requires less frequent upgrades. However, in this release, both the boot and runtime software need to be upgraded.

When you upgrade the software on a switch card, proceed as follows:

- Decide whether you are performing a graceful or non-graceful upgrade
- Follow the appropriate quickstart procedure for that type of upgrade
- For additional information on a task within a quickstart procedure, see the subsection to which the procedure refers

The next subsection presents the quickstart procedures for switch card software upgrades.

Quickstart Procedures for Software Upgrades

The following subsections provide quickstart procedures for the following upgrades:

- Preparing for Upgrades
- Graceful PXM45 Boot Upgrades
- Non-Graceful PXM45 Boot Upgrades

- Graceful PXM45 and AXSM Runtime Software Upgrades
- Non-Graceful PXM45 and AXSM Runtime Software Upgrades
- Graceful AXSM Boot Upgrades
- Non-Graceful AXSM Boot Upgrades
- RPM-PR Boot and Runtime Software Upgrades

Caution A CP port session is required because you will be resetting the node and entering commands in "Backup Boot mode," which is not accessible through other connection methods.

Preparing for Upgrades

Before you can upgrade the software on any card, you must copy the software to your switch and then log into the switch. The following table describes how to prepare for software upgrades on any card:

	Command	Description
Step 1	**ftp**	Copy the boot and runtime files you want to use to your switch. FTP the AXSM and PXM45 boot and runtime images to the C:FW directory. FTP the RPM boot and runtime images to the E:RPM directory. See "Copying Software Files to the Switch," which appears later in this section.
Step 2	*username* *password*	Establish a CLI session with the *standby* PXM45 card using the CP port on the UI-S3 back card and a user name with CISCO_GP privileges.
Step 3	**saveallcnf**	This optional step saves the current configuration to the hard disk of the active PXM45/B card. (The command can only be issued on the active PXM card.) Refer to "Saving a Configuration" in Chapter 7, "Switch Operating Procedures."

Graceful PXM45 Boot Upgrades

When performed properly, graceful upgrades have minimal impact on connections in progress and do not interrupt any established connections.

When a boot software upgrade is required, the procedure for upgrading redundant PXM45 cards updates the standby card and then makes that card active. This method ensures a smooth transition to the new software and preserves all established calls. Any calls that are not established are lost.

A graceful upgrade of the boot software does the following:

1. Loads the new software on the standby PXM45 card
2. Makes the standby PXM45 card active
3. Loads the new software on the formerly active (now standby) PXM45 card

Note Avoid making configuration changes while upgrading PXM45 software. Configuration changes can be lost when the PXM45 is reset during the upgrade.

To upgrade the runtime software, use the following procedure.

	Command	Purpose
Step 1		Copy the boot files you want to use to the switch and log into the active PXM45 card. See "Upgrade Process Overview" section on page 46.
Step 2	**sysPxmRemove**	At the backup boot prompt, enter the **sysPxmRemove** command: This step prevents the active card from resetting the standby card while you are working with it.
Step 3	**sysFlashBootBurn** "*Filename*" **reboot** *username* *password* **dspcds**; **dsprevs**	Burn the boot software. Remember to enter quotation marks before and after the boot software filename. For example: `sysFlashBootBurn "C:FW/pxm45_002.001.075.015-A_bt.fw"` See "Upgrading PXM45 Boot Software" section on page 62.
Step 4	*username* *password*	Establish a CLI session with the *active* PXM45 card (which is the non-upgraded card) using the CP port on the UI-S3 back card and a user name with CISCO_GP privileges.
Step 5	**switchcc** **y**	Switch the roles of the active and standby cards so you can upgrade the non-upgraded card in standby mode.
Step 6	**sh** **sysBackupBoot** <Return> (2.0.11 and earlier)	Using the CP port connection, change to the PXM45 Backup Boot mode. Note that the software versions 2.0.11 and earlier require you to press **Return** during the reboot sequence to enter backup boot mode. See "Changing to PXM45 Backup Boot Mode" in Appendix B, "PXM45 Backup Boot Procedures.".
Step 7	**sysPxmRemove**	At the backup boot prompt, enter the **sysPxmRemove** command: This step prevents the active card from resetting the standby card while you are working with it.
Step 8	**sysFlashBootBurn** "*Filename*" **reboot** *username* *password* **dspcds**; **dsprevs**	Burn the boot software. Remember to enter quotation marks before and after the boot software filename. For example: `sysFlashBootBurn "C:FW/pxm45_002.001.075.015-A_bt.fw"` See "Upgrading PXM45 Boot Software" section on page 62. The boot software is now upgraded on both the active and standby cards. The card that was active before the upgrade is now operating in standby mode.

Non-Graceful PXM45 Boot Upgrades

Ungraceful upgrades disrupt all switch traffic and are usually used in lab installations where the use of standalone cards provides no opportunity for a graceful upgrade. The quickstart procedure is provided as an overview and as a quick reference.

Note Avoid making configuration changes while upgrading PXM45 software. Configuration changes can be lost when the PXM45 is reset during the upgrade.

	Command	Purpose
Step 1		Copy the boot files you want to use to the switch and log into the active PXM45 card. See "Upgrade Process Overview" section on page 46.
Step 2	**sh** **sysBackupBoot** <Return> (2.0.11 and earlier)	Using the CP port connection, change to the PXM45 Backup Boot mode. Note that the software versions 2.0.11 and earlier require you to press **Return** during the reboot sequence to enter backup boot mode. See "Changing to PXM45 Backup Boot Mode" in Appendix B, "PXM45 Backup Boot Procedures."
Step 3	**sysFlashBootBurn** "*Filename*" **reboot** *username* *password* **dspcd**; **dsprevs**	Burn the boot software. Remember to enter quotation marks before and after the boot software filename. For example: `sysFlashBootBurn "C:FW/pxm45_002.001.075.015-A_bt.fw"` See "Upgrading PXM45 Boot Software" section on page 62.

Graceful PXM45 and AXSM Runtime Software Upgrades

When performed properly, graceful upgrades have minimal impact on connections in progress and do not interrupt any established connections.

This quickstart procedure applies to both PXM45 and AXSM cards and does the following:

1. Loads the new software on the standby PXM45 or AXSM card
2. Makes the standby card active
3. Loads the new software on the formerly active (now standby) card

Note If you plan to upgrade PXM45 cards and AXSM cards, upgrade the PXM45 cards first. Wait until the PXM45 cards are operating in active and standby modes with the correct software before upgrading AXSM cards. The software version used by the PXM45/B cards should be equal to or later than the version used on the AXSM, AXSM/B, and AXSM-E cards. When AXSM boot software is to be upgraded, it should be upgraded before upgrading the runtime software.

Note Avoid making configuration changes while upgrading PXM45 software. Configuration changes can be lost when the PXM45 is reset during the upgrade.

Note Upgrade software on the node to Release 2.1.75 or 2.1.76 before inserting the AXSM-E card.

To upgrade the runtime software, use the following procedure.

	Command	Purpose
Step 1		Copy the runtime files you want to use to the switch and log into the active PXM45 card. See "Upgrade Process Overview" section on page 46.
Step 2	**dspcds**; **dsprevs**; **dsprevs -s** **commitrev** <*slot*> <*revision*>	Verify that all previous upgrades have been committed. If a previous upgrade has not been committed, commit to the new upgrade. See "Committing to a Runtime Software Upgrade" section on page 70.
Step 3	**loadrev** <*slot*> <*revision*> **dspcds; dsprevs -s**	Load the new runtime software on the standby card.
Step 4	**runrev** <*slot*> <*revision*> **dspcds; dsprevs -s** **dspcd** <*slot*>	Switch over to the standby card and load the new runtime software on the new standby (non-upgraded) card.
Step 5	**commitrev** <*slot*> <*revision*> **dspcds** **dsprevs** **dsprevs -s**	This command prevents an accidental switch back to a previous software revision if someone enters the **abortrev** command. Enter the **commitrev** command after the former active card comes up in the standby-U state. Cisco Systems recommends that you avoid configuration changes until after you have run the **commitrev** or **abortrev** commands. See "Aborting a Runtime Software Upgrade" section on page 68 and "Committing to a Runtime Software Upgrade" section on page 70.

Non-Graceful PXM45 and AXSM Runtime Software Upgrades

Ungraceful upgrades disrupt all switch traffic and are usually used in lab installations where the use of standalone cards provides no opportunity for a graceful upgrade. The quickstart procedure is provided as an overview and as a quick reference.

Note If you plan to upgrade PXM45 cards and AXSM cards, upgrade the PXM45 cards first. Wait until the PXM45 cards are operating in active and standby modes with the correct software before upgrading AXSM cards. The software version used by the PXM45/B cards should be equal to or later than the version used on the AXSM, AXSM/B, and AXSM-E cards. When AXSM boot software is to be upgraded, it should be upgraded before upgrading the runtime software.

Note Avoid making configuration changes while upgrading PXM45 software. Configuration changes can be lost when the PXM45 is reset during the upgrade.

Note Upgrade software on the node to Release 2.1.70 or 2.1.75 before inserting the AXSM-E card.

	Command	Purpose
Step 1		Copy the runtime files you want to use to the switch and log into the active PXM45 card. See "Upgrade Process Overview" section on page 46.
Step 2	**dspcds**; **dsprevs -s** **commitrev** <*slot*> <*revision*>	Verify that all previous upgrades have been committed. If a previous upgrade has not been committed, commit to the new upgrade. See "Committing to a Runtime Software Upgrade" section on page 70.
Step 3	**loadrev** <*slot*> <*revision*> **dspcds; dsprevs -s**	Define the new software version to be used.
Step 4	**runrev** <*slot*> <*revision*> **dspcds; dsprevs -s**	Reset the card and run the new runtime software version.
Step 5	**commitrev** <*slot*> <*revision*> **dspcds** **dsprevs -s** **dsprevs**	This command prevents an accidental switch back to a previous software revision if someone enters the **abortrev** command. Cisco Systems recommends that you avoid configuration changes until after you have run the **commitrev** or **abortrev** commands. See "Aborting a Runtime Software Upgrade" section on page 68 and "Committing to a Runtime Software Upgrade" section on page 70.

Graceful AXSM Boot Upgrades

When performed properly, graceful upgrades have minimal impact on connections in progress and do not interrupt any established connections. The quickstart procedure is provided as an overview and as a quick reference.

Note If you plan to upgrade PXM45 cards and AXSM cards, upgrade the PXM45 cards first. Wait until the PXM45/B cards are operating in active and standby modes with the correct software before upgrading AXSM cards. The software version used by the PXM45/B cards should be equal to or later than the version used on the AXSM, AXSM/B, and AXSM-E cards.

Note Upgrade software on the node to Release 2.1.75 or Release 2.1.76 before inserting the AXSM-E card.

	Command	Purpose
Step 1		Copy the boot files you want to use to the switch and log into the active PXM45 card. See "Upgrade Process Overview", which appears earlier in this section.
Step 2	**burnboot** <*slot*> <*revision*> **dspcd** <*slot*> **dsprevs**	Burn the boot software on the standby AXSM card by specifying the slot number of the standby card. See "Upgrading Boot Software on an AXSM Card," which appears later in this section.
Step 3	**switchredcd** <*fromSlot*> <*toSlot*>	Activate the upgraded card and place the non-upgraded card in standby mode.
Step 4	**burnboot** <*slot*> <*revision*> **dspcd** <*slot*> **dsprevs**	Burn the boot software on the non-upgraded, standby AXSM card by specifying the slot number of the standby card. See "Upgrading Boot Software on an AXSM Card," which appears later in this section.

Non-Graceful AXSM Boot Upgrades

Ungraceful upgrades disrupt all switch traffic and are usually used in lab installations where the use of standalone cards provides no opportunity for a graceful upgrade. The quickstart procedure is provided as an overview and as a quick reference.

Note If you plan to upgrade PXM45 cards and AXSM cards, upgrade the PXM45 cards first. Wait until the PXM45 cards are operating in active and standby modes with the correct software before upgrading AXSM cards. The software version used by the PXM45/B cards should be equal to or later than the version used on the AXSM, AXSM/B, and AXSM-E cards.

Note Upgrade software on the node to Release 2.1.75 or Release 2.1.76 before inserting the AXSM-E card.

	Command	Purpose
Step 1		Copy the boot files you want to use to the switch and log into the active PXM45 card. See "Upgrade Process Overview", which appears earlier in this section.
Step 2	**burnboot** <*slot*> <*revision*> **dspcd** <*slot*> **dsprevs**	Burn the boot software on the standby AXSM card by specifying the slot number of the standby card. See "Upgrading Boot Software on an AXSM Card," which appears later in this section.

RPM-PR Software Upgrades for Cards with 1:N Redundancy

On the MGX 8850, the RPM cards can go into slots 1 through 6, or 9 through 14.

The RPM-PR card supports software upgrades when 1:N redundancy is established in the switch between RPM-PR cards. Boot software is generally upgraded less often than runtime software, so be sure to compare the recommended boot software version with the boot software running on your RPMs before starting an upgrade. The correct boot software might already be installed.

The following quickstart procedure describes how to upgrade redundant RPM-PR cards. For detailed instructions, see "Upgrade Procedures for RPM-PR Cards," which appears later in this section.

These procedures describe how to upgrade boot as well as runtime software together or runtime software only.

Note Redundancy must be established before you use this procedure. If redundancy has not been configured between two RPM-PR cards, upgrade each RPM-PR card using the procedure in "RPM-PR Software Upgrades for Non-Redundant Cards," which appears later in this chapter. To add redundancy to an RPM-PR card, refer to "Establishing Redundancy Between Two RPM-PR Cards" in Chapter 4, "Preparing RPM-PR Cards for Operation" of the *Cisco MGX 8850 and MGX 8950 Switch Software Configuration Guide, Release 2.1*.

Table 12 RPM-PR Boot Software and Runtime Software Upgrades Together

	Command	Purpose
Step 1		Copy the files you want to use to the E:RPM directory of the switch and log in your switch. See "Upgrade Process Overview"," which appears earlier in this section.
Step 2	*username* *password*	Establish a CLI session with the *active* PXM45 card using a user name at any access level.
Step 3	**copy**	Copy and rename the runtime file to a generic name for easy updates. See "Non-Graceful RPM-PR Runtime Software Upgrades," which appears later in this chapter. **Note** If you have already configured the RPM to use a generic name, you can skip to Step 16.
Step 4	**cc** <*primarySlot*>	Select the slot in which the primary RPM-PR card is installed.
Step 5	**enable** *password*	Enter Enable mode for the router.
Step 6	**dir e:**	Verify router access to the PXM45 hard disk and the boot upgrade software.
Step 7	**show flash:**	Display current contents of bootflash.
Step 8	**copy** *filename* **bootflash:** **dir bootflash:**	Copy the upgrade boot software to flash. For example: `copy e:rpm-boot-mz_002.001.060.000 bootflash:`

	Command	Purpose
Step 9	**del bootflash:**	Delete older boot files from the bootflash. The switch always attempts to load the first bootable file in bootflash. If the upgraded file has a higher file number than another bootable file, it will not be used when the card is reset. **Note** This step marks files to be deleted, but it does not delete them.
Step 10	**show flash:**	⚠ **Caution** Verify that at least one valid boot or runtime image will not be deleted. If all boot and runtime images are deleted from bootflash, the RPM card must be returned to the factory for repair.
Step 11	**squeeze flash:**	This step deletes all files that have been marked for deletion.
Step 12	**copy**	Optional: Copy and rename the runtime file to a generic name for easy updates. See "Non-Graceful RPM-PR Runtime Software Upgrades," which appears later in this chapter. **Note** If you have already configured the RPM to use a generic name, you can skip to Step 21.
Step 13	**show bootvar**	Display the current runtime software filename.
Step 14	**config terminal**	Enter the router global configuration mode.
Step 15	**no boot system**	Remove the entire boot list. To remove a single file from the boot list, include a filename. For example: `Router(config)# no boot system c:rpm-js-mz_122-4.T`
Step 16	**boot system c:***filename*	Add the new router runtime image to the boot list. For example: `Router(config)# boot system c:rpm-js-mz_122-4.T`
Step 17	**boot config e:auto_config_***RPM-PR_slot#*	Configure **the RPM-PR card** to store its **configuration** on **the** PXM45 **hard** disk. **Note** This step only needs to be performed once. If this command is already in the startup configuration file, you do not need to enter it again.
Step 18	**^Z**	Exit global configuration mode.
Step 19	**copy run start**	Save the new configuration. **Note** If you omit this step, the RPM-PR card will continue to use the previous version of software.
Step 20	**show bootvar**	Verify the change in the runtime software filename.
Step 21	**switchredcd** <*primarySlot*> <*secondarySlot*>	This step makes the secondary card active and resets the primary RPM-PR card. When the primary card resets, it loads the upgraded boot software from bootflash.
Step 22	**cc** <*secondarySlot*>	Select the slot in which the secondary RPM-PR card is installed.

	Command	Purpose
Step 23	**enable** *password* **dir e:** **show flash:** **copy** *filename* **bootflash:** **dir bootflash:** **show flash:** **squeeze flash:**	Repeat Step 5 through Step 11 to move the upgraded boot software into bootflash.
Step 24	**show bootvar** **config terminal** **no boot system** **boot system c:***filename* **^Z** **copy run start** **show bootvar**	Repeat Step 13 through Step 16 andStep 18 through Step 20 to upgrade runtime software.
Step 25	**switchredcd** <*secondarySlot*> <*primarySlot*>	This step makes the upgraded primary card active and resets the secondary RPM-PR card. When the secondary card resets, it loads the upgraded boot software from bootflash. Both primary and secondary cards should now be using upgraded boot software.
Step 26		If there are other primary RPM-PR cards that need upgrading, repeat the part of this procedure that upgrades the primary card, then execute the **switchredcd** command once to reload the primary card. Finally, execute the **switchredcd** command a second time to make the upgraded primary card active.

RPM-PR Runtime Software Upgrade for Cards with 1:N Redundancy (no boot software upgrade)

The RPM-PR card supports upgrades when 1:N redundancy is established in the switch between RPM-PR cards.

The following quickstart procedure describes how to gracefully upgrade redundant RPM-PR cards.

Note Redundancy must be established before you use this procedure. If redundancy has not been configured between two RPM-PR cards, upgrade each RPM-PR card as described in "RPM-PR Runtime Software Upgrades for Non-Redundant Cards," which appears later in this chapter. To add redundancy to an RPM-PR card, refer to "Establishing Redundancy Between Two RPM-PR Cards" in Chapter 4, "Preparing RPM-PR Cards for Operation."

Table 13 RPM-PR Runtime Software Upgrade (no boot upgrade)

	Command	Purpose
Step 1		Copy the files you want to use to the E:RPM directory of the switch and log in your switch. See "Upgrade Process Overview"," which appears earlier in this section.
Step 2	*username* *password*	Establish a CLI session with the *active* PXM45 card using a user name at any access level.
Step 3	**copy**	Copy and rename the runtime file to a generic name for easy updates. See "Non-Graceful RPM-PR Runtime Software Upgrades," which appears later in this chapter. **Note** If you have already configured the RPM to use a generic name, you can skip to Step 16.
Step 4	**cc** <*primarySlot*>	Select the slot in which the primary RPM-PR card is installed.
Step 5.	enable *password*	Enter Enable mode for the router.
Step 6	**show bootvar**	Display the current runtime software filename.
Step 7	**config terminal**	Enter the router global configuration mode.
Step 8	**no boot system**	Remove the entire boot list. To remove a single file from the boot list, include a filename. For example: `Router(config)# no boot system c:rpm-js-mz_122-4.T`
Step 9	**boot system c:***filename*	Add the new router runtime image to the boot list. For example: `Router(config)# boot system c:rpm-js-mz_122-4.T`
Step 10	**`boot config e:auto_config_`***RPM-PR*`_slot#`**	Configure **the RPM-PR card** to store its **configuration** on **the** active PXM45 **hard** disk. **Note** This step only needs to be performed once. If this command is already in the startup configuration file, you do not need to enter it again.
Step 11	**^Z**	Exit global configuration mode.
Step 12	**copy run start**	Save the new configuration. **Note** If you omit this step, the RPM-PR card will continue to use the previous version of software.
Step 13	**show bootvar**	Verify the change in the runtime software filename.
Step 14	**switchredcd** <*primarySlot*> <*secondarySlot*>	This step makes the secondary card active and resets the primary RPM-PR card. When the primary card resets, it loads the upgraded boot software from bootflash.
Step 15	**cc** <*secondarySlot*>	Select the slot in which the secondary RPM-PR card is installed.

	Command	Purpose
Step 16	**enable** *password* **show bootvar** **config terminal** **no boot system** **boot system c:***filename* **^Z** **copy run start** **show bootvar**	Repeat Step 5 through Step 9 and Step 11 through Step 13.
Step 17	**switchredcd** <*secondarySlot*> <*primarySlot*>	This step makes the upgraded primary card active and resets the secondary RPM-PR card. When the secondary card resets, it loads the upgraded boot software from bootflash. Both primary and secondary cards should now be using upgraded runtime software.
Step 18		If there are other primary RPM-PR cards that need upgrading, repeat the part of this procedure that upgrades the primary card, then execute the **switchredcd** command once to reload the primary card. Finally, execute the **switchredcd** command a second time to make the upgraded primary card active.

RPM-PR Software Upgrades for Non-Redundant Cards

Use the software upgrade procedure in this subsection when you need to upgrade RPM-PR boot software and the RPM-PR is operating in standalone mode.

Note If the RPM-PR is operating in 1:N redundancy mode with another RPM-PR, upgrade the cards as described in "RPM-PR Software Upgrades for Cards with 1:N Redundancy," which appears earlier in this chapter.

The following quickstart procedure is provided as an overview and as a quick reference for those who have already performed RPM-PR upgrades on the switch. For detailed instructions, see "Upgrade Procedures for RPM-PR Cards," which appears later in this section.

Table 14 RPM-PR Boot and Runtime Software Upgrade (Together)

	Command	Purpose
Step 1	**ftp**	Copy the boot and runtime files you want to use to the switch (E:RPM). See "Copying Software Files to the Switch," which appears later in this section.
Step 2	*username* *password*	Establish a CLI session with the *active* PXM45 card using a user name at any access level.

	Command	Purpose
Step 3	**copy**	Copy and rename the runtime file to a generic name for easy updates. See "Non-Graceful RPM-PR Runtime Software Upgrades," which appears later in this chapter. **Note** If you have already configured the RPM to use a generic name, you can skip to Step 12.
Step 4	**cc** *<RPM-PR_Slot>*	Select the slot in which the RPM-PR card is installed.
Step 5	**enable** *password*	Enter Enable mode for the router.
Step 6	**dir e:**	Verify router access to the active PXM45 hard disk and the boot upgrade software.
Step 7	**show flash:**	Display current contents of bootflash.
Step 8S	**copy** *filename* **bootflash:** **dir bootflash:**	Copy the upgrade boot software to flash. For example: `copy e:rpm-boot-mz_002.001.075.015-A bootflash:`
Step 9	**del bootflash:**	Optional. Delete older boot files from the bootflash. This step marks files to be deleted, but it does not delete them.
Step 10	**show flash:**	⚠ **Caution** Verify that at least one valid boot or runtime image will not be deleted. If all boot and runtime images are deleted from bootflash, the RPM card must be returned to the factory for repair.
Step 11	**squeeze flash:**	This step deletes all files that have been marked for deletion.
Step 12	**show bootvar**	Display the current runtime software filename.
Step 13	**config terminal**	Enter the router global configuration mode.
Step 14	**no boot system**	Remove the entire boot list. To remove a single file from the boot list, include a filename. For example: `Router(config)# no boot system c:rpm-js-mz_122-4.T`
Step 15	**boot system e:***filename*	Add the new router runtime image to the boot list. For example: `Router(config)# boot system e:rpm-js-mz.122-4.T`
Step 16	**`boot config e:auto_config_`***RPM-PR_`slot#`*	Configure **the RPM-PR card** to store its **configuration** on **the** PXM45 **hard** disk. **Note** This step only needs to be performed once. If this command is already in the startup configuration file, you do not need to enter it again.
Step 17	**^Z** **copy run start**	Exit global configuration mode and save the new configuration.
Step 18	**show bootvar**	Verify the change in the runtime software filename.
Step 19	**cc** *<active_PXM45_slot>* **resetcd** *<RPM-PR_Slot>*	This command sequence restarts the RPM-PR card with the new boot image.

Non-Graceful RPM-PR Runtime Software Upgrades (no boot software upgrade)

Use the software upgrade procedure in this section when you need to upgrade RPM-PR runtime software and the RPM-PR is operating in standalone mode.

Note If the RPM-PR is operating in 1:N redundancy mode with another RPM-PR, upgrade the cards as described in "RPM-PR Software Upgrades for Cards with 1:N Redundancy," which appears earlier in this chapter.

The following quickstart procedure is provided as an overview and as a quick reference for those who have already performed RPM-PR upgrades on the switch. For detailed instructions, see "Upgrade Procedures for RPM-PR Cards," which appears later in this section.

Table 15 RPM-PR Runtime Software Upgrades (no boot software upgrade)

	Command	Purpose
Step 1	**ftp**	Copy the boot and runtime files you want to use to the switch (E:RPM). See "Copying Software Files to the Switch," which appears later in this section.
Step 2	**copy**	Copy and rename the runtime file to a generic name for easy updates. See "Non-Graceful RPM-PR Runtime Software Upgrades," which appears later in this chapter. **Note** If you have already configured the RPM to use a generic name, you can skip to Step 12.
Step 3	*username* *password*	Establish a CLI session with the *active* PXM45 card using a user name at any access level.
Step 4	**cc** <*RPM-PR_Slot*>	Select the slot in which the RPM-PR card is installed.
Step 5	**enable** *password*	Enter Enable mode for the router.
Step 6	**show bootvar**	Display the current runtime software filename.
Step 7	**config terminal**	Enter the router global configuration mode.
Step 8	**no boot system**	Remove the entire boot list. To remove a single file from the boot list, include a filename. For example: `Router(config)# no boot system c:rpm-js-mz_122-4.T`
Step 9	**boot system e:***filename*	Add the new router runtime image to the boot list. For example: `Router(config)# boot system e:rpm-js-mz.122-4.T`
Step 10	**boot config e:auto_config**_*RPM-PR_slot#*	Configure **the RPM-PR card** to store its **configuration** on **the** PXM45 **hard** disk. **Note** This step only needs to be performed once. If this command is already in the startup configuration file, you do not need to enter it again.

	Command	Purpose
Step 11	**^Z** **copy run start**	Exit global configuration mode and save the new configuration.
Step 12	**show bootvar**	Verify the change in the runtime software filename.
Step 13	**cc** <*active_PXM45_slot*> **resetcd** <*RPM-PR_Slot*>	This command sequence selects the active PXM card and restarts the RPM card with the new runtime image.
Step 14	**dspcds** **dspcd** <*RPM-PR_Slot*> **cc** <*RPM-PR_Slot*>	Verify router reboot is complete.

Browsing the File System

The active PXM45 hard disk stores log files, configuration files, and boot and runtime software. The switch operating system supports a set of UNIX-like commands that you can use to locate log files or manage software updates. Table 16 lists commands that you can use to browse the file system.

Note File and directory names in the switch file system are case sensitive. Also, some of the commands listed in Table 16 are not available at all administrator access levels.

Table 16 File System Commands at Switch Prompt

Command	Description
cd	Change directories. Access level required: ANYUSER or above.
copy	Copies a file from one location to another. Syntax: **copy** <*source file name*> <*destination file name*> Access level required: GROUP1 or above.
del	Deletes a file. Syntax: **del** <*file name*> Access level required: GROUP1 or above.
ll	List directory contents using long format, which includes the name, size, modification date, and modification time for each file. This command also displays the total disk space and free disk space. Syntax: **ll** Access level required: ANYUSER or above.
ls	List directory contents using the short format, which displays filenames, total disk space, and free disk space. Syntax: **ls** Access level required: ANYUSER or above.
pwd	Display the present working directory. Syntax: **pwd** Access level required: ANYUSER or above.

Table 16 File System Commands at Switch Prompt (continued)

Command	Description
rename	Renames a file. Syntax: **rename** <*old file name*> <*new file name*> Access level required: GROUP1 or above.
whoami	Lists the login name for the current session. Syntax: **whoami** Access level required: ANYUSER or above.

Copying Software Files to the Switch

This section describes how to copy software files to the MGX 8850 switch. The switch cards use boot software and runtime software. Each PXM45 and AXSM card uses the boot software to define communications between the card components and to enable cards to start up. The runtime software defines how the card operates after startup. RPM-PR cards function on the runtime software and use the boot software only when they cannot load the runtime software.

Note The boot and runtime software are installed on the switch at the factory. Before you copy new files to the switch, verify that you need to update the files by comparing the file versions on the disk to the file versions in Table 3.

The MGX 8850 switches provide a File Transfer Protocol (FTP) service to support file transfers to the switch. If you have FTP client software and network connectivity to both the switch and the server where the software files are stored, you can use FTP to transfer files directly from the server to the switch.

Note The following procedure describes how to copy files to the switch when the runtime software is up and running (showing the node name switch prompt). When the runtime software cannot load, copy the software files to the switch as described in "Transferring Software Files to and from the Switch" in Appendix B, "PXM45 Backup Boot Procedures."

Step 1 Locate the files you want to download from http://www.cisco.com/kobayashi/sw-center/wan/wan-planner.shtml.

Step 2 Using a workstation with FTP client software, transfer PXM45 and AXSM files from the server to the switch directory C:/FW.

The procedure you use for transferring the files depends on the FTP client software you are using. When initiating the FTP connection, remember the following:

- Select the switch by entering its IP address.
- When prompted for a username and password, enter the username and password you use when managing the switch.
- When configuring file transfer options, select binary mode for the file transfer.

Step 3 To verify that the new PXM45 and AXSM files have been transferred to the switch, log into the switch and display the contents of the C:/FW directory.

Step 4 Using a workstation with FTP client software, transfer RPM-PR files from the server to the switch directory E:/RPM.

Note You must use a capital E when referencing the E drive in switch commands.

Step 5 To verify that the new RPM-PR files have been transferred to the switch, log into the switch and display the contents of the E:/RPM directory.

For more information on browsing the switch file system, see "Browsing the File System," which appears earlier in this section.

Upgrade Procedures for PXM45 and AXSM Cards

The following sections describe procedures that support upgrades to PXM45 and AXSM cards. For complete upgrade procedures, see "Quickstart Procedures for Software Upgrades," which appears earlier in this section. The procedures in this section detail some of the tasks listed in the quickstart procedures.

Upgrading PXM45 Boot Software

This section describes how to upgrade the PXM45 boot software on a single PXM45 card. If you are performing a graceful upgrade, use the quickstart procedure described in "Graceful PXM45 Boot Upgrades," which appears earlier in this section. The following procedure provides detailed information on the upgrade task within the quickstart procedure.

Step 1 If you have not done so already, establish a CLI session with the active PXM45 card using the CP port on the UI-S3 back card and a user name with CISCO_GP privileges.

Step 2 If you have not done so already, change to PXM45 Backup Boot mode as described in "Changing to PXM45 Backup Boot Mode" in Appendix B, "PXM45 Backup Boot Procedures.".

Step 3 To burn the boot software on the PXM45, enter the **sysFlashBootBurn** command as follows:

```
pxm45bkup> sysFlashBootBurn "filename"
```

Replace *filename* with the complete path to the boot file on the PXM45 hard drive. For example:

```
pxm45bkup> sysFlashBootBurn "C:FW/pxm45_002.001.075.015-A_bt.fw"
```

Step 4 When the switch prompts you to confirm this action, type **y** and press **Return**.

When the boot software burning process is complete, the switch displays a message similar to the following:

```
Flash download completed ...
value = 0 = 0x0
```

Step 5 When the boot software has been burned, reset the card with the **reboot** command. For example:

```
pxm45bkup> reboot
```

Be patient and wait for Login prompt to appear.

Step 6 When the Login prompt appears, log in to the switch as you do at the beginning of a CLI session. The switch prompt should appear.

```
M8850_NY.8.PXM.a >
```

Step 7 To confirm that the PXM45 card is now using the correct boot software, enter the **dsprevs** command.

```
M8850_NY.8.PXM.a > dsprevs
M8850_NY                          System Rev: 02.01   Feb. 11, 2002 17:01:54 PST
MGX8850                                               Node Alarm: CRITICAL
Physical  Logical   Inserted       Cur Sw              Boot FW
Slot      Slot      Card           Revision            Revision
--------  -------   --------       --------            --------

01        01        AXSM_4OC12     2.1(70.202)         2.1(70.202)
02        01        AXSM_4OC12     2.1(70.202)         2.1(70.202)
03        03        AXSM_4OC12     2.1(70.202)         2.1(70.202)
04        04        ---            ---                 ---
05        05        ---            ---                 2.1(70.202)
06        06        ---            ---                 2.1(70.202)
07        07        PXM45          2.1(70.202)         2.1(70.202)
08        07        PXM45          2.1(70.202)         2.1(70.202)
09        09        RPM_PR         ---                 ---
10        10        ---            ---                 ---
11        11        ---            ---                 ---
12        12        ---            ---                 ---
13        13        ---            ---                 ---
14        14        ---            ---                 ---
```

Step 8 Use **dspcd** to see the condition of the PXM45 card. You should see active/active and no card alarm.

The Boot FW Rev row in the display should show the new revision as shown in the following example:

```
8850_NY.7.PXM.a > dspcd
8850_NY                           System Rev: 02.01   Mar. 04, 2001 22:47:23 PST
MGX8850                                               Node Alarm: NONE
Slot Number    7    Redundant Slot:  8

                    Front Card          Upper Card          Lower Card
                    ----------          ----------          ----------

Inserted Card:      PXM45               UI Stratum3         PXM HardDiskDrive
Reserved Card:      PXM45               UI Stratum3         PXM HardDiskDrive
State:              Active              Active              Active
Serial Number:      SBK050302AF         SBK045203PJ         SBK044602HJ
Prim SW Rev:        2.1(70)             ---                 ---
Sec SW Rev:         2.1(70)             ---                 ---
Cur SW Rev:         2.1(70)             ---                 ---
Boot FW Rev:        2.1(75)              ---                 ---
800-level Rev:      A0                  A0                  A0
800-level Part#:    800-06147-08        800-05787-02        800-05052-04
CLEI Code:          BAA670YCAA          BA7IBCLAAA          BA7IADNAAA
Reset Reason:       On Power up
Card Alarm:         NONE
Failed Reason:      None
Miscellaneous Information:

Type <CR> to continue, Q<CR> to stop:
```

After you confirm the upgrade to the first PXM45 card, the boot software upgrade for that card is complete.

Loading the Runtime Upgrade Software

This section describes how to load the runtime upgrade software in preparation for running it. Production switches should have redundant cards installed, so that upgrades can occur without interrupting traffic. For graceful upgrades, the upgrade software is loaded on the standby card first, and then the control is switched to upgraded card so that the other card can be upgraded.

The best way to assess the boot software upgrade status of a card is to enter the dsprevs command (without any parameters), as in the following example:

```
M8850_NY.8.PXM.a > dsprevs
M8850_NY                          System Rev: 02.01   Feb. 11, 2002 17:14:58 PST
MGX8850                                               Node Alarm: CRITICAL
Physical  Logical   Inserted       Cur Sw              Boot FW
Slot      Slot      Card           Revision            Revision
--------  -------   --------       --------            --------

01        01        AXSM_4OC12     2.1(70.202)         2.1(70.202)
02        01        AXSM_4OC12     2.1(70.202)         2.1(70.202)
03        03        AXSM_4OC12     2.1(70.202)         2.1(70.202)
04        04        ---            ---                 ---
05        05        ---            ---                 2.1(70.202)
06        06        ---            ---                 2.1(70.202)
07        07        PXM45          2.1(70.202)         2.1(70.202)
08        07        PXM45          2.1(70.202)         2.1(70.202)
09        09        RPM_PR         ---                 ---
10        10        ---            ---                 ---
11        11        ---            ---                 ---
12        12        ---            ---                 ---
13        13        ---            ---                 ---
14        14        ---            ---                 ---
```

The current (Cur SW Revision) software revision label indicates the status of an upgrade for runtime software. The boot (Boot FW Revision) label indicates the status of an upgrade for the boot software.

To assess the runtime software upgrade status of a card, enter the **dsprevs -s** command. For example:

```
M8850_NY.8.PXM.a > dsprevs -s
M8850_NY                          System Rev: 02.01   Feb. 11, 2002 17:10:49 PST
MGX8850                                               Node Alarm: CRITICAL
Phy. Log. Cur Sw           Prim Sw          Sec Sw           Rev Chg
Slot Slot Revision         Revision         Revision         Status
---- ---- --------         --------         --------         -------

01   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
02   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
03   03   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
04   04   ---              ---              ---              ---
05   05   ---              2.1(70.79)P1     2.1(70.79)P1     ---
06   06   ---              2.1(70.79)P1     2.1(70.79)P1     ---
07   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
08   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
09   09   ---              ---              ---              ---
10   10   ---              ---              ---              ---
11   11   ---              ---              ---              ---
12   12   ---              ---              ---              ---
13   13   ---              ---              ---              ---
14   14   ---              ---              ---              ---
```

The current (Cur SW Revision), primary (Prim SW Revision), and secondary (Sec SW Revision) runtime software revision labels indicate the status of an upgrade for runtime software. In this example, these numbers match because the software upgrade has not started.

The primary software revision indicates which revision a card will run if it becomes active, and the secondary revision indicates an alternate revision that the card will use if the abortrev command is entered. (For more information on aborting an upgrade, see "Aborting a Runtime Software Upgrade," which appears later in this section.) The current software revision represents the software the active card is using. During a runtime upgrade, the Rev Change Status column shows when the revision command is in progress and subsequently when it is done.

The normal sequence of commands for a runtime software upgrade is **loadrev**, **runrev**, and **commitrev**. Table 17 shows how the software revision levels change during a graceful runtime software upgrade. Software Versions Reported During Graceful Upgrades

Table 17 Software Versions Reported During Graceful Upgrades

Software Revision	Before Upgrade		After loadrev		After runrev		After commitrev	
	Slot 7	Slot 8	Slot 7	Slot 8	Slot 7	Slot 8	Slot 7	Slot 8
	Active	Standby	Active	Standby	Standby	Active	Active	Standby
Primary	2.1(70)	2.1(70)	2.1(70)	2.1(70)	2.1(75)	2.1(75)	2.1(75)	2.1(75)
Secondary	2.1(70)	2.1(70)	2.1(75)	2.1(75)	2.1(70)	2.1(70)	2.1(75)	2.1(75)
Current	2.1(70)	2.1(70)	2.1(70)	2.1(75)	2.1(75)	2.1(75)	2.1(75)	2.1(75)

For non-graceful upgrades, the load process defines the software version to which the switch is about to be upgraded. Table 18 shows how the revision levels change during a non-graceful upgrade.

Table 18 Software Versions Reported During Non-Graceful Upgrades

Software Revision	Before Upgrade	After loadrev	After runrev	After commitrev
Primary	2.1(70)	2.1(70)	2.1(75)	2.1(75)
Secondary	2.1(70)	2.1(75)	2.1(70)	2.1(75)
Current	2.1(70)	2.1(70)	2.1(75)	2.1(75)

If you are performing a graceful upgrade, use the quickstart procedure described in "Graceful PXM45 and AXSM Runtime Software Upgrades," which appears earlier in this section. The following procedure provides detailed information on the load task within the quickstart procedure.

Step 1 To load the upgrade runtime software version on a PXM45 or AXSM card, enter the following command:

```
mgx8850a.7.PXM.a > loadrev <slot> <revision>
```

Replace <*slot*> with the card slot number for the card to be upgraded, and replace <*revision*> with the software version number for the update. For graceful upgrades, you can specify either the active or the standby card. The switch software will automatically load the upgrade runtime software on the standby card when it is installed. The following example shows how to enter this command:

```
mgx8850a.7.PXM.a > loadrev 7 2.1(75)
```

After you enter the loadrev command, the standby card comes up in the standby-U state.

You can find the software version number in Table 3. You can also determine the version number from the runtime software filename as described in "*Determining the Software Version Number from Filenames*," which appears in Chapter 7, "Switch Operating Procedures."

Step 2 When prompted to confirm the command, type **y** and press **Return** to continue.

Step 3 To verify that the load command was processed correctly, enter the **dsprevs -s** command and check the status of the software revision levels.

```
M8850_NY.8.PXM.a > dsprevs -s
M8850_NY                          System Rev: 02.01   Feb. 11, 2002 01:16:26 PST
MGX8850                                               Node Alarm: CRITICAL
Phy. Log. Cur Sw           Prim Sw          Sec Sw           Rev Chg
Slot Slot Revision         Revision         Revision         Status
---- ---- --------         --------         --------         -------

01   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
02   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
03   03   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
04   04   ---              ---              ---              ---
05   05   ---              2.1(70.79)P1     2.1(70.79)P1     ---
06   06   ---              2.1(70.79)P1     2.1(70.79)P1     ---
07   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
08   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
09   09   ---              ---              ---              ---
10   10   ---              ---              ---              ---
11   11   ---              ---              ---              ---
12   12   ---              ---              ---              ---
13   13   ---              ---              ---              ---
14   14   ---              ---              ---              ---
```

Note In a standalone configuration, the switch does not start the upgraded runtime software until the **runrev** command is entered. In a redundant configuration, the switch starts the upgraded runtime software on the standby card. The standby card does not become active until the **runrev** command is entered.

Activating the Upgraded Runtime Software

After you load the upgraded runtime software for a PXM45 or AXSM card, enter the **runrev** command to start using the software. The version levels for graceful and non-graceful upgrades change as shown earlier in Table 17 and Table 18. The following procedure describes how to activate the upgraded runtime software.

Step 1 To start using the new runtime software version on a PXM45 or AXSM card, enter the following command:

```
mgx8850a.7.PXM.a > runrev <slot> <revision>
```

Replace <*slot*> with the card slot number, and replace <*revision*> with the software version number specified with the **loadrev** command. For graceful upgrades, you can specify either the active or the standby card. The switch software will automatically run the upgrade runtime software on the standby card when it is installed. The following example shows how to enter this command:

```
mgx8850a.7.PXM.a > runrev 7 2.1(75)
```

The active card is reset, and the former standby card comes up in the active-U state.

Step 2 When prompted to confirm the command, type **y** and press **Return** to continue.

Step 3 To verify that the load command was processed correctly, enter the **dsprevs -s** command and check the status of the software revision levels.

```
M8850_NY.8.PXM.a > dsprevs -s
M8850_NY                          System Rev: 02.01   Feb. 11, 2002 01:16:26 PST
MGX8850                                               Node Alarm: CRITICAL
Phy. Log. Cur Sw          Prim Sw          Sec Sw           Rev Chg
Slot Slot Revision        Revision         Revision         Status
---- ---- --------        --------         --------         -------

01   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
02   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
03   03   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
04   04   ---              ---              ---              ---
05   05   ---              2.1(70.79)P1     2.1(70.79)P1     ---
06   06   ---              2.1(70.79)P1     2.1(70.79)P1     ---
07   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
08   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
09   09   ---              ---              ---              ---
10   10   ---              ---              ---              ---
11   11   ---              ---              ---              ---
12   12   ---              ---              ---              ---
13   13   ---              ---              ---              ---
14   14   ---              ---              ---              ---
```

Step 4 When the former active PXM45 comes up in the standby-U state, enter the **commitrev** command to commit to that software version. This step is optional. The **dsprevs -s** command shows that **runrev** is done.

After the **runrev** command is entered, the switch starts running the new runtime software revision. The secondary software revision shows that a previous revision is still available. Whenever the secondary runtime software revision is different from the primary and current runtime software revisions, you can revert back to the secondary software revision as described in "Aborting a Runtime Software Upgrade," which appears later in this section.

Upgrading Boot Software on an AXSM Card

Note The AXSM upgrade procedures are the same for AXSM, AXSM/B, and the new AXSM-E cards.

The upgrade procedure for the boot software on a single AXSM card is the same for graceful and non-graceful upgrades. The difference between the graceful and non-graceful boot software upgrades is the sequence of commands before and after the upgrade on a single card. For information on the proper sequence see "Graceful AXSM Boot Upgrades" or "Non-Graceful AXSM Boot Upgrades," both of which appear earlier in this section.

To upgrade the boot software, use the following procedure.

Step 1 Copy the new boot software files for the AXSM card to the switch as described in "Copying Software Files to the Switch," which appears earlier in this section.

Step 2 Establish a CLI session with the switch using a user name with SERVICE_GP privileges or higher.

Step 3 To burn the new AXSM boot software, enter the burnboot command from the active PXM45 card. For example:

```
mgx8850a.7.PXM.a > burnboot <slot> <revision>
```

Replace <*slot*> with the slot number of a standalone AXSM card or an AXSM card operating in standby mode. Replace <*revision*> with the software revision number to which you are upgrading. For example:

```
mgx8850a.7.PXM.a > burnboot 1 2.1(75)
```

Step 4 When prompted to confirm the upgrade, type **y** and press **Return**.

After you confirm the upgrade, the new boot software is burned into the AXSM card and the card is reset. Be patient, the card reset takes some time. You can use the **dsprevs** command to display the status of the AXSM card. At first, the status may show that the card slot is empty or the card is rebooting. Reenter the command periodically to see the current status of the card. When the card status returns to active or standby, you are ready to continue.

```
M8850_NY.8.PXM.a > dsprevs
M8850_NY                          System Rev: 02.01   Feb. 11, 2002 17:14:58 PST
MGX8850                                               Node Alarm: CRITICAL
Physical  Logical   Inserted       Cur Sw              Boot FW
Slot      Slot      Card           Revision            Revision
--------  -------   --------       --------            --------

01        01        AXSM_4OC12     2.1(70.202)         2.1(70.202)
02        01        AXSM_4OC12     2.1(70.202)         2.1(70.202)
03        03        AXSM_4OC12     2.1(70.202)         2.1(70.202)
04        04        ---            ---                 ---
05        05        ---            ---                 2.1(70.202)
06        06        ---            ---                 2.1(70.202)
07        07        PXM45          2.1(70.202)         2.1(70.202)
08        07        PXM45          2.1(70.202)         2.1(70.202)
09        09        RPM_PR         ---                 ---
10        10        ---            ---                 ---
11        11        ---            ---                 ---
12        12        ---            ---                 ---
13        13        ---            ---                 ---
14        14        ---            ---                 ---

M8850_NY.8.PXM.a >
```

Step 5 To confirm that the AXSM card is now using the correct boot software, enter the **dsprevs** command.

After you confirm the boot software upgrade to the AXSM card, the boot software upgrade for that card is complete.

Aborting a Runtime Software Upgrade

After upgrading PXM45 or AXSM runtime software, you can revert to the previously used version of software at any time, as long as you have not committed to the new software version with the **commitrev** command (which is described in the next section).

Note Reverting to the previously used version of runtime software terminates all calls in progress.

To revert to the previously used runtime software version, use the following procedure.

Step 1 Establish a configuration session using a user name with SERVICE_GP privileges or higher.

Step 2 To display the software revisions known to the switch, enter the **dsprevs -s** command.

```
M8850_NY.8.PXM.a > dsprevs -s
M8850_NY                          System Rev: 02.01   Feb. 11, 2002 01:16:26 PST
MGX8850                                               Node Alarm: CRITICAL
Phy. Log. Cur Sw           Prim Sw          Sec Sw           Rev Chg
Slot Slot Revision         Revision         Revision         Status
---- ---- --------         --------         --------         -------

01   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
02   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
03   03   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
04   04   ---              ---              ---              ---
05   05   ---              2.1(70.79)P1     2.1(70.79)P1     ---
06   06   ---              2.1(70.79)P1     2.1(70.79)P1     ---
07   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
08   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
09   09   ---              ---              ---              ---
10   10   ---              ---              ---              ---
11   11   ---              ---              ---              ---
12   12   ---              ---              ---              ---
13   13   ---              ---              ---              ---
14   14   ---              ---              ---              ---
```

To complete the next step, you need to know the secondary software revision shown in the display.

Note If the primary and secondary software revisions are the same, there is no other revision level to revert back to.

Step 3 To abort use of the primary software revision and revert back to the secondary software revision, enter the following command:

```
mgx8850a.7.PXM.a > abortrev <slot> <revision>
```

Replace <*slot*> with the card slot number for the active PXM45 or AXSM card, and replace <*revision*> with the software version number for the secondary software revision.

Step 4 To verify that the standby card is running the previously used software version, enter the **dsprevs -s** command to view the software version in use.

```
M8850_NY.8.PXM.a > dsprevs -s
M8850_NY                          System Rev: 02.01   Feb. 11, 2002 01:16:26 PST
MGX8850                                               Node Alarm: CRITICAL
Phy. Log. Cur Sw           Prim Sw          Sec Sw           Rev Chg
Slot Slot Revision         Revision         Revision         Status
---- ---- --------         --------         --------         -------

01   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
02   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
03   03   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
04   04   ---              ---              ---              ---
05   05   ---              2.1(70.79)P1     2.1(70.79)P1     ---
06   06   ---              2.1(70.79)P1     2.1(70.79)P1     ---
07   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
08   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
09   09   ---              ---              ---              ---
10   10   ---              ---              ---              ---
11   11   ---              ---              ---              ---
12   12   ---              ---              ---              ---
13   13   ---              ---              ---              ---
```

```
14   14   ---              ---              ---              ---
```

Committing to a Runtime Software Upgrade

Committing to an upgrade does the following:

- Disables use of the **abortrev** command to revert back to the previously used version of software
- Enables upgrading of the current version of software and other cards

Once you are sure that an upgrade is stable, you can use the **commitrev** command to commit that software version. This prevents other administrators from inadvertently reverting to the previous version. You must also commit the current software version before you can upgrade to another software version or other additional cards.

Note If you do not run the **commitrev** command in a PXM or AXSM upgrade, the upgrade is not complete and you cannot upgrade any other like card in the switch.

To commit the currently running runtime software version, use the following procedure:

Step 1 Establish a configuration session using a user name with SERVICE_GP privileges or higher.

Step 2 Determine if there is an unfinished upgrade by doing the following:

a. If necessary, use the **cc** command to select the active PXM45 card.

b. Enter the **dsprevs -s** command.

```
M8850_NY.8.PXM.a > dsprevs -s
M8850_NY                          System Rev: 02.01   Feb. 11, 2002 01:16:26 PST
MGX8850                                               Node Alarm: CRITICAL
Phy. Log. Cur Sw           Prim Sw          Sec Sw           Rev Chg
Slot Slot Revision         Revision         Revision         Status
---- ---- --------         --------         --------         -------

01   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
02   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
03   03   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
04   04   ---              ---              ---              ---
05   05   ---              2.1(70.79)P1     2.1(70.79)P1     ---
06   06   ---              2.1(70.79)P1     2.1(70.79)P1     ---
07   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
08   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
09   09   ---              ---              ---              ---
10   10   ---              ---              ---              ---
11   11   ---              ---              ---              ---
12   12   ---              ---              ---              ---
13   13   ---              ---              ---              ---
14   14   ---              ---              ---              ---
```

c. Check the **dsprevs -s** command report to see if the same software revision is listed for the current (Cur SW Rev), primary (Prim SW Revision), and secondary (Sec SW Rev) software revisions.

If all version numbers are identical, the runtime software can be upgraded. There is no need to commit to the current software revision.

Step 3 To commit to the software version, enter the following command:

```
mgx8850a.7.PXM.a > commitrev <slot> <revision>
```

Replace <*slot*> with the card slot number for the active PXM45 or AXSM card, and replace <*revision*> with the software version number for the currently used software version. To display the software version numbers, use the **dsprevs -s** command to view the software version in use.

```
M8850_NY.8.PXM.a > dsprevs -s
M8850_NY                          System Rev: 02.01   Feb. 11, 2002 01:16:26 PST
MGX8850                                               Node Alarm: CRITICAL
Phy. Log. Cur Sw           Prim Sw          Sec Sw           Rev Chg
Slot Slot Revision         Revision         Revision         Status
---- ---- --------         --------         --------         -------

01   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
02   01   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
03   03   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
04   04   ---              ---              ---              ---
05   05   ---              2.1(70.79)P1     2.1(70.79)P1     ---
06   06   ---              2.1(70.79)P1     2.1(70.79)P1     ---
07   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
08   07   2.1(70.202)      2.1(70.202)      2.1(70.202)      ---
09   09   ---              ---              ---              ---
10   10   ---              ---              ---              ---
11   11   ---              ---              ---              ---
12   12   ---              ---              ---              ---
13   13   ---              ---              ---              ---
14   14   ---              ---              ---              ---
```

Note Cisco Systems recommends that you avoid configuration changes until after you have run the **commitrev** or **abortrev** commands.

Upgrade Procedures for RPM-PR Cards

The following sections describe how to upgrade boot and runtime software on RPM-PR cards in detail.

Please read "RPM-PR and MPLS Limitations, Restrictions, and Notes" section on page 28.

Upgrading RPM Boot Software

At the factory, a boot file is installed in the bootflash on the RPM-PR card and is used to boot the card. The runtime software is updated more frequently than the boot software. However, the boot software is updated occasionally. When you are \updating runtime software, check Table 3 to see if a boot software upgrade is required.

The boot software is stored in bootflash memory on the RPM card. To manage the software in bootflash, you access it as if it were a hard disk. For example, in copy and delete file commands, files are identified as bootflash:*filename* (which is similar to *e*:*filename*).

The following example shows a directory of bootflash contents:

```
Router(boot)#show flash:
-#- ED --type-- --crc--- -seek-- nlen -length- -----date/time------ name
1   .D config   D4F7352A   40330   18      686 Jan 30 2001 18:18:41 auto_config_slot09
2   .D config   CBF007C1   40660    9      688 Feb 22 2001 15:33:11 slot9.cnf
3   .. image    F596869A  2973E8   27  2452744 Feb 28 2001 03:16:05
rpm-boot-mz_002.001.070.202
```

Note Although you can display directory contents with the **dir bootflash:** command, the **show flash:** command provides more detail. Also, although bootflash and flash are separate entities on other Cisco Systems Routers, both terms refer to the same entity on the RPM.

In the example above, the numbers in the left column indicate the order in which the RPM-PR card will try to load software. The second column shows that the first two files are marked for deletion (D). The last column lists the names of the files stored in bootflash.

When managing the bootflash, you need to keep in mind the following:

- When the RPM card is reset, it tries to load the first bootable image in bootflash.
- Files are not removed from bootflash until the **squeeze flash:** command is entered.

Caution If all bootable images are deleted from bootflash, try to reinstall the bootflash file using the Xmodem download procedure found in Using XModem to Download Flash to RPM Cards, page 81. If this does not work, the card must be returned to the factory to be reprogrammed.

Upgrading RPM Runtime Software

The runtime software on the RPM can be loaded from the following sources:

- The E:RPM directory on the PXM45 hard disk
- Bootflash
- A TFTP server on a LAN to which an RPM back card is connected.

Cisco Systems recommends that you configure the RPM card to load from the E:RPM directory on the PXM45 hard disk. Note that images will load much faster from bootflash, but if you are using multiple RPM cards, it takes longer to complete an upgrade because the runtime software must be copied to each RPM card's bootflash instead of to a single location.

At startup, the RPM card attempts to load the software in the order listed in the startup-config file. The following example shows an excerpt from a startup-config file:

```
!
boot system e:rpm-js-mz_122-4.T
boot system bootflash:rpm-js-mz_122-4.T
boot config c:auto_config_slot09
logging rate-limit console 10 except errors
enable password cisco
!
```

In the startup-config file example, the RPM card attempts to load the runtime software from the PXM45 card (E:rpm-js-mz_122-4.T) first, and if that fails, it attempts to load the image copy stored in bootflash. This configuration takes longer to upgrade, but it assures the card can reboot if someone accidentally removes the file on the PXM45 hard disk.

Note The convention is lowercase *e* for RPM-PR commands and uppercase *E* for switch commands.

To configure the RPM to load upgraded runtime software from the PXM45 hard disk, you need to do the following:

- Copy the upgraded file to the PXM45 hard disk
- Update the boot system variable in the router startup-config file to load the new file.

- Reset the RPM card so that it loads the new file.

RPM-PR cards can be configured for 1:N redundancy as well as for non-redundant configurations. The procedures for both types of configuration are in the sections that follow.

Tips To simplify runtime software updates, copy the runtime file in the E:RPM directory and rename it to a generic name such as rpm-js-mz. The production runtime filenames have version numbers appended to them, but you can change this. This approach allows you to perform future upgrades by copying the file to the hard disk, renaming a copy of the file to your generic name, and resetting each card. The approach eliminates the need to reconfigure IOS on each card to recognize the new filename.

Upgrade Procedure for Boot Software and Runtime Software for Non-Redundant Cards

The following procedure describes how to upgrade boot software and runtime software.

Note The first part of this procedure describes boot software upgrade and the second part describes runtime software upgrade. RPM boot software can be upgraded either in boot mode or in runtime mode. The procedure described here shows an example for runtime mode. The same commands are applicable for upgrading boot software in boot mode.

Step 1 Copy the new boot software file for the RPM-PR card to the switch (E:RPM) as described in "Copying Software Files to the Switch," which appears earlier in this section.

Step 2 Establish a configuration session using any valid user name.

Step 3 Use the **cc** command to select the RPM-PR card to update.

```
pop20two.7.PXM.a > cc 9

(session redirected)

Router>
```

The switch displays the IOS prompt for the router on the RPM-PR card. From this point on, all commands are Cisco IOS commands.

Note This procedure assumes that you are familiar with Cisco IOS, which is a topic that is beyond the scope of this book. This procedure details only those commands that are unique to setting up RPM-PR on the switch. For general Cisco IOS commands, examples are given to show how to complete the task.

Step 4 Enter Enable mode for the router.

```
Router>enable
Password:
Router#
```

Step 5 To verify router access to the PXM45 hard disk and display the boot file name, enter **dir e:** command.

```
Router#dir e:
Directory of c:/

65539  -rw-         815   Sep 13 2001 23:51:10  auto_config_slot09
65540  -rw-     2588780   Mar 22 2001 19:06:54  rpm-boot-mz_002.001.070.201
```

```
84611  -rw-     2452768   Apr 05 2001 05:34:44  rpm-boot-mz.122-4.T
66805  -rw-     8529104   Mar 22 2001 19:09:00  rpm-js-mz_002.001.070.201
85809  -rw-     7936012   Apr 05 2001 06:28:54  rpm-js-mz.122-4.T

104857600 bytes total (83068928 bytes free)
```

Step 6 To display the files in the bootflash, enter the **show flash:** command.

```
Router#show flash:
-#- ED --type-- --crc--- -seek-- nlen -length- -----date/time------ name
1   .. image    F596869A  296D88   27  2452744 Feb 28 2001 03:16:05
rpm-boot-mz_002.001.070.201

30315128 bytes available (2452872 bytes used)
```

Step 7 To copy new boot software to the bootflash, use the **copy** command.

```
Router#copy c:rpm-boot-mz_122-4T bootflash:
Destination filename [rpm-boot-mz_122-4T]?
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCC
2334044 bytes copied in 35.768 secs (66686 bytes/sec)
```

Tips When prompted for the destination filename, press enter to use the source filename shown in the prompt. To change the destination filename, type a new filename after the prompt.

Step 8 To verify that the file was copied, enter the **show flash:** command.

Step 9 To mark an older boot file for deletion from the bootflash, use the **del bootflash:** command as shown in the following example:

```
Router#del bootflash:
Delete filename []? rpm-js-mz
Delete bootflash:rpm-js-mz? [confirm]
Router#
```

Tips To unmark a bootflash file so that it won't be deleted when the **squeeze flash:** command is run, enter the undelete <*number*> command, where *number* is the file number displayed in the left-most column of the *show flash:* command display.

Step 10 To delete all files that are marked for deletion from bootflash, enter the **squeeze flash:** command as shown in the following example:

```
Router(boot)#squeeze flash:
All deleted files will be removed. Continue? [confirm]y
Squeeze operation may take a while. Continue? [confirm]

Squeeze of bootflash complete
```

Step 11 Enter the **show flash:** command to verify that the bootflash files are as you want them.

Caution If all bootable images are deleted from bootflash, try to reinstall the bootflash file using the Xmodem download procedure found in Using XModem to Download Flash to RPM Cards, page 81 and restart the RPM card. If this does not work, the card must be returned to the factory to be

reprogrammed. When you are done managing the bootflash, the **show flash:** command should display at least one bootable image, and **the image you want the card to boot from must be the first bootable image in the list.**

Tips If the **show flash:** command does not display a bootable image, copy a bootable image to bootflash as described earlier in this procedure. You can continue to manage the bootflash, even when there are no files in bootflash, until the router is restarted.

Tips If the bootflash contains bootable images and the sequence is such that the card will not start, you can enter rommon mode and load the bootable image. To get into rommon mode, establish a console connection to the RPM card, reset the RPM card using the **resetcd** <*slot*> command from the active PXM45 card, then quickly enter the **CTRL-[**, **Break** sequence at the RPM console. The command to send a **Break** depends on the computer platform and software you are using. It may take a couple of attempts to successfully get into rommon mode. When you are in rommon mode, the RPM card displays the *rommon 1* > prompt.

Once in rommon mode, you can enter the **dir bootflash:** command to display the images in bootflash. To boot one of the images, enter a **boot** command the following format: **boot bootflash:***filename*.

See Using XModem to Download Flash to RPM Cards, page 81.

This ends the boot software upgrade procedure. The following steps are for upgrading the runtime software. If you do not want to upgrade the runtime software, you need to restart the RPM card by entering the reload command.

Step 12 Copy the new runtime software file for the RPM-PR card to the switch (E:RPM) as described in "Copying Software Files to the Switch," which appears earlier in this section.

Step 13 Establish a configuration session using any valid user name.

Step 14 If you are using a generic filename for your runtime images, copy the file on the PXM45 hard disk and rename the copied file. For example:

```
8850_LA.8.PXM.a > copy rpm-js-mz_122-4.T rpm-js-mz
```

Step 15 If your RPM is already configured to use a file with a generic name, skip to Step 24.

Step 16 Use the **cc** command to select the RPM-PR card to update.

```
pop20two.7.PXM.a > cc 9

(session redirected)

Router>
```

The switch displays the IOS prompt for the router on the RPM-PR card. From this point on, all commands are Cisco IOS commands.

Note This procedure assumes that you are familiar with Cisco IOS, which is a topic that is beyond the scope of this book. This procedure details only those commands that are unique to setting up RPM-PR on the switch. For general Cisco IOS commands, examples are given to show how to complete the task.

Step 17 Enter Enable mode for the router.

```
Router>enable
Password:
Router#
```

Step 18 Configure the RPM card to store its configuration on the PXM45 hard disk by entering the following command:

```
Router# boot config e:auto_config_slot#
```

Step 19 Display the startup runtime software filename by entering the **show bootvar** command.

```
Router#show bootvar
BOOT variable = e:rpm-js-mz_122-4.T,12;
CONFIG_FILE variable = c:auto_config_slot09
BOOTLDR variable does not exist
Configuration register is 0x2
```

In the example above, the startup runtime software file is E:rpm-js-mz_122-4.T, and it has a version number attached to it. Another way to view the boot list is to enter the **show startup-config** command and look for the **boot system** commands.

Step 20 Enter the router global configuration mode.

```
Router#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

Step 21 If you need to change the boot system filenames, remove the existing boot list using the **boot system** command as follows:

```
Router(config)# no boot system
```

Step 22 Create a new boot list by entering one or more **boot system** commands as follows:

```
Router(config)# boot system e:filename
```

Replace the filename variable with the name of the new runtime file that was previously transferred to the E:RPM directory on the switch. For example:

```
Router(config)# boot system e:rpm-js-mz
```

If you want to enter additional boot system commands, enter them in the order in which you want the RPM card to use them. The following example adds a statement to load from bootflash if the runtime file is not found on the PXM45 hard disk:

```
Router(config)# boot system bootflash:rpm-js-mz_122-4.T
```

Note Before the RPM card can load runtime software from bootflash, you must copy the runtime software to the bootflash. The procedure for copying files from the PXM45 hard disk to bootflash is described in the previous section.

Step 23 Exit global configuration mode and save the new configuration.

```
Router(config)#^Z
Router#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
```

Step 24 To verify the change, enter the **show bootvar** or **show run** commands.

Step 25 Switch to the active PXM45 card and reset the RPM card. For example:

```
Router#cc 8

(session redirected)

8850_LA.8.PXM.a > resetcd 9
The card in slot number 9, will be reset. Please confirm action
resetcd: Do you want to proceed (Yes/No)? y
```

Upgrading RPM-PR Boot Software and Runtime Software for 1:N Redundancy

Redundancy must be established before you use the procedure in this section. If redundancy has not been established, upgrade each RPM-PR card using the procedure in the next section, "Upgrading Without Redundancy".

To upgrade the RPM-PR runtime software for 1:N redundancy, use the following procedure. (Note that the directory on the PXM45 card uses (E:) and the directory within the router card uses (e:).)

The following procedure describes how to upgrade boot software and runtime software.

Note The first part of this procedure describes boot software upgrade and the second part describes runtime software upgrade. RPM boot software can be upgraded either in boot mode or in runtime mode. The procedure described here shows an example for runtime mode. The same commands are applicable for upgrading boot software in boot mode.

Step 1 Copy the new boot software file for the RPM-PR card to the switch (E:RPM) as described in "Copying Software Files to the Switch," which appears earlier in this section.

Step 2 Establish a configuration session using any valid user name.

Step 3 Use the **cc** command to select the RPM-PR card to update.

```
pop20two.7.PXM.a > cc 9

(session redirected)

Router>
```

The switch displays the IOS prompt for the router on the RPM-PR card. From this point on, all commands are Cisco IOS commands.

Note This procedure assumes that you are familiar with Cisco IOS, which is a topic that is beyond the scope of this book. This procedure details only those commands that are unique to setting up RPM-PR on the switch. For general Cisco IOS commands, examples are given to show how to complete the task.

Step 4 Enter Enable mode for the router.

```
Router>enable
Password:
Router#
```

Step 5 To verify router access to the PXM45 hard disk and display the boot file name, enter **dir e:** command.

```
Router#dir e:
Directory of c:/
```

```
65539  -rw-        815   Sep 13 2001 23:51:10  auto_config_slot09
65540  -rw-     2588780   Mar 22 2001 19:06:54  rpm-boot-mz_002.001.070.201
84611  -rw-     2452768   Apr 05 2001 05:34:44  rpm-boot-mz.122-4.T
66805  -rw-     8529104   Mar 22 2001 19:09:00  rpm-js-mz_002.001.070.201
85809  -rw-     7936012   Apr 05 2001 06:28:54  rpm-js-mz.122-4.T

104857600 bytes total (83068928 bytes free)
```

Step 6 To display the files in the bootflash, enter the **show flash:** command.

```
Router#show flash:
-#- ED --type-- --crc--- -seek-- nlen -length- -----date/time------ name
1   .. image    F596869A  296D88   27  2452744 Feb 28 2001 03:16:05
rpm-boot-mz_002.001.070.201
30315128 bytes available (2452872 bytes used)
```

Step 7 To copy new boot software to the bootflash, use the **copy** command.

```
Router#copy c:rpm-boot-mz_122-4.T bootflash:
Destination filename [rpm-boot-mz_122-4.T]?
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCC
2334044 bytes copied in 35.768 secs (66686 bytes/sec)
```

Tips When prompted for the destination filename, press enter to use the source filename shown in the prompt. To change the destination filename, type a new filename after the prompt.

Step 8 To verify that the file was copied, enter the **show flash:** command.

Step 9 To mark an older boot file for deletion from the bootflash, use the **del bootflash:** command as shown in the following example:

```
Router#del bootflash:
Delete filename []? rpm-js-mz
Delete bootflash:rpm-js-mz? [confirm]
Router#
```

Tips To unmark a bootflash file so that it won't be deleted when the **squeeze flash:** command is run, enter the undelete <*number*> command, where *number* is the file number displayed in the left-most column of the *show flash:* command display.

Step 10 To delete all files that are marked for deletion from bootflash, enter the **squeeze flash:** command as shown in the following example:

```
Router(boot)#squeeze flash:
All deleted files will be removed. Continue? [confirm]y
Squeeze operation may take a while. Continue? [confirm]

Squeeze of bootflash complete
```

Step 11 Enter the **show flash:** command to verify that the bootflash files are as you want them.

Caution If all bootable images are deleted from bootflash, try to reinstall the bootflash file using the Xmodem download procedure found in Using XModem to Download Flash to RPM Cards, page 81 and restart the RPM card. If this does not work, the card must be returned to the factory to be

reprogrammed. When you are done managing the bootflash, the **show flash:** command should display at least one bootable image, and **the image you want the card to boot from must be the first bootable image in the list.**

Tip If the **show flash:** command does not display a bootable image, copy a bootable image to bootflash as described earlier in this procedure. You can continue to manage the bootflash, even when there are no files in bootflash, until the router is restarted.

Tip If the bootflash contains bootable images and the sequence is such that the card will not start, you can enter rommon mode and load the bootable image. To get into rommon mode, establish a console connection to the RPM card, reset the RPM card using the **resetcd** <*slot*> command from the active PXM45 card, then quickly enter the **CTRL-[**, **Break** sequence at the RPM console. The command to send a **Break** depends on the computer platform and software you are using. It may take a couple of attempts to successfully get into rommon mode. When you are in rommon mode, the RPM card displays the *rommon 1* > prompt.

Once in rommon mode, you can enter the **dir bootflash:** command to display the images in bootflash. To boot one of the images, enter a **boot** command the following format: **boot bootflash:***filename*.

See Using XModem to Download Flash to RPM Cards, page 81.

This ends the boot software upgrade procedure for the primary card. The following steps are for upgrading the runtime software. If you do not want to upgrade the runtime software for the primary card, skip steps 12 through 24 and go to step 25 to upgrade the boot software on the secondary card.

Step 12 Copy the new runtime software file for the RPM-PR card to the switch (E:RPM) as described in "Copying Software Files to the Switch," which appears earlier in this section.

Step 13 If you are using a generic filename for your runtime images, copy the file on the PXM45 hard disk and rename the copied file. For example:

```
8850_LA.8.PXM.a > copy rpm-js-mz_122-4.T rpm-js-mz
```

Step 14 Establish a configuration session using any valid user name.

Step 15 If your RPM is already configured to use a file with a generic name, skip to Step 25.

Step 16 Use the **cc** command to select the RPM-PR card to update.

```
pop20two.7.PXM.a > cc 9

(session redirected)

Router>
```

The switch displays the IOS prompt for the router on the RPM-PR card. From this point on, all commands are Cisco IOS commands.

Note This procedure assumes that you are familiar with Cisco IOS, which is a topic that is beyond the scope of this book. This procedure details only those commands that are unique to setting up RPM-PR on the switch. For general Cisco IOS commands, examples are given to show how to complete the task.

Step 17 Enter Enable mode for the router.

```
Router>enable
Password:
Router#
```

Step 18 Configure the RPM card to store its configuration on the PXM45 hard disk by entering the following command:

```
Router# boot config e:auto_config_slot#
```

Step 19 Display the startup runtime software filename by entering the **show bootvar** command.

```
Router#show bootvar
BOOT variable = e:rpm-js-mz,12;
CONFIG_FILE variable = c:auto_config_slot09
BOOTLDR variable does not exist
Configuration register is 0x2
```

In the example above, the startup runtime software file is e:rpm-js-mz_122-4.T, and it has a version number attached to it. Another way to view the boot list is to enter the **show startup-config** command and look for the **boot system** commands.

Step 20 Enter the router global configuration mode.

```
Router#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

Step 21 If you need to change the boot system filenames, remove the existing boot list using the **boot system** command as follows:

```
Router(config)# no boot system
```

Step 22 Create a new boot list by entering one or more **boot system** commands as follows:

```
Router(config)# boot system e:filename
```

Replace the filename variable with the name of the new runtime file that was previously transferred to the E:RPM directory on the switch. For example:

```
Router(config)# boot system e:rpm-js-mz
```

If you want to enter additional boot system commands, enter them in the order in which you want the RPM card to use them. The following example adds a statement to load from bootflash if the runtime file is not found on the PXM45 hard disk:

```
Router(config)# boot system bootflash:rpm-js-mz_122-4.T
```

Note Before the RPM card can load runtime software from bootflash, you must copy the runtime software to the bootflash. The procedure for copying files from the PXM45 hard disk to bootflash is described in the previous section.

Step 23 Exit global configuration mode and save the new configuration.

```
Router(config)#^Z
Router#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
```

Step 24 To verify the change, enter the **show bootvar** or **show run** commands.

Step 25 Switch to the active PXM45 card. For example:

```
Router#cc 8

(session redirected)
```

Step 26 Switch to the secondary card using the **softswitch** command as follows:

```
8850_LA.8.PXM.a > softswitch <fromSlot> <toSlot>
```

Replace <*fromSlot*> with the slot number of the primary card. Replace <*toSlot*> with the slot number of the secondary card.

This step makes the secondary card active and resets the primary RPM-PR card. When the Primary card resets, it loads the upgraded software.

Step 27 **cc** to the secondary slot.

Step 28 Repeat steps 1through 11.

This ends the boot software upgrade on the secondary card. If you do not want to upgrade the runtime software, go to step 30.

The following steps are for upgrading runtime software on the secondary card.

Step 29 Repeat steps 12through 24.

Step 30 Switch back to the primary card using the **softswitch** command as follows:

```
8850_LA.8.PXM.a > softswitch <fromSlot> <toSlot>
```

Replace <*fromSlot*> with the slot number of the secondary card. Replace <*toSlot*> with the slot number of the primary card.
This step makes the primary card active and resets the secondary RPM-PR card. When the reset is complete, the secondary card is ready to run the upgraded software.

Step 31 To verify that the router reboot is complete, enter the **dspcds** or **dspcd** <*slot*> commands. The reboot is complete when the card state displays as *Active*. Another way to verify router operation is to use the **cc** slot command. If you can access the router from the switch prompt, the router reboot is complete.

Step 32 If there are other primary cards with redundant (secondary) cards, repeat this procedure for each primary card.

Using XModem to Download Flash to RPM Cards

Use the xmodem feature to download the flash to an RPM/B or RPM-PR card. During this process, the card should be connected to a target machine through HyperTerminal with settings of 9600, n, 8, and 1.

Step 1 Put the node in monitor mode by entering the **priv** command to gain access to the privileged commands as follows:

```
rommon 1> priv
```

```
You now have access to the full set of monitor commands. Warning:
some commands will allow you to destroy your configuration and/or
system images and could render the machine unbootable.
```

Step 2 The xmodem command becomes available and the general syntax of this command and availability of this can be checked by giving xmodem command without any parameters on the CLI, as follows:

```
rommon 2 > xmodem
usage: xmodem [-cys]
-c  CRC-16
-y  ymodem-batch protocol
-s<speed> Set speed of download, where speed may be
          1200|2400|4800|9600|19200|38400
rommon 3 >
```

The command line options for xmodem are as follows:

Option	Definition
–c	xmodem performs the download using CRC-16 error checking to validate packets. Default is 8-bit CRC.
–y	xmodem uses Ymodem-batch protocol for downloading, which uses CRC-16 error checking.
–s	Specifies the download speed. Default is 9600 bps.

Note If you do not find the xmodem commands, then the xmodem feature is not available on this rommom version. In that case, you must return the card to Cisco.

Note The rommon “xmodem/ymodem” transfer only works on the console port. You can only download files to the router. You cannot use “xmodem/ymodem” to get files from the router.

For example:

```
rommon 4> xmodem -cys 38400
Do not start sending the image yet...
Invoke this application for disaster recovery. Do you wish to
continue? y/n [n]: y
Note, if the console port is attached to a modem, both the
console port and the modem must be operating at the same baud
rate. Use console speed 38400 bps for download [confirm]
```

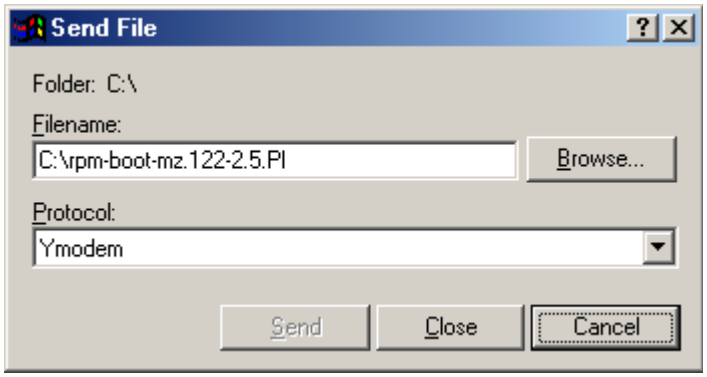
Step 3 At this point, change the preferences in HyperTerminal and adjust the speed from 9600 to 38400.

Note You can continue at the speed of 9600 as well by either not specifying the –s option in the command, or by specifying 9600 explicitly, but it will take longer.

The console will display the following message:

```
Download will be performed at 38400. Make sure your terminal
emulator is set to this speed before sending file. Ready to
receive file ...
```

Step 4 Use the Transfer-->Send File option in HyperTerminal to start the image transfer.



In the Filename box, browse and choose the image file to be downloaded. Also since we used the "y" option while invoking the xmodem, set the transfer protocol to ymodem or use Xmodem protocol by not specifying the –y option on the command line.

The transfer screen comes up and transfer starts. (The transfer may not start immediately; wait for some time and it should start.)

After the transfer is completed (it should typically take about 10-15 minutes), the following messages are displayed on HyperTerminal console:

```
Returning console speed to 9600.

Please reset your terminal emulator to this speed...
```

Step 5 Return the console speed back to 9600 through HyperTerminal's Preferences menu option.

Usually, due to time lag between changing HyperTerminal speed back to 9600, you might see a bunch of garbage. To avoid this, disconnect and reconnect the HyperTerminal to get the console back again.

The system will reset itself from here and will boot with new software image.

Troubleshooting Upgrade Problems

Table 19 lists symptoms of upgrade problems and suggestions on how to correct them.

Tips When troubleshooting problems on standby PXM45 cards or cards that do not start up to the active state, establish communications through the boot IP address or through the console port.

Table 19 Troubleshooting Upgrade Problems

Primary Symptom	Secondary Symptom	Suggested Action
loadrev or **runrev** command fails		The **loadrev** command is blocked when a previous upgrade has not been completed with the **commitrev** command. Use the **dsprev -s** command to locate the cards that are still being upgraded. For more information on a particular card, enter the **dspcd** <*slot*> command and verify that the Current, Primary, and Secondary software revision numbers are identical. If the numbers are not identical, issue the **commitrev** <*slot*> command. Enter the **dspcds** command (or **dsprevs** or **dsprev -s**) and verify that the standby card is in standby state. Also look for a -U or -D in the **dspcds** command display, which indicates that the card is in the process of being upgraded (-U) or downgraded (-D). The **loadrev** and **runrev** commands are blocked whenever the standby card is not in standby state or an upgrade or downgrade is in progress.
After restart, the switch stops displaying messages and does not display a prompt.		Press **Return** to display the prompt.
After restart, switch stops at backup boot prompt: pxm45bkup>. (Use a console port connection to see this. If you missed the startup messages, enter the **reboot** command.)	The switch displays the message: *Can not open file C:/version*.	The version file is probably missing. Create the version file as described in "Initializing the Switch" in Chapter 2, "Configuring General Switch Features."
	The switch displays the message: *Unable to determine size of C:/FW/filename.*	The version recorded in the version file doesn't match software installed in the C:FW directory. Enter the **sysVersionShow** command to see which file the PXM45 is trying to load. Verify that the correct software is installed on the switch using the commands described in "Browsing the File System in Backup Boot Mode" in Appendix B, "PXM45 Backup Boot Procedures." If the runtime software is not on the hard disk, copy it to the hard disk as described in "Transferring Software Files to and from the Switch" in Appendix B, "PXM45 Backup Boot Procedures." If a typo is entered when initializing the switch, re-enter the **sysVersionSet** command, enter the **sysVersionShow** command to verify the correct setting, and then reboot the switch with the **reboot** command.
	The switch displays the message: *Please run sysDiskCfgCreate.*	The hard disk is formatted, but not ready for operation. Enter the sysDiskCfgCreate command. For more information, refer to "Initializing the PXM45 Hard Disk" in Appendix B, "PXM45 Backup Boot Procedures."

Table 19 Troubleshooting Upgrade Problems (continued)

Primary Symptom	Secondary Symptom	Suggested Action
Standby PXM45 continually reboots. You can view the rebooting process through the console port.		The active PXM45 card cannot bring up the standby card. The following procedure assumes that this card has just been installed in the switch and that you have given the standby card sufficient time to synchronize with the Active card. Interrupt the boot cycle by pressing **Return**. Timing is important, so you might have to press **Return** multiple times. When the pxm45bkup prompt appears, immediately enter the **sysPxmRemove** command to prevent the Active card from rebooting the standby card while you are working on it. Enter the **sysChangeEnet** command and verify that the *inet on ethernet (e)* and *gateway inet (g)* values are set to the boot and gateway IP address set with the **bootChange** command on the active card. Also, verify that the *boot device* is set to *lnPci*. The **sysChangeEnet** command works like the bootChange command, which is described in "Setting the Boot IP Address" in Chapter 2, "Configuring General Switch Features." Enter the **sysClrallcnf** command to clear any configuration data on the standby card set. This command does not clear the boot IP address set with the **sysChangeEnet** command.
After restart, the switch stops at shell prompt: pxm45>.		If the **Return** key is pressed at one of the auto-boot prompts during start up, the switch stops in shell mode. Enter the **reboot** command to restart the switch and avoid pressing the **Return** key.
The non-active PXM45 will not transition out of the active init state.	One or more non-standby AXSM cards are in a transitional state.	A non-standby AXSM card is a standalone AXSM card or the card within a redundant AXSM pair that is trying to go active. When a non-standby AXSM card is in a transitional state, such as the init state, the PXM45 cannot transition to the standby state. When all non-standby cards have reached a steady (non-transitional) state, the PXM45 will transition to a steady state. Steady states include the following: active ready, failed, mismatch, empty, empty reserved, and standby ready. **Note** When either card in a redundant AXSM pair is active, that AXSM pair is not preventing the standby PXM45 from transitioning to a steady state. The standby PXM45 is only affected when both cards in a redundant pair are in a transitional state.

Documentation

Release notes ship with the switch. You can also download the release notes and other documentation from http://www.cisco.com/univercd/cc/td/doc/product/wanbu/index.htm, or you can order printed manuals (see "Ordering Documentation").

Related Documentation

The following Cisco publications contain additional information related to the operation of this product and associated equipment in a Cisco WAN switching network.

Cisco WAN Manager Release 10.5 Documentation

The product documentation for the Cisco WAN Manager (CWM) network management system for Release 10.5 is listed in Table 20.

Table 20 Cisco WAN Manager Release 10.5 Documentation

Title	Description
Cisco WAN Manager Installation Guide for Solaris, Release 10.5 DOC-7812948=	Provides procedures for installing Release 10 of the CWM network management system and Release 5.3 of CiscoView.
Cisco WAN Manager User's Guide, Release 10.5 DOC-7812945=	Describes how to use the CWM Release 10 software which consists of user applications and tools for network management, connection management, network configuration, statistics collection, and security management.
Cisco WAN Manager SNMP Service Agent, Release 10.5 DOC-7812947=	Provides information about the CWM Simple Network Management Protocol Service Agent, an optional adjunct to CWM used for managing Cisco WAN switches using SNMP.
Cisco WAN Manager Database Interface Guide, Release 10.5 DOC-7812944=	Provides information about accessing the CWM Informix OnLine database that is used to store information about the network elements.

Table 21 WAN CiscoView Release 10 Documentation

Title	Description
WAN CiscoView Release 3 for the MGX 8850 Edge Switch, Release 1 DOC-7811242=	Provides instructions for using this network management software application that allows you to perform minor configuration and troubleshooting tasks.

Table 21 WAN CiscoView Release 10 Documentation

Title	Description
WAN CiscoView Release 3 for the MGX 8250 Edge Concentrator, Release 1 DOC-7811241=	Provides instructions for using this network management software application that allows you to perform minor configuration and troubleshooting tasks.
WAN CiscoView Release 3 for the MGX 8230 Multiservice Gateway, Release 1 DOC-7810926=	Provides instructions for using this network management software application that allows you to perform minor configuration and troubleshooting tasks.

Cisco MGX 8850 Release 2.1 Documentation

The product documentation for the installation and operation of the MGX 8850 Release 2.1 switch is listed in Table 22.

Table 22 Cisco MGX 8850 Switch Release 2.1 Documentation

Title	Description
Cisco MGX 8850 Routing Switch Hardware Installation Guide, Release 2.1 DOC-7812561=	Describes how to install the MGX 8850 switch. It explains what the switch does, and covers site preparation, grounding, safety, card installation, and cabling.
Cisco MGX 8850 and MGX 8950 Switch Command Reference, Release 2.1 DOC-7812563=	Describes how to use the commands that are available in the CLI[1] of the MGX 8850 and MGX 8950 switches.
Cisco MGX 8850 and MGX 8950 Switch Software Configuration Guide, Release 2.1 DOC-7812551=	Describes how to configure the MGX 8850 and the MGX 8950 switches to operate as ATM edge and core switches. This guide also provides some operation and maintenance procedures.
Cisco MGX 8850 and MGX 8950 SNMP Reference, Release 2.1 DOC-7812562=	Provides information on all supported MIB[2] objects, support restrictions, traps, and alarms for the AXSM, PXM45, and RPM. PNNI is also supported.
Cisco MGX and SES PNNI Network Planning Guide DOC-7813543=	Provides guidelines for planning a PNNI network that uses the MGX 8850 and the MGX 8950 switches and the BPX 8600 switches. When connected to a PNNI network, each BPX 8600 series switch requires a Service Expansion Shelf (SES) for PNNI route processing.
Cisco MGX Route Processor Module Installation and Configuration Guide, Release 2.1 DOC-7812510=	Describes how to install and configure the MGX Route Processor Module (RPM-PR) in the MGX 8850 and MGX 8950 Release 2.1 switch. Also provides site preparation, troubleshooting, maintenance, cable and connector specifications, and basic IOS configuration information.

1. CLI = command line interface
2. MIB = Management Information Base

Cisco MGX 8950 Release 2.1 Documentation

The product documentation for the installation and operation of the MGX 8950 Release 2.1 switch is listed in Table 23.

Table 23 Cisco MGX 8950 Switch Release 2.1 Documentation

Title	Description
Cisco MGX 8950 Switch Hardware Installation Guide, Release 2.1 DOC-7812564=	Describes how to install the MGX 8950 switch. It explains what the switch does, and covers site preparation, grounding, safety, card installation, and cabling.
Cisco MGX 8850 and MGX 8950 Switch Software Configuration Guide, Release 2.1 DOC-7812551=	Describes how to configure the MGX 8850 and the MGX 8950 switches to operate as ATM edge and core switches. This guide also provides some operation and maintenance procedures.
Cisco MGX 8850 and MGX 8950 Switch Command Reference, Release 2.1 DOC-7812563=	Describes how to use the commands that are available in the CLI of the MGX 8850 and MGX 8950 switches.
Cisco MGX 8850 and MGX 8950 SNMP Reference, Release 2.1 DOC-7812562=	Provides information on all supported MIB objects, support restrictions, traps, and alarms for the AXSM, PXM45, and RPM. PNNI is also supported.
Cisco MGX and SES PNNI Network Planning Guide DOC-7813543=	Provides guidelines for planning a PNNI network that uses the MGX 8850 and the MGX 8950 switches and the BPX 8600 switches. When connected to a PNNI network, each BPX 8600 series switch requires a SES[1] for PNNI route processing.
Cisco MGX Route Processor Module Installation and Configuration Guide, Release 2.1 DOC-7812510=	Describes how to install and configure the MGX Route Processor Module (RPM-PR) in the MGX 8850 and MGX 8950 Release 2.1 switch. Also provides site preparation, troubleshooting, maintenance, cable and connector specifications, and basic IOS configuration information.

1.

SES PNNI Release 1.1 Documentation

The product documentation that contains information for the understanding, the installation, and the operation of the Service Expansion Shelf (SES) PNNI Controller is listed in Table 24.

Table 24 SES PNNI Controller Release 1.1 Documentation

Title	Description
Cisco SES PNNI Controller Software Configuration Guide, Release 1.1 DOC-7813539=	Describes how to configure, operate, and maintain the SES PNNI Controller.

Table 24 SES PNNI Controller Release 1.1 Documentation (continued)

Title	Description
Cisco SES PNNI Controller Software Command Reference, Release 1.1 DOC-7813541=	Provides a description of the commands used to configure and operate the SES PNNI Controller.
Cisco MGX and SES PNNI Network Planning Guide DOC-7813543=	Provides guidelines for planning a PNNI network that uses the MGX 8850 and the MGX 8950 switches and the BPX 8600 switches. When connected to a PNNI network, each BPX 8600 series switch requires a SES for PNNI route processing.

Cisco WAN Switching Software, Release 9.3 Documentation

The product documentation for the installation and operation of the Cisco WAN Switching Software Release 9.3 is listed in Table 25.

Table 25 Cisco WAN Switching Release 9.3 Documentation

Title	Description
Cisco BPX 8600 Series Installation and Configuration, Release 9.3.30 DOC-7812907=	Provides a general description and technical details of the BPX broadband switch.
Cisco WAN Switching Command Reference, Release 9.3.30 DOC-7812906=	Provides detailed information on the general command line interface commands.
Cisco IGX 8400 Series Installation Guide, Release 9.3.30 OL-1165-01 (online only)	Provides hardware installation and basic configuration information for IGX 8400 Series switches running Switch Software Release 9.3.30 or earlier.
Cisco IGX 8400 Series Provisioning Guide, Release 9.3.30 OL-1166-01 (online only)	Provides information for configuration and provisioning of selected services for the IGX 8400 Series switches running Switch Software Release 9.3.30 or earlier.
Cisco IGX 8400 Series Regulatory Compliance and Safety Information DOC-7813227=	Provides regulatory compliance, product warnings, and safety recommendations for the IGX 8400 Series switch.

MGX 8850 Multiservice Switch, Release 1.1.40 Documentation

The product documentation that contains information for the installation and operation of the MGX 8850 Multiservice Switch is listed in Table 26.

Table 26 MGX 8850 Multiservice Gateway Documentation

Title	Description
Cisco MGX 8850 Multiservice Switch Installation and Configuration, Release 1.1.3 DOC-7811223=	Provides installation instructions for the MGX 8850 multiservice switch.
Cisco MGX 8800 Series Switch Command Reference, Release 1.1.3. DOC-7811210=	Provides detailed information on the general command line for the MGX 8850 switch.
Cisco MGX 8800 Series Switch System Error Messages, Release 1.1.3 DOC-7811240=	Provides error message descriptions and recovery procedures.
Cisco MGX 8850 Multiservice Switch Overview, Release 1.1.3 OL-1154-01 (online only)	Provides a technical description of the system components and functionary of the MGX 8850 multiservice switch from a technical perspective.
Cisco MGX Route Processor Module Installation and Configuration Guide, Release 1.1 DOC-7812278=	Describes how to install and configure the MGX Route Processor Module (RPM/B and RPM-PR) in the MGX 8850, MGX 8250, and MGX 8230 Release 1 switch. Also provides site preparation, troubleshooting, maintenance, cable and connector specifications, and basic IOS configuration information.
1.1.40 Version Software Release Notes Cisco WAN MGX 8850, MGX 8230, and MGX 8250 Switches DOC-7813594=	Provides new feature, upgrade, and compatibility information, as well as known and resolved anomalies.

MGX 8250 Edge Concentrator, Release 1.1.40 Documentation

The documentation that contains information for the installation and operation of the MGX 8250 Edge Concentrator is listed in Table 27.

Table 27 MGX 8250 Multiservice Gateway Documentation

Title	Description
Cisco MGX 8250 Edge Concentrator Installation and Configuration, Release 1.1.3 DOC-7811217=	Provides installation instructions for the MGX 8250 Edge Concentrator.
Cisco MGX 8250 Multiservice Gateway Command Reference, Release 1.1.3 DOC-7811212=	Provides detailed information on the general command line interface commands.
Cisco MGX 8250 Multiservice Gateway Error Messages, Release 1.1.3 DOC-7811216=	Provides error message descriptions and recovery procedures.

Table 27 MGX 8250 Multiservice Gateway Documentation (continued)

Title	Description
Cisco MGX 8250 Edge Concentrator Overview, Release 1.1.3 DOC-7811576=	Describes the system components and functionality of the MGX 8250 edge concentrator from a technical perspective.
Cisco MGX Route Processor Module Installation and Configuration Guide, Release 1.1 DOC-7812278=	Describes how to install and configure the MGX Route Processor Module (RPM/B and RPM-PR) in the MGX 8850, MGX 8250, and MGX 8230 Release 1 switch. Also provides site preparation, troubleshooting, maintenance, cable and connector specifications, and basic IOS configuration information.
1.1.40 Version Software Release Notes Cisco WAN MGX 8850, MGX 8230, and MGX 8250 Switches DOC-7813594=	Provides new feature, upgrade, and compatibility information, as well as known and resolved anomalies.

MGX 8230 Multiservice Gateway, Release 1.1.40 Documentation

The documentation that contains information for the installation and operation of the MGX 8230 Edge Concentrator is listed in Table 28.

Table 28 MGX 8230 Multiservice Gateway Documentation

Title	Description
Cisco MGX 8230 Edge Concentrator Installation and Configuration, Release 1.1.3 DOC-7811215=	Provides installation instructions for the MGX 8230 Edge Concentrator.
Cisco MGX 8230 Multiservice Gateway Command Reference, Release 1.1.3 DOC-7811211=	Provides detailed information on the general command line interface commands.
Cisco MGX 8230 Multiservice Gateway Error Messages, Release 1.1.3 DOC-78112113=	Provides error message descriptions and recovery procedures.
Cisco MGX 8230 Edge Concentrator Overview, Release 1.1.3 DOC-7812899=	Provides a technical description of the system components and functionary of the MGX 8250 edge concentrator from a technical perspective.
Cisco MGX Route Processor Module Installation and Configuration Guide, Release 1.1 DOC-7812278=	Describes how to install and configure the MGX Route Processor Module (RPM/B and RPM-PR) in the MGX 8850, MGX 8250, and MGX 8230 Release 1 switch. Also provides site preparation, troubleshooting, maintenance, cable and connector specifications, and basic IOS configuration information.
1.1.40 Version Software Release Notes for Cisco WAN MGX 8850, MGX 8230, and MGX 8250 Switches DOC-7813594=	Provides new feature, upgrade, and compatibility information, as well as known and resolved anomalies.

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order printed Cisco product documentation from the Networking Products MarketPlace:

  http://www.cisco.com/cgi-bin/order/order_root.pl

  Starting with MGX 2.1.60 and its associated releases, printed documentation is offered through the "Printed Information Ordering" site, which can be accessed through:

  http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

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Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

http://www.cisco.com/tac

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

Note To register for Cisco.com, go to http://www.cisco.com/register/

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at http://www.cisco.com/tac/caseopen

Contacting TAC by Telephone

If you have a priority level 1(P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

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

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

Caveats

This section provides the following information:

- Known Anomalies in Release 2.1.79
- Anomalies Resolved in Release 2.1.79
- Anomaly Status Changes in Release 2.1.79
- Known Anomalies in Release 2.1.76
- Anomalies Resolved in Release 2.1.76
- Anomaly Status Changes in Release 2.1.76
- Known Anomalies in Release 2.1.75
- Anomalies Resolved in Release 2.1.75
- Anomaly Status Changes in Release 2.1.75
- Known Anomalies in Release 2.1.70
- Anomalies Resolved in Release 2.1.70
- Anomaly Status Changes in Release 2.1.70
- Known RPM-PR/MPLS Anomalies

Caution Do not remove the active PXM45 card while the offline diagnostic is running on the redundant PXM45 card. If you do, the redundant PXM45 will reboot, but it will not be able to become active unless its hard disk drive was previously synchronized to the previously active PXM45 hard disk. Please refer to defects CSCdu32813 and CSCdv84390 for more information.

Known Anomalies in Release 2.1.79

Table 33 lists the anomalies and known workarounds for release 2.1.79.

Table 29 Known Anomalies in Release 2.1.79

Bug ID	Description
S1Bugs	
CSCdw27075	Symptom: Unable to CC to a AXSM card in y-red config Conditions: After a **switchredcd** on an AXSM card pair in redundant mode Workaround: Unknown
CSCdx33812	Symptom: Xbar planes being shut done on the PXM45B Condition: due to xbar errors being reported between slots 3, 7 and 8. Workaround: None
CSCdx36879	Symptom: PXM45 card resets Conditions: Node is fully loaded with PXMs and SMs and does not have enough powere supply Workaround: Add power supply unit
CSCdx51226	Symptom: SSI exception causes pxm45 to reset Condition: None Workaround: None
CSCdx54945	Symptoms: All its external xtags are down. Attempts to cc to slot 5 (containing xtag interfaces) failed. Condition: PXM in slot 8 standby in empty reserve state. There are some P1SarErrors reported to the active pxm log. Workaround: None.
CSCdx55987	Symptoms: All its external xtags are down. Attempts to cc to slot 5 (containing xtag interfaces) failed a couple of times. Condition :PXM in slot 8 standby in empty reserve state. There are some P1SarErrors reported to the active pxm log. Workaround: None.
S2 Bugs	
CSCdu86213	Symptom: Cannot get large files from a switch using ftp. Data Connection Error is reported Conditions: When a large file is uploaded from a shelf to a workstation, the ethernet chip hangs and a data connection error is reported by the ftp client on the workstation. Workaround: Do not ftp on a workstation which is on the same subnet as the shelf.
CSCdv83075	Symptom: Dsplog with HMM DEV ERROR Condition: ***dsplog*** Workaround: None
CSCdv85607	Symptom: Core dump occurred for standby AXSMEOC3 card though no activities. Condition: None Workaround: None

Table 29 Known Anomalies in Release 2.1.79 (continued)

CSCdv91277	Symptom: MIB Walk on dsx3CircuitIndentifier Returns internal Project Code Name The object is also not settable. Condition: All conditions Workaround: None
CSCdw36064	Symptom: AXSM core dump recorded during ***switchredcd*** testing Condition: Stress testing consisting of ***switchredcd*** testing Workaround: None
CSCdw49046	Symptom: After **Switchcc**, some SPVCs got rerouted. Data loss over 1.3 seconds on each VCCs. Conditions: Configured 6 SPVCs each with 100K CBR connections. The 3 nodes network have OC12 APS 1+1 & 1:1 configured as NNI. Performed the *Switchcc* on the via-node. Workaround: None.
CSCdw64682	Symptom: AXSM core dumped Condition: On-line diag error (Xbar burst) was reported at the time Workaround: None
CSCdw68448	Symptom: The low accuracy of AXSM's MBS policing function for Rel.2.0 and 2.1. Condition: None Workaround: None
CSCdw92648	Symptom: conn's Ingress Qbin number is not programmed correctly card SCT file Conditions: Card SCT is different from Port SCT. Workaround: None.
CSCdw94593	Symptom: Customer report cross commit failure, and conns failing Condition: May have been triggered by enni turnup Workaround: none
CSCdx07885	Symptom : The AXSM card went to fail state, when trying to invoke off line diag or coming out of off line diag. Condition : None. Workaround : None
CSCdx10704	Symptom: Discrepancy on both Vc and Cos thresholds between their configured values and those programmed on the hardware. Condition: Having to use shell commands to view Vc and Cos thresholds. Need CLI's to display both Vc and Cos threshold values on the hardware. Workaround: None
CSCdx12502	Symptom: Checksum error on SM_CON file Condition: An AXSME with no connections, the file generated has 27 bytes with a checksum error. Workaround: None

Table 29 Known Anomalies in Release 2.1.79 (continued)

CSCdx12518	Symptom: No report of an LOS in certain conditions. Condition: When the Transmit fiber is disconnected from the AXSM. Workaround: none
CSCdx19953	Symptom: Data transfer stopped. Conditions: When the AXSM/B backcards were removed and re-inserted. Workaround: None
CSCdx24633	Symptom: switching alarms on PXM which caused it to go-into Empty/Reserved. Condition: None Workaround: None
CSCdx28385	Symptom: AXSM does not know SD after line failure in P line. Condition: Triggered by doing a resetcd on both the active and the standby AXSM. Workaround: After doing Manual or force switch on that line pair, SD shows up on P line.
CSCdx29956	Symptom: Cellbus clock configuration defaults after a power cycle. Condition: Set one of the cell bus clock speeds to 42 MHz and power cycle the node. Work Around: Re-configure cell bus clock after a node rebuild.
CSCdx30862	Symptom: RPM-PR found in empty/reserved the root cause unknown at this time. The RPM-PR card did recover successfully to standby state with a resetcd executed for the suspect slot. Condition: Online diag data path problem to finding the card in the empty state. Workaround: None
CSCdx31524	Symptom: Usage of **delcons** command. Condition: Resources are impacted. Work-around: Use delcon to delete each pvc one at a time.
CSCdx34768	Symptom: Slot #11 failed, and 12 did not switchover. Condition: After doing a switchredcd 11 12 from the cli. Workaround: Do a **resetcd** 11, and it brings the failed card back to the standby state. 12 switches to active.
CSCdx36868	Symptom: Excessive delay noted when modifying policy maps on the mgx RPM card. The connection updates and bulk updates are rejected by the PXM. Condition: The PXM is being constantly polled for an invalid stats collection object. There were bulk updates attempted every few minutes. The config file is extremely large around 477k Workaround: None
CSCdx38504	Symptom: RPM-PR cannot communicate successfully with the PXM. Condition: Power cycle the MGX8850, the card recovered in a empty/reserve state The RPM does boot successfully and cab be viewed via the console CLI. the dspcd on the pxm does not recognize the RPM. Workaround: None

Table 29 Known Anomalies in Release 2.1.79 (continued)

CSCdx43352	Symptom: dspcd still showed card remained in ACTIVE/ACTIVE state. However card was in locked-up state that could not be accessed through cc. No CPU time was given to CLI to run. Condition: When the number of **resetcd** events are more than 1200 in a node and a card has been running for months without resetting, this could happen. Workaround: None.
CSCdx44119	Symptom: The proper status is not being represented in the dsplog. Condition: When performing APS switch testing between BPX, and the MGX45. Workaround: None
CSCdx45338	Symptom: The log should show SD and SD_clear as a pair in the dsplog. Condition: When you cause an SF via a error generator. Workaround: None
CSCdx45391	Symptom: **dsplog** shows sf_decl_clear for w when it was never in SF Condition: When Rx cable on axsm is removed from the active line. Workaround: None
CSCdx46123	Standby PXM45B card got reset twice after setrev due to nativity issue. Condition: Standby PXM serial number is blank or corrupt with NULL characters. Workaround: Reprogram the PXM serial number. After subsequent reboot, PXM will be reset twice as nativity keys are regenerated, but problem will not recur.
CSCdx49157	Symptom: Can not change PCR of sscop back to the default value. Conditions: After modifying it to a lower value of 4000. Workaround: None
CSCdx50255	Symptom: Nodal State PTSE was updated in less then 10 seconds. Conditions: After upping and downing a inside trunk with bnPathHoldDown and PTSE holddown set to 10 seconds. Workaround: none
CSCdx50704	Symptom: Large number of 60310 traps sent to CWM. Conditions: When SPVC's are put into alarm upon Line failure. Workaround: None
CSCdx50992	Symptom: counter always increases by 1 after CLI "**dspdiagstat**" is issued. Condition: problem noted after issuing "**dspdiagstat**" command. On AXSM-B cards, the diag attempt counter increments by 1 every 30 seconds. Workaround: None
CSCdx57346	Symptom: Intercard communication is lost between PXM and AXSM cards. Condition: User cannot access (CC) to other cards in MGX2 chassis. Redundant PXM remains in init state. Workaround: None
S3 Bugs	

Table 29 Known Anomalies in Release 2.1.79 (continued)

CSCds60742	Symptom: Seen log entries about time of date change for standby PXM periodically. Conditions: Normal operation Workaround: None.
CSCdt07739	Symptom: Loss of activity messages are reported by the standby PXM in the event log for a newly active clock source Condition: External bits inputs are used for both primary and secondary clock sources Clock switchover is initiated. Workaround: UNKNOWN
CSCdt30145	Symptom: Loss of activity and clock switching to priority 1 messages observed in event log Condition: AXSM-OC48 cards in system were being reseated Workaround: UNKNOWN
CSCdt41608	Symptom: Console port baud rate is not shown correctly using the ***dspserialif*** command. Condition: User sees a "0" baud rate when executing ***dspserialif*** command. Terminal server connects to console port fine with a baud rate of 9600. A cnfserialif is then executed to set the port to 9600. A subsequent execution of **dspserialif** then shows the value correctly as 9600. Workaround: None
CSCdt70323	Symptom: Need non-shellconn method of burning PXM boot code which also does not require console access to each PXM. Condition: None Workaround: None.
CSCdu26141	Symptom: SHM-4_DB_REQ_FAIL messages are logged at Sev-4 in the event log Condition: Consecutive resetcds were executed on the PXMs in this system. This log can be seen under 2 conditions: 1. Under the normal operation of the PXM if this is logged, it is a problem with the communication between 2 tasks that needs to be investigated. 2. During any form of shelf reset like resetsys, abortrev, setrev etc. If this log is seen at around the time a shelf reset is happening, it is not a problem if this log is seen. This will not have any impact at all on the state of the shelf or the state of the configuration on the shelf. In the case of this particular bug, this log was seen at the time of a shelf reset hence it is not a problem to see this log. Workaround: None
CSCdu27030	Symptom: OAM CC Activation Cell correlation tag is incorrectly modified. Condition: User notes that an F4-Seg Active-CC OAM cell with a correlation tag of 0x6A is returned to the sending device with a correlation tag of 0x00. Workaround: None

Table 29 Known Anomalies in Release 2.1.79 (continued)

CSCdu29780	Symptom: The line admin state is down because either: - there is NO DISK RECORD on the line, the line is defaulted to admin state down; or - the disk record is there but it shows admin state down. Condition: Upgrading from older version to newer version and doing setrev's on multiple cards at the same time. Workaround: Do ***setrev*** on each card and wait until that is complete before doing the next card.
CSCdu71423	Symptom: Popup message about LMI discovery on node. Condition: User executed 3 cli commands, and then the popup message appeared. Workaround: None
CSCdu71558	Symptom: Alarms on slot #11 and #12, during fault insertion testing. Condition: By inserting high speed link error on slot #7, active PXM Workaround: None
CSCdv20510	Symptom: AXSM VSI slave failed to communicate Condition: During the Configuration Workaround: UNKNOWN
CSCdv22540	Symptom: AXSM core dumps Condition: Burn boot was executed Workaround: None
CSCdv29599	Symptom: Node went into IDT mode. Condition: **Setrev** from 2.0 version to 2.1 version Workaround: None.
CSCdv29805	Symptom: ***switchapsln*** results in an error message indicating failure to switch due to unknown reason Condition: Rx cable on Protection line had been removed, to create an LOS condition - but line toggled between SD and SF condition Workaround: None
CSCdv36479	Symptom: Corrupted output of CLI commands. Conditions: When the **dspcd** and **dsplns** command are executed on the AXSM. Workaround: None
CSCdv42283	Symptom: pCref showing large value Condition: When doing **dspvsicon** Workaround: None
CSCdv42466	Symptom: The disk can be full and there is no early warning. Condition: Many FW images are stored on the disk. Workaround: Delete old FW images.

Table 29 Known Anomalies in Release 2.1.79 (continued)

CSCdv47986	Symptom: **dspln/dsplns/dspalm/dspalms** no longer reflect aps line failures (SF) Condition: An error injector was setup to inject an error rate sufficient to force the W line into SF Workaround: UNKNOWN
CSCdv48058	Symptom: Event log and trapd.log file incorrectly show aps switchovers due to SD when the failure condition was SF Condition: SF condition was created on the active working line to induce a switchover Workaround: UNKNOWN
CSCdv49510	Symptom: No indication on dspapslns of a condition causing port to go operationally down - at the node level, only an indication of a minor alarm from the line interface Condition: Tx cables were pulled from both the W and P lines of a 1+1 aps pair. Workaround: None
CSCdv50574	Symptom: Incorrect usage statement generated. Condition: When the ***delapsln*** cli command is executed. Workaround: None
CSCdv54356	Symptom: Transmit clock stability not within compliance spec Condition: Configured for loop timing with LOS. Accoring to Compliance team this problem surfaces only if the system clock is free running. If it is locked to a stable clock reference, this problem is not observed. Workaround: Ensure that system clock reference is configured.
CSCdv62811	Symptom: APS line toggles between SF and SD Condition: SF threshold set to 10-3, error injected at 10-2 Workaround: None
CSCdv69323	Symptom: Shelf sends too many messages to cwm. Condition: After the execution of **switchredcd** on the shelf. Workaround: None
CSCdv74546	Symptom: **saveallcnf** command fails with a filesystem error. Condition: Node name has a '/' or '\' character in it, e.g. "up/down" or "back\front" Workaround: Rename the node to a string that does not contain '/' or '\'.
CSCdv91323	Symptom: Axsm and Axsme cards endup in different active line even in bidirection Condition: Remove working recieve on Axsme and then protection transmit on Axsme Workaround: None
CSCdw08931	Symptom: LAN IP retained after a **clrallcnf**. Condition: None Workaround: None

Table 29 Known Anomalies in Release 2.1.79 (continued)

CSCdw10207	Symptom: APSswitching between W and P lines when both are in alarm Condition: W line is in LOS and P line may be in SD or SF or LOS condition. Workaround: None
CSCdw10337	Symptom: Port stuck down in progress. Conditions: NNI port is downed. Workaround: None.
CSCdw21453	Symptom: Enviromental-trap is not sent. Condition: On pxm45 switchover in MGX8850 Workaround: None
CSCdw40580	Symptom : Only in OC3 cards. SD on working line and clears, when SF ber on Protection Condition : Forced W->P and then SF ber on P. SD on w line and clears. WorkAround : None
CSCdw49035	Symptom: Data connection remains open while the control connection is closed. Condition: Under certain failure conditions such as Ethernet hanging, or inter-card file access hanging, etc Workaround: None.
CSCdw53940	Symptom: addred warns Prim and Sec LineModule type Mismatch Condition: when previously Primary RPM-PR contains a backcard and removed later Workaround: None
CSCdw61915	Symptom: Event logged specified incorrect time data by LMI. Date is being set by BPX on SES feeder. Condition: A new field was added to time structure. This field is not initialized by LMI and can take various values. Under certain conditions, this value is in error and causes the event to be logged. Workaround: None
CSCdw65556	Symptom: After PXM45b rebuild (physical removal) AXSMs got stuck in boot Condition: None Workaround: None

Table 29 Known Anomalies in Release 2.1.79 (continued)

CSCdw68495	Symptom: AXSME Card is latched up when it receives high traffic of OAM loopback cells. Condition: AXSME card can handle up to 10,000 OAM loopback cell per sec. If the user is sending OAM loopback cell at a higher cell rate, AXSME may be latched up and has unsuspected behavior. Workaround: If the user really want to pass OAM loopback at high cell rate, (s)he should enable the ingress channel loopback on the connection before (s)he starts to pump OAM loopback cell traffic. The command for enable the connection loopback is shown in the following. At CLI prompt: Enable connection loopback, **addchanloop** <ifNum> <vpi> <vci> <mode> Note: AXSME is supporting ingress channel loopback, so the valid parameter for mode is 1. Disable connection loopback, **delchanloop** <ifNum> <vpi> <vci>
CSCdx04460	Symptom: Popup message is display during normal telnet session. Condition: After doing a **resetsys** on the shelf. Workaround: None
CSCdx05958	Symptom: Error should say invalid option, not "Err: Not enough arguments." for the **cnfln** command. Condition: **cnfln** command issued on AXSME Workaround: None
CSCdx31466	Symptom: Danglers remain after using the CLI command delcons This is the caveat with these commands. While provisioning connections in bulk (**copycons**/**delcons**), if the PNNI layer get busy due to re-route/de-route activity, then it will reject the deletion Condition: The command delcons was developed for Dev-test usage only. This command is not recommended to be used on a production node due to resource problems generated by the flood of traps on each con deletion. Workaround: Use delcon for each individual PVC until a better method is developed see PXM release notes for description of cli commands delcon and delcons usage.
CSCdx34833	Symptom: Popup message seen on the cli display. Condition: While the shelf was idle and no cli command where being executed. Workaround: none

Table 29 Known Anomalies in Release 2.1.79 (continued)

CSCdx43364	Symptom: The OID represents the interface name (ifName). The interface "sw1" is the main switch interface on the RPM. There can be only one main switch interface that can exist per RPM card and multiple sub-Interfaces.. The switch subinterfaces (subinterfaces of the main switch interface) are represented by "sw1.x" on RPM. This snmp response is returned by the RPM. The ifTable does not display multiple instances for "sw1". The snmp query on ifName seems to always return "sw1" 5 times. This is not correct. Condition : If we do snmpget on ifName, then it's possible to see multiple records for the same "Sw1" interface. To get the ifIndex for a paticular interface, we can try to walk on ifDescr. Workaround: None.
CSCdx43695	Symptom: Configuration commands gave error message executed in one MGX8850 node Condition: None Work-around: Nonee
CSCdx45458	Symptoms: An event is logged on **switchcc** that the remap error was found Conditions: When **switchcc** is done Workaround: None.
CSCdx45501	Symptom: Command display field do not match the cnf fields. Condition: When executing the cnfpnni-routing-policy, and the dsppnni-routing-policy command. Workaround: none
CSCdx53041	Symptom: Need a CLI to Re-enable a shut crossbar path Condition: Crossbar error cause a path to shut down. Workaround: None.
CSCdx54469	Symptoms: Popup message appears in between cli executed commands. Conditions: While configuring APS, and upping ilmi on a port. Workaround: None

Anomalies Resolved in Release 2.1.79

CSCdw84032; S1; Master Agent got suspended on PXM45 Node, causing SNMP to fail

CSCdx02666; S1; AXSM card reports all ports to be down even though they are up.

CSCdx09084; S1; SPTR: Lost all config on AXSME32, card not responding

CSCdx22691; S1; Intercard Communication Loss Redundant PXM-45 Stuck In Init

CSCdx28666; S1; After resetcd, both axsm e/b go into empty/reserved state.

CSCdx31305; S1; Secondary RPM IPC seat gets deleted when it NAKs the GO-ACTIVE req

CSCdx32411; S1; System crashed after executing a switchcc followed by softswitch

CSCdx33825; S1; offline diag causes AXSM-E card to fail and cause outage on redundan

CSCdx38360; S1; RPM-PR went into failed/discovering state after multiple swithcc
CSCdx44536; S1; switchredcd for RPMs shouldnt be allowed for cards in discovering
CSCdx46620; S1; Boot hangs on power-on after printing reset reason
CSCdw39431; S2; cpro task hogging semaphores - resulting in CWM sync problems
CSCdw39878; S2; iisp links stuck in DOWN IN PROGRESS
CSCdw67724; S2; after power cycle links went into attempt mode.
CSCdw68128; S2; PRI: min guaranteed chans not used correctly to load info
CSCdw72425; S2; Switchcc in middle of addred causes Standby AXSM to go FAILED state
CSCdw76856; S2; AXSM reset/coredump while running offline diag
CSCdw80588; S2; obsolete dspsct/dspportsct/dspcdsct options and output on axsme
CSCdw80916; S2; cannot change ds3 line type on AXSME-T3E3 card dynamically
CSCdw83904; S2; Z-RED:mpls partition add/delete not work on AXSME when clock enabled
CSCdw84990; S2; Device Driver error core dumped on MGX45
CSCdw85933; S2; Online diag went into pause state,detected PXM unavailable
CSCdw87648; S2; Connections stuck with spurious ais alarm after switchredcd
CSCdw89623; S2; JANPN: PXM resets during dspchans on FRSM with 2000 slave endpoints
CSCdw89650; S2; AXSMs cards went to failed state
CSCdw90728; S2; MGX45 remote loop option when doing a addlnloop is invalid.
CSCdw91807; S2; <power failure> dspclkalms reported false alarms.
CSCdw94012; S2; Recommit of Vc-Merge and multicast connections causes problem.
CSCdw94623; S2; ftp daemon dead on node
CSCdw95386; S2; FRSM12: CCC terminall session not working after merge
CSCdx07520; S2; restorealclnf should delete D:DB2 before unzipping
CSCdx09050; S2; Inefficient cell buffer usage for QE and ATmize SAR
CSCdx10240; S2; SHM: Add functionality to automatically set cellbus clkrates
CSCdx13146; S2; restoreallcnf does not update IP address
CSCdx14616; S2; QE SAR performance issue
CSCdx17118; S2; Routing does not work properly between PGs w/trk errors
CSCdx17155; S2; partial GEN files on FTP
CSCdx17215; S2; AXSME : Increase VI Cell capacity to 128k
CSCdx17519; S2; Clock alarm does not clear after restoring pri&sec clock
CSCdx18339; S2; P2MP_DT: Standby pxm45b stucks in dbsvr init for unknown reason
CSCdx20457; S2; performance improvements for reroute-rate
CSCdx22605; S2; ftp file does not contain correct stat ids enabled
CSCdx27654; S2; Control VC not working properly between LSC and RR
CSCdx28774; S2; SLT:cmRat process died on an MGX2 node
CSCdx29829; S2; Core dump and AXSM reset caused by repeated add/del feeder.
CSCdx29840; S2; AXSMs unable to communicate with the standby PXM after system reset

CSCdx35909; S2; Control VC not working properly between LSC and RR
CSCdx36869; S2; REG3.0: 250k node can not sync standby PXM45B
CSCdx37619; S2; P2MP_DT: Can not find route after crankback
CSCdx38921; S2; Change The On-line Diag Rev Key on HUMVEE
CSCdx40079; S2; UPG:Traffic loss up to 130s while upgrade 2.0 to 2.1 image
CSCdx46282; S2; PIO reset hold timers set to 0 after upgrade from 2.1.71 to 2.1.76
CSCdx53603; S2; AXSM SCT says tagging for 2nd bucket but program as discard
CSCdt95815; S3; NBSM:Switchredcd gives a misleading error
CSCdv59423; S3; dspchancnt does not work for vc-merge connections
CSCdv76791; S3; dspcd command output does not display card information for RPM
CSCdw43588; S3; After switchover,RPM_PR red card data not exist in config file
CSCdw80409; S3; dspcd command should not double space output on AXSM-E
CSCdw80520; S3; dsptotals not available on AXSM-E
CSCdw90614; S3; APS popup message after swithcredcd, and addapsln.
CSCdw92415; S3; Feeder information contains unprintable characters
CSCdw95256; S3; JANPN: Cannot add more than 25,600 NBSM endpoints on MGX8850(PXM1E)
CSCdx02683; S3; trail trace bytes on e3 do not send intelligible ID to remote end
CSCdx02712; S3; line length configuration does not work on axsme e3
CSCdx04870; S3; SNMP Get on Feeder Table returns invalid mibobjects
CSCdx21274; S3; AXSM fails to generate RDI-P on a non-APS line with LOF condition
CSCdx47919; S3; Enhacement: Make the timer values more flexible

Anomaly Status Changes in 2.1.79

Bug ID	Description
S1Bugs	
CSCdw39830	AXSM-E IPC leak caused CLI and CWM sync problems. Unreproducible
CSCdx02666	AXSM card reports all ports to be down even though they are up. Resolved
S2 Bugs	
CSCdw33274	PXM sw error core dump. Unreproducible
CSCdw46905	Data discards are seen for OC3, but not T1, and T3 PVCs. Closed
CSCdw66847	Signalling COSB thresholds not programmed for ingress. Resolved
CSCdw74053	Off-Line DIAG not fully logging errors. Resolved
CSCdw76856	AXSM reset/coredump while running offline diag. Resolved
CSCdw80588	obsolete dspsct/dspportsct/dspcdsct options and output on axsme. Resolved
CSCdw83904	Z-RED:mpls partition add/delete not work on AXSME when clock enabled. Resolved
CSCdw88502	SVC calls get released. Closed

CSCdw89213	POPEYEII stops generating stats files about once a week. Closed
CSCdw91807	<power failure> dspclkalms reported false alarms. Resolved
CSCdw91836	PXM 7 reported a crossbar alarm, but online diag did not catch. Duplicate of CSCdw63654
CSCdw92534	Dax Spvc XCommit Failed and Connection in Fail State. Unreproducible
CSCdx10240	SHM: Add functionality to automatically set cellbus clkrates. Resolved
S3 Bugs	
CSCdu49855	JUP: Temporary IPC-error -- pxm45-RPM_PR related. Unreproducible
CSCdu60643	DLS:Flt.Ins:SDRAM failure msgs not recorded in event log. Closed
CSCdu70465	DLS: CLI shows 250000 for CDVT, but CMGUI shows 10000. Duplicated by CSCdw91836
CSCdv43250	DLS: no maximum login attempts to node. Resolved
CSCdv72718	FltIns: Serial bus failure - inconsistent alarm reporting. Duplicate of CSCdt60694
CSCdw33583	Empty LCN and BW Except values for MPLS part serv_categ w/ dspload. Resolved
CSCdw38540	APS-A:Intra, dsplns shows alarm differently between AXSM/A & /E. Closed
CSCdw79627	Info shown by dspconinfo on PXM and dsptotals on AXSM does not match. Resolved
CSCdw79943	Evt.Log:CPRO-RAMDISK_ERR event log recorded on AXSM. Duplicate of CSCdw33055
CSCdw90614	APS popup message after swithcredcd, and addapsln. Resolved
CSCdx02683	trail trace bytes on e3 do not send intelligible ID to remote end. Resolved
CSCdx04460	SNMP Get on Feeder Table returns invalid mibobjects. Resolved

Known Anomalies in Release 2.1.76

Table 33 lists the anomalies and known workarounds for release 2.1.76.

Table 30 Known Anomalies in Release 2.1.76

Bug ID	Description
S1Bugs	
CSCdw27075	Symptom: Unable to CC to a AXSM card in y-red config Conditions: After a switchredcd on an AXSM card pair in redundant mode Workaround: Unknown
CSCdw39830	Symptom: Problems with CWM sync to AXSM-E card and CLI commands executed on card return error messages indicating IPC allocation failures Condition: IPC Memory leaks Workaround: None
CSCdx02666	Symptom: All the pnports on a AXSM card go into provisioning state. Condition: Invalid controller added on the AXSM card. Workaround: None

Table 30 Known Anomalies in Release 2.1.76 (continued)

S2 Bugs	
CSCdu86213	Symptom: Cannot get large files from a switch using ftp. Data Connection Error is reported Conditions: When a large file is uploaded from a shelf to a workstation, the ethernet chip hangs and a data connection error is reported by the ftp client on the workstation. Workaround: Do not ftp on a workstation which is on the same subnet as the shelf.
CSCdv83075	Symptom: Dsplog with HMM DEV ERROR Condition: *dsplog* Workaround: None
CSCdv85607	Symptom: Core dump occurred for standby AXSMEOC3 card though no activities. Condition: None Workaround: None
CSCdv91277	Symptom: MIB Walk on dsx3CircuitIndentifier Returns internal Project Code Name The object is also not settable. Condition: All conditions Workaround: None
CSCdw19840	Symptom: PXM does not initialize correctly Condition: HD backcard is replaced Workaround: None
CSCdw33274	Symptom: PXM software error core dump during offline diag Condition: UNKNOWN Workaround: None
CSCdw36064	Symptom: AXSM core dump recorded during *switchredcd* testing Condition: Stress testing consisting of *switchredcd* testing Workaround: None
CSCdw46905	Symptom: Data discards being seen on OC3 PVC's and not T1, or T3. Conditions: While doing congestion testing on MGX45 for XPVC's. Workaround: None
CSCdw49046	Symptom: After Switchcc, some SPVCs got rerouted. Data loss over 1.3 seconds on each VCCs. Conditions: Configured 6 SPVCs each with 100K CBR connections. The 3 nodes network have OC12 APS 1+1 & 1:1 configured as NNI. Performed the *Switchcc* on the via-node. Workaround: None.

Table 30 Known Anomalies in Release 2.1.76 (continued)

CSCdw61915	Symptom: See event logged specifying incorrect time data by LMI. Date is being set by BPX on SES feeder. 01A00172 01/31/2002-20:50:26 SSI-4-PARMOUTOFRANGE E:11184 lmiRootTas ssiTimeOfDaySet Parm pTimeSpec->tm_nsec '-2111556760' is out of range 0-999999999 to ssiTimeOfDaySet. Condition: A new field was added to time structure. This field is not initialized by LMI and can take various values. Under certain conditions, this value is in error and causes the event to be logged. Workaround: None
CSCdw63654	Symptom: Offline/Online does not catch crossbar alarms. Condition: When detecting bad hardware. Workaround: None
CSCdw64682	Symptom: AXSM core dumped Condition: On-line diag error (Xbar burst) was reported at the time Workaround: None
CSCdw66847	Symptom: Signalling thresholds on the cosb 16 not working is packet discard mode. Condition: If the signalling traffic is artificially pumped at a very high rate (ex: OC3/OC12) the qbin thresholds for cosb number 16 are discarding the cells indiscriminately. Workaround: Change the signalling cosb number to 14 (It is available) in the Card SCT file.
CSCdw68448	Symptom: The low accuracy of AXSM's MBS policing function for Rel.2.0 and 2.1. Condition: None Workaround: None
CSCdw74053	Symptom: The Off-Line Diagnostics and card recovery process failed to properly log the occurrence of broken hardware. Condition: This failure to log events properly occurs when the hardware access causes the software to take a databus exception vector. Workaround: None
CSCdw76856	Symptom: The AXSM Revision B stand-by card has an intermittent reset. Condition: An AXSM Revision B card will sometimes reset when the Off-Line Diagnostics is testing the Cell Memory RAM. Normal connection provisioning is NOT affected. Workaround: Use the cnfdiag command to disable the Off-Line Diagnostics.

Table 30 Known Anomalies in Release 2.1.76 (continued)

CSCdw80588	Symptom: Obsolete options need to be removed from dspsct Condition: dspsct on axsme is using egr/ing instead of port/card for sct types. The bw option should be removed as all bw parameters are not applicable. All abr parameters except for CI-control should not be displayed as they are not applicable either. Workaround: none
CSCdw83904	Symptoms: LVCs between LSC and axsm is not cleared up when splitting partition on axsm. Condition: None Workaround: Shut and no shut the xtag interface.
CSCdw88502	Symptom: SVC calls setup fails on particular node. Condition: Enable scripts to make SVC calls. Workaround: None
CSCdw89213	Symptom: MGX8850 running 2.0.15.2, stops generating the stats files after collecting stats about one week. Conditions: None Workaround: On the MGX, against the connections you wanted to collect the stats from, do following: > cnfcon ifNum vpi vci -stat 0 > cnfcon ifNum vpi vci -stat 1 In another word, disable the connection stats and enable it again. After this, the MGX will start to generate the stats file again.
CSCdw91807	Symptom: dspclkalm shows false alarm. Condition: After performing a power cycle on the MGX45 shelf. Workaround: Do a display clksrcs, or a dspstdbyclksrcs to verify the clocks are OK.
CSCdw91836	Symptom: dspswalms indicates a critical xbar port alarm. Condition: Offline diag did not report any error. Workaround: None
CSCdw92534	Symptom: Packet loss on SPVC which has RPM as slave end & AXSM as master end Conditions: When RPM is a slave end & AXSM as master end of a connection and long ping is executed. Workaround: None.
CSCdw92648	Symptom: conn's Ingress Qbin number is not programmed correctly card SCT file Conditions: Card SCT is different from Port SCT. Workaround: None.
CSCdw94593	Symptom: Customer report cross commit failure, and conns failing Condition: May have been triggered by enni turnup Workaround: none

Table 30 Known Anomalies in Release 2.1.76 (continued)

CSCdx04870	Symptom: Dumps core periodically. Conditions: During 8 CWM load test. WorkAround: This happened due to an unstable feeder in the network whihc went in and out communication failure every couple of minutes. Either clear the instability - eg : change the cable or the use the same interface type on AXSM as well as the feeder. Or disable the feeder is not used.
CSCdx06370	Symptom: Standby PXM resets before transitioning to Active. Condition: Sframe tick loss on the Active PXM and physically remove the active to force the Standby to transition to Active. Workaround: None
CSCdx07885	Symptom : The AXSM card went to fail state, when trying to invoke off line diag or coming out of off line diag. Condition : None. Workaround : None
CSCdx10235	Symptom: Certain AXSM-E tasks holding certain sempahores are not timing out after any amount of time Condition: The semaphore causing this wait was taken during a shellConn command. Data gathered from slot 6 indicates that qeDispScaleFactor was the command being executed. It seems that this command was aborted by the user before it completed. Workaround: None
CSCdx10240	Symptom: Cellbus clock rate set incorrectly when two RPM occupy a cellbus. Condition: For traffic shaping on RPM, two RPM occupying a cellbus need to have cbus clock rate set to 42MHz. In all other conditions, cbus clock rate should be 21MHz. This is manually configurable today using the cnfcbclk cli command. Need to have it automatically set. Workaround: Use cnfcbclk cli command to set cbus clock rate correctly.
CSCdx10704	Symptom: Discrepancy on both Vc and Cos thresholds between their configured values and those programmed on the hardware. Condition: Having to use shell commands to view Vc and Cos thresholds. Need CLI's to display both Vc and Cos threshold values on the hardware. Workaround: None
CSCdx12502	Symptom: Checksum error on SM_CON file Condition: An AXSME with no connections, the file generated has 27 bytes with a checksum error. Workaround: None
CSCdx12518	Symptom: No report of an LOS in certain conditions. Condition: When the Transmit fiber is disconnected from the AXSM. Workaround: none
S3 Bugs	

Table 30 Known Anomalies in Release 2.1.76 (continued)

CSCds60742	Symptom: Seen log entries about time of date change for standby PXM periodically. Conditions: Normal operation Workaround: None.
CSCdt07739	Symptom: Loss of activity messages are reported by the standby PXM in the event log for a newly active clock source Condition: External bits inputs are used for both primary and secondary clock sources Clock switchover is initiated. Workaround: UNKNOWN
CSCdt30145	Symptom: Loss of activity and clock switching to priority 1 messages observed in event log Condition: AXSM-OC48 cards in system were being reseated Workaround: UNKNOWN
CSCdt41608	Symptom: Console port baud rate is not shown correctly using the *dspserialif* command. Condition: User sees a "0" baud rate when executing *dspserialif* command. Terminal server connects to console port fine with a baud rate of 9600. A cnfserialif is then executed to set the port to 9600. A subsequent execution of dspserialif then shows the value correctly as 9600. Workaround: None
CSCdt70323	Symptom: Need non-shellconn method of burning PXM boot code which also does not require console access to each PXM. Condition: None Workaround: None.
CSCdu26141	Symptom: SHM-4_DB_REQ_FAIL messages are logged at Sev-4 in the event log Condition: Consecutive resetcds were executed on the PXMs in this system. This log can be seen under 2 conditions: 1. Under the normal operation of the PXM if this is logged, it is a problem with the communication between 2 tasks that needs to be investigated. 2. During any form of shelf reset like resetsys, abortrev, setrev etc. If this log is seen at around the time a shelf reset is happening, it is not a problem if this log is seen. This will not have any impact at all on the state of the shelf or the state of the configuration on the shelf. In the case of this particular bug, this log was seen at the time of a shelf reset hence it is not a problem to see this log. Workaround: None
CSCdu27030	Symptom: OAM CC Activation Cell correlation tag is incorrectly modified. Condition: User notes that an F4-Seg Active-CC OAM cell with a correlation tag of 0x6A is returned to the sending device with a correlation tag of 0x00. Workaround: None

Table 30 Known Anomalies in Release 2.1.76 (continued)

CSCdu29780	Symptom: The line admin state is down because either: - there is NO DISK RECORD on the line, the line is defaulted to admin state down; or - the disk record is there but it shows admin state down. Condition: Upgrading from older version to newer version and doing setrev's on multiple cards at the same time. Workaround: Do *setrev* on each card and wait until that is complete before doing the next card.
CSCdu49855	Symptom: IPC-error for RPM-PR Condition: None Workaround: None
CSCdu60643	Symptom: SDRAM failures were not recorded in event log Condition: Fault Insertion tests were being performed on modified hardware Workaround: None
CSCdu70465	Symptom: CLI vs CMGUI displays are inconsistent Condition: When displaying the CDVT via the CLI vs the CMGUI. Workaround: None
CSCdu71423	Symptom: Popup message about LMI discovery on node. Condition: User executed 3 cli commands, and then the popup message appeared. Workaround: None
CSCdu71558	Symptom: Alarms on slot #11 and #12, during fault insertion testing. Condition: By inserting high speed link error on slot #7, active PXM Workaround: None
CSCdv22540	Symptom: AXSM core dumps Condition: Burn boot was executed Workaround: None
CSCdv29599	Symptom: Node went into IDT mode. Condition: **Setrev** from 2.0 version to 2.1 version Workaround: None.
CSCdv29805	Symptom: *switchapsln* results in an error message indicating failure to switch due to unknown reason Condition: Rx cable on Protection line had been removed, to create an LOS condition - but line toggled between SD and SF condition Workaround: None
CSCdv36479	Symptom: Corrupted output of CLI commands. Conditions: When the dspcd and dsplns command are executed on the AXSM. Workaround: None

Table 30 Known Anomalies in Release 2.1.76 (continued)

CSCdv43250	Symptom: No limit to the number of attempt to login. Condition: When logging into the MGX from the login prompt. Workaround: None
CSCdv47986	Symptom: dspln/dsplns/dspalm/dspalms no longer reflect aps line failures (SF) Condition: An error injector was setup to inject an error rate sufficient to force the W line into SF Workaround: UNKNOWN
CSCdv48058	Symptom: Event log and trapd.log file incorrectly show aps switchovers due to SD when the failure condition was SF Condition: SF condition was created on the active working line to induce a switchover Workaround: UNKNOWN
CSCdv49510	Symptom: No indication on dspapslns of a condition causing port to go operationally down - at the node level, only an indication of a minor alarm from the line interface Condition: Tx cables were pulled from both the W and P lines of a 1+1 aps pair. Workaround: None
CSCdv50574	Symptom: Incorrect usage statement generated. Condition: When the *delapsln* cli command is executed. Workaround: None
CSCdv62811	Symptom: APS line toggles between SF and SD Condition: SF threshold set to 10-3, error injected at 10-2 Workaround: None
CSCdv69323	Symptom: Shelf sends too many messages to cwm. Condition: After the execution of switchredcd on the shelf. Workaround: none
CSCdv72718	Symptom: Inconsistent alarm reporting on shelf. Condition: When a serial bus failure is executed via fault insertion. Workaround: none
CSCdw08931	Symptom: LAN IP retained after a clrallcnf. Condition: None Workaround: None
CSCdw33583	Symptom: The command dspload on AXSM Cards does not show except values for MPLS partitions. Conditions: None Workaround: None
CSCdw38540	Symptom: 'dsplns' shows alarm differently between AXSM/A & /E Conditions: Line in Critical alarm Workaround: Unknown

Table 30 Known Anomalies in Release 2.1.76 (continued)

CSCdw65556	Symptom: After PXM45b rebuild (physical removal) AXSMs got stuck in boot Condition: None Workaround: None
CSCdw68495	Symptom: AXSME Card is latched up when it receives high traffic of OAM loopback cells. Condition: AXSME card can handle up to 10,000 OAM loopback cell per sec. If the user is sending OAM loopback cell at a higher cell rate, AXSME may be latched up and has unsuspected behavior. Workaround: If the user really want to pass OAM loopback at high cell rate, (s)he should enable the ingress channel loopback on the connection before (s)he starts to pump OAM loopback cell traffic. The command for enable the connection loopback is shown in the following. At CLI prompt: Enable connection loopback, addchanloop <ifNum> <vpi> <vci> <mode> Note: AXSME is supporting ingress channel loopback, so the valid parameter for mode is 1. Disable connection loopback, delchanloop <ifNum> <vpi> <vci>
CSCdw79627	Symptom: Information showed by dspconinfo and dsptotals does not match Condition: When doing a dspconinfo on PXM, and dsptotals on AXSM Workaround: None
CSCdw79943	Symptom: RAMDISK ERROR message in event log Condition: UNKNOWN Workaround: None
CSCdw90614	Symptom: Popup message seen on screen. Condition: After executing swithcredcd, or addapsln cli command. Workaround: None
CSCdx02683	Symptom: Trail trace bytes on axsme e3 fail to send intelligible ID to remote end Condition: The Trail Trace bytes in the E3 overhead should provide some identification to the far end node it is connected to. the Trail Trace Message sent by AXEM-E3-UNI does not provide any understandable ID to either Agilent Omniber 718 or Adtech SX4000. Workaround: None
CSCdx04460	Symptom: Popup message is display during normal telnet session. Condition: After doing a resetsys on the shelf. Workaround: None

Anomalies Resolved in Release 2.1.76

Table 34 lists the anomalies resolved in release 2.1.76

Table 31 Anomalies Resolved in Release 2.1.76

Bug	Description
S1 Bugs	
CSCdw84727	svc calls cannot be setup from 11.x router due to ilmi
CSCdw86598	atomizer problem - (CC to any card fails)
CSCdw88929	AXSMs cards went to failed state
CSCdw89120	XBAR: shelf reset if all the humvee ports go down together
CSCdw93466	Need card reset hold functionality for RPM
CSCdw93717	active PXM should be disabled when offline diag runs on stby
CSCdx10662	Online diag start request causes AXSME task to go into infinite loop
S2 Bugs	
CSCdw26720	Ping between LSCs not reliable and time out
CSCdw48403	No trap generated for switching fabric alarms
CSCdw74834	JANPN:Node reboots few times and then is stuck in UNKNOWN_i state
CSCdw87565	XBAR: Humvee candidate error port getting clear without error remove
CSCdw88395	XBAR: PXM reported port err dont change the candidate list
CSCdw88536	XBAR: Errored shut down links getting reenabled on switchcc
CSCdx06106	Copy writemem via SNMP failing
CSCdx06708	Alarms not integrated when error seen on Standby PXMs own links
CSCdx09585	Switching alarms get stuck when node has only one PXM card
CSCdx10174	AXSM with errors to all xbars causes no HVCAN to be selected.

Anomaly Status Changes in Release 2.1.76

Table 35 lists anomalies that have changed status in Release 2.1.76.

Table 32 Anomalies that have changed status in Release 2.1.76

Anomaly ID	Description
S1 Anomalies	
None	
S2 Anomalies	
CSCdv30603	DLS: BPX node does not indicate NbrIpAddress after MGX2 clrcnf. Closed
CSCdv91277	SNMP support of dsx3CircuitIdentifier. Severity Change to 6 - Enhancement request
CSCdw06133	ifName varbind is in wrong location for traps 60026-60034. Closed
CSCdw36539	Modify fails for AXSME xpvc connections. Closed
CSCdw70259	COSB queue reaches threshold, and EFCI only set for some PVCs. Closed

Table 32 Anomalies that have changed status in Release 2.1.76

CSCdw71214	Switchredcd cmd is not completely disallowed from RPM 1:N mode. Duplicate of CSCdt95815
CSCdw74053	Off-Line DIAG not fully logging errors. More
CSCdw74238	OAM CC Alarm Not Clearing From CLI. Dupdate of CSCdw75663
S3 Anomalies	
CSCds43557	DLS:Flt.Ins/BRAM failure led to event file corruption. Closed

Known Anomalies for Release 2.1.75

Table 33 lists the anomalies and known workarounds for release 2.1.75.

Table 33 Known Anomalies in Release 2.1.75

Bug ID	Description
S1Bugs	
CSCdw27075	Symptom: Unable to CC to a AXSM card in y-red config Conditions: After a switchredcd on an AXSM card pair in redundant mode Workaround: Unknown
CSCdw39830	Symptom: Problems with CWM sync to AXSM-E card and CLI commands executed on card return error messages indicating IPC allocation failures Condition: IPC Memory leaks Workaround: None
CSCdw65556	Symptom: After PXM45b rebuild (physical removal) AXSMs got stuck in boot Condition: None Workaround: None
S2 Bugs	
CSCdv30603	Symptom: IP address did not show on the ENNI connected BPX shelf. Condition: After a *clrcnf* was done on the MGX II Workaround: Perform a *switchredcd* on the MGX II.
CSCdv60629	Symptom: AXSM core dump Condition: Restoreallcnf was being executed which caused telnet session to hang Workaround: UNKNOWN
CSCdv83075	Symptom: Dsplog with HMM DEV ERROR Condition: *dsplog* Workaround: None
CSCdv85607	Symptom: Core dump occurred for standby AXSMEOC3 card though no activities. Condition: None Workaround: None

Table 33 Known Anomalies in Release 2.1.75 (continued)

CSCdv91277	Symptom: MIB Walk on dsx3CircuitIndentifier Returns internal Project Code Name The object is also not settable. Condition: All conditions Workaround: None
CSCdw19840	Symptom: PXM does not initialize correctly Condition: HD backcard is replaced Workaround: None
CSCdw06133	Symptom: Trap 60126, 60127 receives the trap varbinds in a different order than that is defined in the MIB. Condition: When the APS Line on standby card is in alarm or cleared alarm Workaround: None
CSCdw26720	Symptom: Cannot ping between loopback address for LSC's over MPLS trunk. Condition: Unknown. Workaround: None.
CSCdw33274	Symptom: PXM software error core dump during offline diag Condition: UNKNOWN Workaround: None
CSCdw36064	Symptom: AXSM core dump recorded during *switchredcd* testing Condition: Stress testing consisting of *switchredcd* testing Workaround: None
CSCdw36539	Symptom: For an AXSME DAX conn modification of VSVD parameters like RDF, RIF cannot be done on the slave end. RDF, RIF values on the master end will be applied to the slave end as well. However VSVD can be enabled/disabled independently on both endpoints of DAX conns. Also for routed connections these values can be configured independently for both endpoints. Condition: ABR VSVD DAX (intranode connection) with slave endpoint on the AXSME. Workaround: In case of DAX conns with only one AXSME endpoint (e.g. XPVC) set the AXSME endpoint as the master endpoint. In case of DAX conns with both endpoints as AXSME perform cnfabr for VSVD params on the master endpoint.
CSCdw46262	Symptom: Secondary Active Card is not resetting when the secondary card goes to fail state due to some reason. But the same is happening for the primary Active card when it goes to fail. Conditions: Unknown Workaround: None.
CSCdw46905	Symptom: Data discards being seen on OC3 PVC's and not T1, or T3. Conditions: While doing congestion testing on MGX45 for XPVC's. Workaround: None

Table 33 Known Anomalies in Release 2.1.75 (continued)

CSCdw48403	Symptom: No trap generated on the switch. Condition: When switching fabric alarms occur. Workaround: None
CSCdw49046	Symptom: After Switchcc, some SPVCs got rerouted. Data loss over 1.3 seconds on each VCCs. Conditions: Configured 6 SPVCs each with 100K CBR connections. The 3 nodes network have OC12 APS 1+1 & 1:1 configured as NNI. Performed the *Switchcc* on the via-node. Workaround: None.
CSCdw63654	Symptom: Offline/Online does not catch crossbar alarms. Condition: When detecting bad hardware. Workaround: None
CSCdw68448	Symptom: The low accuracy of AXSM's MBS policing function for Rel.2.0 and 2.1. Condition: None Workaround: None
CSCdw64682	Symptom: AXSM core dumped Condition: On-line diag error (Xbar burst) was reported at the time Workaround: None
CSCdw67724	Symptom: Links are in attempt mode. Condition: During power cycle of the node, we lost all the connection from bordering nodes. This node is heavily loaded node. Workaround: None
CSCdw66847	Symptom: Signalling thresholds on the cosb 16 not working is packet discard mode. Condition: If the signalling traffic is artificially pumped at a very high rate (ex: OC3/OC12) the qbin thresholds for cosb number 16 are discarding the cells indiscriminately. Workaround: Change the signalling cosb number to 14 (It is available) in the Card SCT file.
CSCdw70259	Symptom: EFCI not set for some PVC's on the same port. Condition: When the COSB queue reaches its threshold. Workaround: None
CSCdw71214	Symptom: Customer requests that switchredcd provide error message when trying to switch between primary and standby RPM-PR cards w/ 1:N configuration enabled. Condition: Unknown Workaround: None

Table 33 Known Anomalies in Release 2.1.75 (continued)

CSCdw74053	Symptom: The Off-Line Diagnostics and card recovery process failed to properly log the occurrence of broken hardware. Condition: This failure to log events properly occurs when the hardware access causes the software to take a databus exception vector. Workaround: None
CSCdw74238	Symptom: OAM CC configuration on connection creates CC fail alarm that appears to only be cleared by CWM connection manager. Condition: Connection is added via cli with "-cc 1" (OAM continuity check) enabled on both the master and slave side. The connection is on the same active port of the AXSME card. Upcon and dncon on the connection via cli has no effect. Using "upcon" via connection manager clears the alarm. Workaround: Use CWM to perform upcon on connection to clear alarm.
S3 Bugs	
CSCds43557	Symptom: Event log file got corrupted Condition: Injecting a hardware failure on BRAM component of Active PXM45 card manually. Workaround: None
CSCds60742	Symptom: Seen log entries about time of date change for standby PXM periodically. Conditions: Normal operation Workaround: None.
CSCdt07739	Symptom: Loss of activity messages are reported by the standby PXM in the event log for a newly active clock source Condition: External bits inputs are used for both primary and secondary clock sources Clock switchover is initiated. Workaround: UNKNOWN
CSCdt30145	Symptom: Loss of activity and clock switching to priority 1 messages observed in event log Condition: AXSM-OC48 cards in system were being reseated Workaround: UNKNOWN
CSCdt41608	Symptom: Console port baud rate is not shown correctly using the *dspserialif* command. Condition: User sees a "0" baud rate when executing *dspserialif* command. Terminal server connects to console port fine with a baud rate of 9600. A cnfserialif is then executed to set the port to 9600. A subsequent execution of dspserialif then shows the value correctly as 9600. Workaround: None
CSCdt70323	Symptom: Need non-shellconn method of burning PXM boot code which also does not require console access to each PXM. Condition: None Workaround: None.

Table 33 Known Anomalies in Release 2.1.75 (continued)

CSCdu26141	Symptom: SHM-4_DB_REQ_FAIL messages are logged at Sev-4 in the event log Condition: Consecutive resetcds were executed on the PXMs in this system. This log can be seen under 2 conditions: 1. Under the normal operation of the PXM if this is logged, it is a problem with the communication between 2 tasks that needs to be investigated. 2. During any form of shelf reset like resetsys, abortrev, setrev etc. If this log is seen at around the time a shelf reset is happening, it is not a problem if this log is seen. This will not have any impact at all on the state of the shelf or the state of the configuration on the shelf. In the case of this particular bug, this log was seen at the time of a shelf reset hence it is not a problem to see this log. Workaround: None
CSCdu27030	Symptom: OAM CC Activation Cell correlation tag is incorrectly modified. Condition: User notes that an F4-Seg Active-CC OAM cell with a correlation tag of 0x6A is returned to the sending device with a correlation tag of 0x00. Workaround: None
CSCdu29780	Symptom: The line admin state is down because either: - there is NO DISK RECORD on the line, the line is defaulted to admin state down; or - the disk record is there but it shows admin state down. Condition: Upgrading from older version to newer version and doing setrev's on multiple cards at the same time. Workaround: Do *setrev* on each card and wait until that is complete before doing the next card.
CSCdu60643	Symptom: SDRAM failures were not recorded in event log Condition: Fault Insertion tests were being performed on modified hardware Workaround: None
CSCdu70465	Symptom: CLI vs CMGUI displays are inconsistent Condition: When displaying the CDVT via the CLI vs the CMGUI. Workaround: None
CSCdu71423	Symptom: Popup message about LMI discovery on node. Condition: User executed 3 cli commands, and then the popup message appeared. Workaround: None
CSCdu71558	Symptom: Alarms on slot #11 and #12, during fault insertion testing. Condition: By inserting high speed link error on slot #7, active PXM Workaround: None
CSCdv22540	Symptom: AXSM core dumps Condition: Burn boot was executed Workaround: None
CSCdv29599	Symptom: Node went into IDT mode. Condition: **Setrev** from 2.0 version to 2.1 version Workaround: None.

Table 33 Known Anomalies in Release 2.1.75 (continued)

CSCdv29805	Symptom: *switchapsln* results in an error message indicating failure to switch due to unknown reason Condition: Rx cable on Protection line had been removed, to create an LOS condition - but line toggled between SD and SF condition Workaround: None
CSCdv36479	Symptom: Corrupted output of CLI commands. Conditions: When the dspcd and dsplns command are executed on the AXSM. Workaround: None
CSCdv43250	Symptom: No limit to the number of attempt to login. Condition: When logging into the MGX from the login prompt. Workaround: None
CSCdv47986	Symptom: dspln/dsplns/dspalm/dspalms no longer reflect aps line failures (SF) Condition: An error injector was setup to inject an error rate sufficient to force the W line into SF Workaround: UNKNOWN
CSCdv48058	Symptom: Event log and trapd.log file incorrectly show aps switchovers due to SD when the failure condition was SF Condition: SF condition was created on the active working line to induce a switchover Workaround: UNKNOWN
CSCdv49510	Symptom: No indication on dspapslns of a condition causing port to go operationally down - at the node level, only an indication of a minor alarm from the line interface Condition: Tx cables were pulled from both the W and P lines of a 1+1 aps pair. Workaround: None
CSCdv50574	Symptom: Incorrect usage statement generated. Condition: When the *delapsln* cli command is executed. Workaround: None
CSCdv62811	Symptom: aps line toggles between SF and SD Condition: SF threshold set to 10-3, error injected at 10-2 Workaround: None
CSCdv69323	Symptom: Shelf sends too many messages to cwm. Condition: After the execution of switchredcd on the shelf. Workaround: none
CSCdv72718	Symptom: Inconsistent alarm reporting on shelf. Condition: When a serial bus failure is executed via fault insertion. Workaround: none

Table 33 Known Anomalies in Release 2.1.75 (continued)

CSCdw08931	Symptom: LAN IP retained after a clrallcnf. Condition: None Workaround: None
CSCdw68495	Symptom: AXSME Card is latched up when it receives high traffic of OAM loopback cells. Condition: AXSME card can handle up to 10,000 OAM loopback cell per sec. If the user is sending OAM loopback cell at a higher cell rate, AXSME may be latched up and has unsuspected behavior. Work Around: If the user really want to pass OAM loopback at high cell rate, (s)he should enable the ingress channel loopback on the connection before (s)he starts to pump OAM loopback cell traffic. The command for enable the connection loopback is shown in the following. At CLI prompt: Enable connection loopback, addchanloop <ifNum> <vpi> <vci> <mode> Note: AXSME is supporting ingress channel loopback, so the valid parameter for mode is 1. Disable connection loopback, delchanloop <ifNum> <vpi> <vci>

Anomalies Resolved in Release 2.1.75

Table 34 lists the anomalies resolved in release 2.1.75.

Table 34 Anomalies Resolved in Release 2.1.75

Bug	Description
S1 Bugs	
CSCdu57693	To add a new CISCO-COPY-CONFIG-MIB to handle write-mem from CWM
CSCdu88446	snmpget returns NOSUCHNAME for a registered trap manager
CSCdv00327	IP connectivity task crashes if an invalid version 4 LMI req is recv
CSCdv54297	SLT: secondary AXSM stays in Init for long time after switchredcd
CSCdv54577	redundant AXSME with 60+ K maxcon failed when upgrade to 2.1(70)
CSCdv58121	Bad AXSM HumVee configuration
CSCdv59137	redman did not read pep table properly, causing lost conns in pxm
CSCdw02239	SSCOP on existing trunks went down (RESET state)
CSCdw04225	submit the fix CSCdv20918 into version 2.1
CSCdw13587	PXM hangs or resets when entering diag debugger
CSCdw17486	Boot can hang on cold reset due to cache flush
CSCdw22095	PLFM: Lost communication between pxm and axsm cards

Table 34 Anomalies Resolved in Release 2.1.75 (continued)

Bug	Description
CSCdw29244	PLFM: Got tlb exception on AXSMBOC48 while dspcon master w/o slave
CSCdw53720	pnport rsrc leakage due to interface policy message getting lost
CSCdw53802	IPC message data integrity problem
CSCdw56907	SNMP mishandles exceptional elements. An error can occur with management protocol processing. Go to http://www.cisco.com/cgi-bin/bugtool/onebug.pl?bugid=CSCdw65903 for further information.
CSCdw57071	After PXM45 rebuild, AXSMs went into empty/reserved state
CSCdw64970	IPC failed.
CSCdw66157	PATCHX: MGX2 node gives node busy error on snmp request
CSCdw74813	PATCHX:PXM45B goes to Active-F after upgrade.
CSCdw76146	ABR VSVD configuration lost after switchredcd
S2 Bugs	
CSCdu53234	Jup: RPM-PR back cards cannot be detected with dspcds
CSCdu86213	Ethernet chip hung, transit buffer corrupted ox8300fdca
CSCdv29887	DLS: addlnloop/dellnloop does not show syntax
CSCdv47168	UPGRADES: reset standby card after loadrev complete get clrallcnf
CSCdv52164	SLT: cons fail due to VP is not set (should be set) in MPG
CSCdv55257	display of the default values in dsppnctlvc is incorrect.
CSCdv55598	When provisioning 10k connection, 6k failed, no indicating the cause
CSCdv57867	Auto-Deletion of Trap Manager(s) must be supported: PER-3417
CSCdv59231	switchcc spvcIntfUpDnStandbyUpdate() Failed message in log
CSCdv59242	NCCI ATM addr not getting de-regd on stby - mem not freed
CSCdv59346	PSBF getting declared erroneously when SF on Prot Line at Far End
CSCdv60796	Stats Manager Logged an error in system log
CSCdv61068	Customer needs events related to port up/down in system log
CSCdv66788	AXSME does not transfer switchaps status to standby
CSCdv68030	Insufficient array size in snmp-ma can lead to system crash
CSCdv71784	SLT:CDV/CTD can be modified to 0/-1 for AXSME connection
CSCdv74376	abit is not cleared when its supposed to
CSCdv75571	Set/Clear of ReservedSlotPtr not being done properly
CSCdv78410	CIT30:svcc-rcc fails when bring up a new uplink.
CSCdv80063	APS 1:1 PNNI goes down when switch to prot. line
CSCdv80263	Port failure clears/SF&SD toggle when both W & P in LOS
CSCdv85016	alarm on endpoint and traps to CWM create CLI and CWM inconsistency
CSCdv88579	SNMP timed out/NO SUCH NAME error while adding hybrid connections.
CSCdv89676	[upg] Cannot schedule AXSM offline diag more than 24-hrs apart
CSCdv91553	REG21:For abr SPVC, if mcr not specified then derive from pcr.

Table 34 Anomalies Resolved in Release 2.1.75 (continued)

Bug	Description
CSCdw05534	upg: Coredump on OC48 redundant pair upgrade. Online diag failed
CSCdw08107	AXSM went into empty reserved/empty after offline diag concluded
CSCdw09466	Trap 60057 cwModuleFailed not received after SM failed
CSCdw10074	No traps for SF/SD conditions (when no switchover)
CSCdw10409	Default config_verify version
CSCdw10629	CIT30:AXSM card became Empty Resvd/Empty after abortrev
CSCdw11749	AXSMET3E3 went in to Fail state cause - SHM_CDF_MAX_RESETS_REACHED
CSCdw11917	dbgfailsvc does not get failure node information
CSCdw12312	SPEC: Channel alarms does not get cleared properly
CSCdw13155	should not have more than 192 interfaces in pnni
CSCdw13285	Jup & MGX: dspcds show RPM back cards active regardless they are empty
CSCdw13381	REG21:Offline diag did not run on PXM and card in empty rsvd state
CSCdw14692	REG21:SPVC taking a path with a loop in it.
CSCdw15489	diag: offline fail when node reset/switchcc/cnftime occurred.
CSCdw16011	SPEC: Online diag failed diagTest and with emError
CSCdw16277	DEV: memory leak on PNNI causes building vc
CSCdw16283	Unable to ftp complete SES stats file for the 100k network
CSCdw17365	Duplicate key instances in the Connection stats files from AXSM-E
CSCdw19298	REG21: VNNI stuck in down-in-progress
CSCdw20235	Two AXSMs reported failed status after on-line diag errors
CSCdw20495	SPEC: Egress Vc Queue does not empty even when traffic stopped
CSCdw21636	SLT: PNNI hierarchy collapses when the PNNI timers are set very low
CSCdw21654	Reboot command failed to reboot the card
CSCdw21901	Offline diag failed on stdby pxm45: HDD file sys related failure
CSCdw22066	After a couple of re-seats pxm45 went in to Active-F (soft fail)
CSCdw22092	Switch fail to send sub-interface UP trap to CWM when it is up again
CSCdw23117	Standby PXM45 takes too long to come up.
CSCdw26577	Trap 61009 cwLMIDown received with missing varbind LMIType
CSCdw26680	E:RPM directory does not sync between active & standby
CSCdw28731	SLT: Memory block error
CSCdw32108	SLT: Standby AXSM in failed state after soak test
CSCdw33055	AXSM core dump - SSI-SEM fail
CSCdw33950	inconsistent alarm reporting PXM/AXSM
CSCdw33972	CIT30: pnports went down after switchcc on PXM45B cards.
CSCdw36141	2000 connections has cross commit failure after double failure test
CSCdw36197	PRF: online diag fail caused active PXM45 reset

Table 34 Anomalies Resolved in Release 2.1.75 (continued)

Bug	Description
CSCdw36369	data from a ipc msg been used after been freed
CSCdw36727	Prevent usage of stale IPC buffers in the code
CSCdw36900	AXSM-E went into failed/empt res state (not related to reset pulse)
CSCdw36988	CIT30:after upgd BCC sw, tasks starving and pnSscop using 32% cpu
CSCdw38893	rmi sync problem causes dspbecnt/dspapslns/dsplns problems
CSCdw39431	cpro task hogging semaphores - resulting in CWM sync problems
CSCdw40085	SHM allows card state change from FAILED to ACTIVE without reset
CSCdw41032	Getting VSI error upon switchred AXSM
CSCdw41032	Getting VSI error upon switchred AXSM
CSCdw41063	APS-A:Intra
CSCdw41107	SPEC: SPVP dax con has wrong master nsap address
CSCdw41313	SRM/SNMP: IF-MIB registration on a Jup node
CSCdw41935	Checksum errors found in Connection File
CSCdw42702	cPro cache should not be disabled during cnfg upload
CSCdw43522	pnCcb suspended by switchcc on the new active card
CSCdw44751	Slot remap error possibly caused by RPM 1:n redundancy.
CSCdw44797	Shm does not shut down the xbar links on seeing slot remap errors.
CSCdw45618	XBAR current error counter are not updated.
CSCdw46235	VISM-PR goes in to MISMATCH in PXM45 chassis, slot 1
CSCdw46286	wr me failed
CSCdw46658	Counting of control connections on NNI interfaces
CSCdw47399	SnmpLogErr() causes memory corruption for string > 127 characters
CSCdw47458	APS-A:Intra
CSCdw47729	Size mismatch when ftping stat files from SES node
CSCdw47754	Prevent device coredump when devices are not initialized
CSCdw50983	In a rare case, delport can cause memory corruption.
CSCdw51137	vxWorks IP forwarding broadcast packets
CSCdw53406	SLT: Memory leakage error
CSCdw53489	LSC session gets stuck when executed: sh xtagatm cross-connect traff
CSCdw53621	Axsm comes up as Failed after addred,delred,addred
CSCdw53900	Softswitch failing from secondary to primary for RPM Cards
CSCdw54796	Exception in Task PNCCB
CSCdw56234	AXSM card fails to establish connection after multiple switchredcd
CSCdw56316	VPC conn does not Tx Ingress AIS when line fails
CSCdw56503	PRI: active PXM45 reset b/c watchdog timeout reset on Jup
CSCdw57848	2000 cps signalling was reserved upon adding ubr connection

Table 34 Anomalies Resolved in Release 2.1.75 (continued)

Bug	Description
CSCdw60618	switchredcd causes loss of connectivity to ip connectivity router.
CSCdw60699	2min reroute time for some conns when dnpnport on NNI link w/4k conn
CSCdw60848	PATCHX: Delred does not unreserve the secondary card.
CSCdw61596	Range of vcmax in addpart and cnfpart incorrect.
CSCdw62579	should be able to do snmp get for CBR CDVT, show should on cli as well
CSCdw62675	CTC: when resetcd, the state qualifier is set to NONE
CSCdw62864	SLT: pxm in active -F during the upgrade
CSCdw64673	E3 Interface reported down by CWM though passing traffic
CSCdw64940	SPEC: Cannot program VI rate unless min rate changes
CSCdw68013	clear counters in LSC causes VSIRmClrConnStats FAILS msg flooding
CSCdw70993	1:N new active RPM-PR not copying running config from old active
CSCdw74115	IPCONN: changes to handle low network memory problems
CSCdw75504	SLT: upg on node with RPMs caused PXM to go into FAILED state.
CSCdw75663	cc bit is corrupted when reprogramming hardware.
CSCdw77601	LSC displays n/a as Physical Descriptor when AXSM-E is VSI slave
S3 Bugs	
CSCdr50497	DLS: dspsct command does not work with parameters shown in cli help
CSCds81130	Plug and play option for port is not working.
CSCdt03600	Network Browser does not show any hardware info for AXSM card
CSCdt63895	Addred send no warning to user about differing code on AXSMs
CSCdt85724	AXSME_APS: Request for CLI DSPBECNT/CLRBECNT on AXSME cards
CSCdu01259	show switch partition shows inconsistent value for vcc vpc
CSCdu18220	RPM error msg when exceeding bw on abr cons states pcr/scr s/b mcr
CSCdu30833	CLP0 discards doesn’t match with Arrival and Depart CLP0 on axsm oc48
CSCdu34306	DLS: Selector byte on node ATM address changed from 00 to 01
CSCdu47283	Coredump feature enhancement tracking bug
CSCdu69875	JUP: replications error from RPM-PR while secondary pxm is in INIT
CSCdu73090	AutoShut: HMM log gives incorrect slot number for Xbar errs
CSCdu73177	AutoShut: switchred causes ilmiPassup err log being generated
CSCdu84104	DLS: <switchcc>Power Supply failure messages appear in the log.
CSCdu86079	dsplog syntax options error
CSCdu87737	SRM -- snmpwalk on ifTable cause buffer leak
CSCdv05450	JUP: PXM45/B reset - core dump - software exception
CSCdv05978	Netbase modules event log cleanup
CSCdv07942	DLS:Evt.Log:NVRAMCHKSUMERR & NOVRAMFAIL Sev-4 msgs after UI reseated
CSCdv13220	Inappropriate Error Message for dspchancnt

Table 34 Anomalies Resolved in Release 2.1.75 (continued)

Bug	Description
CSCdv14497	When CWM is used to associate a card SCT, there is no log entry
CSCdv19080	Evtlog: Severity-4-FIPC invalid FIPC passed as an argument.
CSCdv19288	SHM: Backcard reserved type set to unknown after addred
CSCdv22340	Need to enhance dspport/dspportdbg/dspchandbg to allow up to SG=64
CSCdv23682	bad error output on softswitch on AXSM cards
CSCdv24828	Upg: Burnboot to standby PXM45 has set ssi-rstdumptrace wrong timestamp
CSCdv25116	SHM: Should warn if the card not reset due to reset disable
CSCdv33486	Evt.Log: CC-4-CC_Scaling Error message appears in log after a switch
CSCdv33628	Evt.Log: Card does not have hardware mastership error.
CSCdv38381	DLS: FTP should always default to root directory.
CSCdv38486	REG21:No/Incorrect error displayed when level 105 is assigned.
CSCdv38638	AXSME-RED: saveallcnf should replace the old config file with new
CSCdv39925	MDC enhancement and warnings clean up
CSCdv40708	DLS: dspprfhist showed % util -214748.3594
CSCdv43695	DLS: dspbecnt hangs when W and P lines in SF and SD respectively
CSCdv45123	snmp counters for lnPci0,sl0,atm0 return wrong values
CSCdv46090	sysCardInit() API should check return status of call to restoreDB()
CSCdv47501	BER(SD) clears after 23min28secs on WLINE
CSCdv48227	CLI doesn’t block adding LSC controller on slot 7
CSCdv49780	SF clearing times not consistent with standard
CSCdv49830	Event Log messages do not distinguish between W and P lines
CSCdv49865	delclksrc should unconditionally delete the intended clock source
CSCdv49877	Revertive attribute handled incorrectly in some cases
CSCdv49882	dspclksrc output inconsistent after a switchcc
CSCdv50309	Evt.Log: Diag test PASS is recorded as an error message.
CSCdv54290	Unable to disable the statistics from setany
CSCdv58249	CORE: add the ctc history show functions to the CORE
CSCdv60379	warnings cleanup in SHM and CTC modules
CSCdv61857	Possibility of taskwaitlist semaphore be taken forever.
CSCdv67367	snmp returns null value for AXSM-E backcard type
CSCdv68551	dspcon does not clear port RX RDI on a dex connection.
CSCdv68556	AXSME: 1:1APS with OperArch as 1+1
CSCdv68569	cwTrapLineModuleNumber value is not correct in some Back Card traps
CSCdv69644	Environmental Device Traps must be self contained: PER 3917
CSCdv72938	Selector Change Trap not sent to CWM on switchover
CSCdv74945	Min BW for cosb16 is too high in SCT(0)

Table 34 Anomalies Resolved in Release 2.1.75 (continued)

Bug	Description
CSCdv76198	Change msg2h tool to create different output for Zenith
CSCdv76766	Enhancements: snmpget returns NOSUCHNAME for a registered trap manag
CSCdv79066	DEV: CLIs for pathcontrace disallowed in GROUP1 & ANYUSER
CSCdv80397	DIAG: dspdiagcnf shows garbage info when pagemode off is used
CSCdv80431	Extra line of info on the output of dspbecnt command
CSCdv82884	fix compile problems in pipc_debug.c
CSCdv84390	Standby PXM running offline diag did not recover when active removed
CSCdv85190	debug option -v does not specify version specific tool
CSCdv85685	When restoreallcnf second time says save process instead restore
CSCdv85973	cnfgConTrap should not be sent to the master/controller.
CSCdv86355	Evt.Log:Ethernet chip hung msgs recorded as Sev-2 in event log
CSCdv87498	non-persistent SPVC slave ep is not cfg to support OAM functionality
CSCdv89797	[upg] sysDiagRequest reported when cnfdiagall was issued
CSCdv90264	AXSME diag enhancement
CSCdv91589	SLT: rpm-pr tries to create data base for standby/secondary rpm-pr
CSCdw02539	DB2: Slow mem leak in DB Client during legacy lslot unregistration
CSCdw03429	REG21:When port SCT removed, dspports does not show default used
CSCdw03642	VSICORE: ConnCmt w/ local processing is not forwarded to stdby
CSCdw04780	upg: After Runrev issued, a SEMTAKE_FAILED was logged in event_log
CSCdw05116	Excessive CPU usage by APS task on some cards
CSCdw06122	dspportload reports incorrect load on AXSME UNI port
CSCdw06190	Frame discard can be enabled on a VPC
CSCdw06206	Reiterative tstdelay does not work
CSCdw06349	Popup error messages from cnfpnni-intf
CSCdw07825	On some AXSM-E OC3 cards SD is reported when LOS clears
CSCdw07976	REG21:add/cnfcon w/frame disc 1,slave side show Rx frame disc disabl
CSCdw07998	Severity for Port Related Event Log Should be MAJOR_ALERT
CSCdw08036	IP Address in TRAP PDU must be a valid IP if trapip is not set
CSCdw09352	XBAR: dspswalms and dspdevalms not matching for XBARCORE alms
CSCdw10046	No traps/event logs when feeder LMI fails
CSCdw10207	aps oscillation when W in LOS and P in SD/SF/LOS
CSCdw10258	config_verify: build zip distribution by default
CSCdw11338	dsptrapmgr CLI Command should not reset internal aging value
CSCdw11700	Humvee Plane should be disabled for Standby AXSM
CSCdw12946	gdb build failed for axsme-rt
CSCdw13187	option 4 of cnfndparms should include interfaces in display

Table 34 Anomalies Resolved in Release 2.1.75 (continued)

Bug	Description
CSCdw13206	syntax of addpart and of cnfpart don't match
CSCdw16306	Standby PXM receives corrupted RMM seat table from Active PXM
CSCdw17995	ISR exception handling: capture interrupt stack and CPU registers
CSCdw18078	After switchover, stats files are generated with a delay.
CSCdw21782	SNMP: To always service the socket
CSCdw21915	trap 60123 is not send from AXSM
CSCdw24386	delred syntax not matching
CSCdw24786	CIT30:(code n) in CLI error messages should be removed.
CSCdw25409	DEV: atlas driver failure cause ipc failure
CSCdw27872	Graceful Error Handling required while generating Conf.Upload files
CSCdw27985	HMM CBC needs to ignore inval slotid to support RPM traffic shaping
CSCdw29855	PXM45 backup boot does not support TELNET
CSCdw29880	SLT: junk node id displayed in dsppnni-node-list
CSCdw32327	STAT: namespace conflict
CSCdw32340	dsplog -task filters incorrectly
CSCdw33520	Optimize the memory usage by ifcb for 192 interfaces supported.
CSCdw33995	SLT: having maximum addrs and no summary addr causes task crash
CSCdw34839	Evt.Log: switchcc resulted in diag log
CSCdw35613	Merge error causes to login messages with cc request
CSCdw35628	axsm and axsme access level differences
CSCdw36343	Brownout testing: AXSM card fails to come up
CSCdw38576	SLT: FAS-4-FDINVALID in the error log.
CSCdw43359	FTP server times out on PUT operation for large files
CSCdw44723	Use RDI-P to decide port status for aps lines in axsm.
CSCdw48711	reset pulse: reset the CSM rst state when the card is removed
CSCdw55311	SLt: Subagent failed to register
CSCdw57129	Frame discard info in dspcon is incorrect
CSCdw58410	Event Log for Subagents need to be added
CSCdw65213	dspalm should support E3 option
CSCin00483	CV should not have option to add a VUNI port on AXSM card
CSCdw53194	caclConfigTable problems in CISCO-ATM-CELL-LAYER-MIB

Anomaly Status Changes in Release 2.1.75

Table 35 lists anomalies that have changed status in Release 2.1.75.

Table 35 Anomalies that have changed status in Release 2.1.75

Anomaly ID	Description
S1 Anomalies	
CSCdv46583	DLS: sframetick lock lost while performing switchcc. Closed
CSCdv79606	PXM45B SAR unable to send/IPC lost all conn. to all SMs. Unreproducible
CSCdw00887	SLT: Some rpm-pr goes to FAIL state when switchcc!. Duplicate of CSCdt60558
CSCdw20354	PXM slot 7 state changing from boot to empty/reserved. Closed
S2 Anomalies	
CSCdt05385	DLS: Flt. Ins:No alarms reported when HD failure simulated on active. Closed
CSCdv22588	DLS: Brown-out testing: AXSM OC3 card went into empty/reserved state. Closed
CSCdv41385	Jup: One RPM failed on reload/resetcd randomly. Duplicate of CSCdv88233
CSCdv54606	Checksum error found in alarm file on Jup node. Duplicate of CSCdw33055
CSCdv63508	AXSM_4OC12_B card is in empty/reserved state. Closed
CSCdv90202	REG21: On-line diag. didnt capture AXSM-E card active-F. Unreproducible
CSCdv91455	REG21: ASXM module did not recover after multiple failures. Duplicate of CSCdw10629
CSCdw05056	upg: active pxm reset twice at switchcc when card in Loadrev-Done U. Duplicate of CSCdw08107
CSCdw07374	Jup: Some of connections are missing in RPM with 2k cons after reload. Unreproducible
CSCdw21769	dspcon shows inaccurate node termination point. Duplicate of CSCdv79733
S3 Anomalies	
CSCds73435	residue old database on disk can cause a SM slot to be unusable. Duplicate of CSCdw48921
CSCdt06410	dspalm command shows AIS-L and RDI-P during LOS. Closed
CSCdt42130	DLS:AXSM-OC48 reseat caused SPI-4-SDRV_PATH_ERR in event log. Closed
CSCdt54410	DLS: Event log:SRPR:failed to allocate resource message. Closed
CSCdt61599	DLS: Discrepancy in dspxbaralms & dspswalms/dspndalms alarm reporting. Duplicate of CSCdv02933
CSCdu27373	clralmcnt Causes Unnecessary Traps. Duplicate of CSCdt29562
CSCdu32813	Online diagnostics did not detect the XBAR failures on the PXM45. Closed
CSCdv40366	Mib obj remote NSAP is blank. Unreproducible
CSCdv64841	Event log indicates RDI for LOS condition. Unreproducible
CSCdw06746	Incorrect status reported for failed RPM-PR module. Closed
CSCdw10379	dnport is not logged in the event log. Closed
CSCdw10397	popup message: rmmSendSeatTblToStdby appeared. Duplicate of CSCdv17391

Table 35 Anomalies that have changed status in Release 2.1.75

CSCdu88142	DLS:stress tests w/ PXM/AXSM reset caused cards/ports/conn to go down. Severity change
CSCdu60534	dsp*load cmds do not have accurate cps. Severity change
CSCdu39958	dsp*load cmds should give an option for time interval. Severity change
CSCdv91277	SNMP support of dsx3CircuitIdentifier. Severity change
CSCdw06221	PVC alarm reporting inconsistencies (tracking bug). Severity change

Known Anomalies in Release 2.1.70

Table 36 lists known anomalies in Release 2.1.70.

Table 36 Known Anomalies in Release 2.1.70

Bug ID	Description
S1Bugs	
CSCdu88142	Symptom: All SMs on node were reset by newly active PXM. Condition: A CLI **switchover** was executed in rapid succession on all active cards on the node, including the active PXM. Workaround: None
CSCdv46583	Symptom: **sframetick** lock config is lost. Condition: When a **switchcc** is executed on the shelf. Workaround: None
CSCdv79606	Symptom: PNNI port/conn and CLI command failures Condition: PXM45B SAR was unable to transmit Workaround: None
CSCdw00887	Symptom: Sometimes when RPM_PR card is reloaded, it goes into FAIL state. Condition: Sometimes RPM_PR some time goes into fail state when **switchcc** command is executed to switch between slot 7 and slot 8. Workaround: Do a **switchcc** back, this will force the RPM_PR to reload and eventually to come up.
CSCdw20354	Symptom: PXM toggling between boot, and empty/reserved. Condition: Appears to have begun after a **switchcc** was executed Workaround: None
S2 Bugs	
CSCdt05385	Symptom: No alarms reported when HD failure on active PXM Condition: HD failure was simulated on active PXM Workaround: None

Table 36 Known Anomalies in Release 2.1.70 (continued)

CSCdu53234	Symptom: RPM-PR back cards can not be detected from PXM Condition: Performed **dspcds** Workaround: cc into the RPM-PR card, Check the backcard presence by doing a "show interface brief"
CSCdv22588	Symptom: AXSM card went into empty/reserved state Condition: Brown-out testing was being conducted Workaround: UNKNOWN
CSCdv29599	Symptom: Node went into IDT mode. Condition: **Setrev** from 2.0 version to 2.1 version Workaround: None.
CSCdv41385	Symptom: One RPM failed on **reload /resetcd** randomly Condition: When the RPM cards comes up. It is unable to register the polling port to pxm randomly. So RPM cannot create the ipc session for polling port. The RPM card goes into fail state. Workaround: Reload or resetcd again
CSCdv63508	Symptom: AXSM/B OC12 went into empty/reserved state Condition: None Workaround: None
CSCdv90202	Symptom: AXSM-E card is in "ACTIVE_F" state due to one HW part failure. Condition: Software did detect error in the log. Workaround: None
CSCdv91277	Symptom: MIB Walk on **dsx3CircuitIndentifier** Returns internal Project Code Name Condition: All conditions Workaround: None.
CSCdv91455	Symptom: Card stuck in empty/empty reserve, or init state. Condition: Simulated hard failures on active PXM, then hard fail on all active axsm in redundant set. Multiple simulated failure on recovering axsm and pxm card after hard failure, and double failures on axsm with redundant peer. A simulated hard failure = physically removing active sm's. Workaround: resetcd for stdby axsms in redundant pair set. resetcd for all non redundant axsm card.
CSCdw05056	Symptom: The standby pxm does not become active when a **switchcc** was issued after the active and standby cards in **loadrev** Done-U state. Condition: Do a **loadrev** on the pxm45 (A/A, A/B, or B/B combo) then issue a **switchcc** at the CLI. Workaround: None

Table 36 Known Anomalies in Release 2.1.70 (continued)

CSCdw07374	Symptom: Connections are missing in RPM after a reload. Condition: While adding 2k connections via a scripts, it was noted that some of the slave end points did not get created or were missing. Workaround: None
CSCdw08107	Symptom: AXSM went into empty reserved / empty state Condition: AXSM had been reset at the conclusion of offline diag Workaround: None
CSCdw08931	Symptom: LAN IP retained after a **clrallcnf**. Condition: None Workaround: None
CSCdw11749	Symptom: AXSMET3E3 went in to Fail state. Condition: None. Workaround: None
CSCdw19298	Symptom: VNNI stuck in down-in-progress Conditions: PXM and AXSM fw upgrade. Workaround: **switchcc** on PXM
CSCdw20235	Symptom: AXSMs reported failed status Condition: On-line diag detected errors Workaround: None
CSCdw21769	Symptom: **dspcon** shows inaccurate slave address. Condition: After doing some reroute, looked at output of dspcon command and found that master endpoints are pointing to wrong slave. Workaround: None
CSCdw22066	Symptom: pxm45 went in to Active-F state. Condition: A couple of reboots. Work Around: None.
CSCdv30603	Symptom: IP address did not show on the ENNI connected BPX shelf. Condition: After a **clrcnf** was done on the MGX II Workaround: Perform a **switchredcd** on the MGX II.
CSCdv54606	Symptom: There is a checksum mismatch between what is computed by the CWM and what is written in the alarm file generated by AXSM. Condition: AXSM generates alarm file every minute. It calculates the checksum and puts it in the file. CWM does a FTP of these files and computes the checksum. Compare this checksum with the checksum in the file. They do not match. This is an intermittent problem. Workaround: Since AXSM generates a new file every minute, CWM can retry the FTP. Next time, it is highly probable that the file is a good one.

Table 36 Known Anomalies in Release 2.1.70 (continued)

CSCdw06221	Symptom: Alarming of PVCs under different failure conditions is not consistent across AXIS, MGX1, MGX45, BPX Condition: None Workaround: None
S3 Bugs	
CSCdr50497	Symptoms: **dspsct** command does not display proper information. Conditions: **dspsct** to display content of an SCT file in PXM Disk. Workaround: If the SCT is already applied to an active port/card, use dspcdsct or dspportsct command to display the contents of the sct. For the SCT files not applied to any port or card, there is no workaround available on MGX platform. Use CWM to display contents of such SCT
CSCds43557	Symptom: Event log file got corrupted Condition: Injecting a hardware failure on BRAM component of Active PXM45 card manually. Workaround: None
CSCds73435	Symptom: Residual database information causes AXSM card state to be interpreted incorrectly. An AXSM card inserted into this slot with the residual database may not successfully come up. Condition: Residual database on the disk can be introduced if the active Pxm card or disk is replaced with an older card or disk that has old data on it. Workaround: Before replacing an active PXM front card or disk, make sure that there is a saved configuration for that node. After replacing the active PXM front card or disk, restored the saved configuration. Or to verify if there are residual data on the disk, after the node comes up, perform a list file command (e.g. ll) on he D:/DB2 directory. For every slot that is reserved, there should be a corresponding subdirectory for that reserved slot (e.g. SL7), if there are extra subdirectories for non-reserved slot, these are residual old databases.
CSCdt06410	Symptom: During LOS condition, LOF, AIS-L and RDI-P are seen with **dspalm** command. Condition: When line encounters LOS. Workaround: Ignore all other alarms if LOS is present.
CSCdt41608	Symptom: Console port baud rate is not shown correctly using the **dspserialif** command. Condition: User sees a "0" baud rate when executing **dspserialif** command. Terminal server connects to console port fine with a baud rate of 9600. A **cnfserialif** is then executed to set the port to 9600. A subsequent execution of **dspserialif** then shows the value correctly as 9600. Workaround: None
CSCdt42130	Symptom: Switch driver error messages appeared in the event log Condition: AXSM cards were reseated Workaround: None

Table 36 Known Anomalies in Release 2.1.70 (continued)

CSCdt54410	Symptom: sr_proto_unblock_app:Failed allocating resource IpcMessage Err=0x26037 message appears in event log Condition: Messages were logged against an AXSM after software upgrade Workaround: None
CSCdt61599	Symptom: Different level of alarm reported by **dspxbaralm** and **dspswalms**. Condition: When there is crossbar errors. Workaround: None.
CSCdt70323	Symptom: Need non-shellconn method of burning PXM boot code which also does not require console access to each PXM. Condition: None Workaround: None.
CSCdu26141	Symptom: SHM-4_DB_REQ_FAIL messages are logged at Sev-4 in the event log Condition: Consecutive resetcds were executed on the PXMs in this system. Workaround: None
CSCdu27030	Symptom: OAM CC Activation Cell correlation tag is incorrectly modified. Condition: User notes that an F4-Seg Active-CC OAM cell with a correlation tag of 0x6A is returned to the sending device with a correlation tag of 0x00. Workaround: None
CSCdu27373	Symptom: Customer reports unnecessary traps being sent as result of clralmcnt. Condition: Unnecessary traps are generated when **clralmcnt** is executed on an AXSM line with statistical alarms. Workaround: None
CSCdu29780	Symptom: The line admin state is down because either: - there is NO DISK RECORD on the line, the line is defaulted to admin state down; or - the disk record is there but it shows admin state down. Condition: Upgrading from older version to newer version and doing **setrev's** on multiple cards at the same time. Workaround: Do **setrev** on each card and wait until that is complete before doing the next card.
CSCdu32813	Symptom: Online diag did not fail Condition: When faults are injected on all XBAR switches Workaround: None
CSCdu39958	Symptom: **dspconload**, **dsplnload** & **dspportload** commands should give an option for time interval for which the load stats are requested for. Condition: AXSM CLI commands: **dspconload**, **dsplnload** & **dspportload** Workaround: None.

Table 36 Known Anomalies in Release 2.1.70 (continued)

CSCdu60534	Symptom: **dsp*load** commands do not have accurate cps where "*" is ln/port/con. It can also be compared to dspportcnt. Condition: AXSM CLI commands: **dsplnload**, **dspportload**, **dspconload** & **dspportcnt**. Workaround: The values are nearly correct for low cell-rates.
CSCdu60643	Symptom: SDRAM failures were not recorded in event log Condition: Fault Insertion tests were being performed on modified hardware Workaround: None
CSCdu70465	Symptom: CLI vs CMGUI displays are inconsistent Condition: When displaying the CDVT via the CLI vs the CMGUI. Workaround: None
CSCdu71423	Symptom: Popup message about LMI discovery on node. Condition: User executed 3 cli commands, and then the popup message appeared. Workaround: None
CSCdu71558	Symptom: Alarms on slot #11 and #12, during fault insertion testing. Condition: By inserting high speed link error on slot #7, active PXM Workaround: None
CSCdu84104	Symptom: **dsplog** shows that a power supply failure occurred. Condition: After a **switchcc** was done on 2 separate shelves. Workaround: none.
CSCdv07942	Symptom: NVRAMCHKSUMERR and NOVRAMFAIL Sev-4 messages appear in the event log Condition: PXM-UI-S3 backcard was removed on standby, active PXM reset and then standby PXM UI-S3 backcard was reinstalled. Workaround: None
CSCdv14497	Symptom: No log entry recorded in event log when CWM SCT manager is used to associate a card SCT to an AXSM. Condition: When upgrading new software version Workaround: Unknown.
CSCdv19288	Symptom: Backcard reserved type set to unknown Condition: When **addred** is done for AXSM cards Workaround: None
CSCdv22540	Symptom: AXSM core dump Condition: Burn boot was executed Workaround: UNKNOWN
CSCdv36479	Symptom: Corrupted output of CLI commands. Conditions: When the **dspcd** and **dsplns** command are executed on the AXSM. Workaround: None

Table 36 Known Anomalies in Release 2.1.70 (continued)

CSCdv40366	Symptom: When adding ATM-ATM connection (SPVC), switch send mib object with Remote NSAP with a blank value. Conditions: This will cause CWM to have -1 value on r_network_id Workaround: None
CSCdv43250	Symptom: No limit to the number of attempt to login. Condition: When logging into the MGX from the login prompt. Workaround: none
CSCdv43695	Symptom: **dspbecnt** command hangs Condition: Both W and P lines for the pair on which dspbecnt command was executed, were in alarm Workaround: UNKNOWN
CSCdv45123	Symptom: Doing an snmpwalk of MGX 8850 returns incorrect values of ifInOctets,ifOutOctets for atm0,sl0 and lnPci0 Conditions: None Workaround: None
CSCdv47501	Symptom: WLine doesn't clear within time. Condition: Introduce Bert on both WLine and Pline. Workaround: None
CSCdv47986	Symptom: **dspln**/**dsplns**/**dspalm**/**dspalms** no longer reflect aps line failures (SF) Condition: An error injector was setup to inject an error rate sufficient to force the W line into SF Workaround: UNKNOWN
CSCdv48058	Symptom: Event log and trapd.log file incorrectly show aps switchovers due to SD when the failure condition was SF Condition: SF condition was created on the active working line to induce a switchover Workaround: UNKNOWN
CSCdv49510	Symptom: No indication on **dspapslns** of a condition causing port to go operationally down - at the node level, only an indication of a minor alarm from the line interface Condition: Tx cables were pulled from both the W and P lines of a 1+1 aps pair. Workaround: UNKNOWN
CSCdv49780	Symptom: SF/SD clearing times for 10-3 thresholds close to 19 sec instead of 10msec Condition: Rx cable of an aps pair was removed and re-connected Workaround: UNKNOWN
CSCdv49830	Symptom: Event log does not distinguish between SD/SF failures on W lines or P lines Condition: SD/SF failures were created on the W and P lines Workaround: UNKNOWN

Table 36 Known Anomalies in Release 2.1.70 (continued)

CSCdv50574	Symptom: Incorrect usage statement generated. Condition: When the **delapsln** cli command is executed. Workaround: none
CSCdv62811	Symptom: aps line toggles between SF and SD Condition: SF threshold set to 10-3, error injected at 10-2 Workaround: None
CSCdv64841	Symptom: Event log message indicating RDI alarm received on line of an aps pair Condition: RX cable on both lines of the aps pair had been pulled out to create LOS condition Workaround: UNKNOWN
CSCdv69323	Symptom: Shelf sends too many messages to cwm. Condition: After the execution of **switchredcd** on the shelf. Workaround: None
CSCdv72718	Symptom: Inconsistent alarm reporting on shelf. Condition: When a serial bus failure is executed via fault insertion. Workaround: none
CSCdv74376	Symptom: Few AXIS connections are in a-bit alarms Condition: switch y-red on BXM Work Around: switch y-red again OR **dncon** and **upcon** on connections that have a-bit alarms (this is service affecting)
CSCdv80431	Symptom: Extra line of information on the output of **dspbecnt** command Condition: Secondary card is active Workaround: UNKNOWN
CSCdv84390	Symptom: The redundant PXM stays in FAILED state after aborting offline diagnostic. Condition: Active PXM was physically removed while offline diagnostic is running on the redundant PXM. Workaround: Try one of the following workarounds: 1.- insert a good PXM into the previously-active PXM slot and reset the redundant PXM card. This allows the PXM to rebuild the node using configuration from the synchronized disk drive. 2.- restore all configuration on the node onto the redundant PXM disk.
CSCdw06122	Symptom: **dspportload** reports incorrect load on AXSME UNI port Conditions: "**dspportload**" reports incorrect values on both ingress and egress ports with active ABR SPVCs. Workaround: None

Table 36 Known Anomalies in Release 2.1.70 (continued)

CSCdw06190	Symptom: Frame discard can be enabled on a VPC Condition: AXSM-E allows frame discard feature to be enabled on a VPC. The feature should always be disabled on a VPC. Workaround: None
CSCdw06206	Symptom: Reiterative **tstdelay** does not work Condition: **tstdelay** allows us to specify multiple iterations to measure average e-2-e delays at one shot. Each iteration should invoke exactly one OAM loopback cell. But when specifying more than one iterations, dspchancnt shows it actually sends only one OAM loopback cell. Workaround: None
CSCdw06746	Symptom: Customer would like to know why a module showing 'Failed/Empty' for the pxm45 card state only reports the alarm as 'MINOR'. It should show the alarm status as 'MAJOR'. Condition: Incorrect boot image present in bootflash: causes module to fail. Workaround: Unknown for MINOR/MAJOR alarm reporting.
CSCdw10207	Symptom: APS switching between W and P lines when both are in alarm Condition: W line is in LOS and P line may be in SD or SF or LOS condition. Workaround: None
CSCdw10379	Symptom: No event log message. Condition: When the cli command **dnport** is executed. Workaround: None
CSCdw10397	Symptom: popup message appeared Condition: While trying to delete some file from the C:FW directory. Workaround: None
CSCdu57693	Symptom: Resetcd on an RPM-PR leads to deletion of all NON-DAX RPM-RPM segments on that card Condition: Add few non-dax connections on an RPM-PR card. Reset that card. After a while after the card comes up as active, it will be seen that the segments of those non-dax connections on that card are deleted. Workaround: Perform a "write memory" on the RPM before reset of the card
CSCdu70112	Symptoms: RPM-PR card reboots after repeated removal/insertion of FE backcard. Conditions: After the third time insert and ping on the fast ethernet back-card of the RPM-PR -- a bus error causes the RPM-PR to reboot. Workaround: None

Anomalies Resolved in Release 2.1.70

Table 37 lists the anomalies that have been resolved in Release 2.1.70.

Table 37 Anomalies Resolved in Release 2.1.70

Anomaly ID	Description
S1 Anomalies	
CSCdt97218	SLT: Power cycling caused JUP PXM45B flash memory to corrupt
CSCdu41564	OC48B:Primary and secondary clock sources go bad after 5 mins.
CSCdu76279	DLS:switchredcd caused 3000+ conns to report Major/Minor alarms
CSCdu85706	DLS:Sync-up of dsppnni-routing policy when stby HD replaced
CSCdv00688	VSI: no route update, because 8k con commit fail on AXSM
CSCdv00909	CPI error message scrolls on screen after PXM45B inserted & switchcc
CSCdv02985	delpart command broken
CSCdv04081	PNNI node goes to DOWN leads pnni link to be hello down
CSCdv11860	Cannot find stat files on the AXSME card
CSCdv14011	cards go out of sync after red pair is failed
CSCdv14217	SNMP requests are getting rejected.
CSCdv20649	SLT: cc to the cards fail and SSI-IPC allocation failures
CSCdv22119	REG21: No matching ancestry level, building dtl failed.
CSCdv23056	REG21: abortrev causing all PXMs and AXSMs in failed state
CSCdv23701	REG21:svcc-rcc does not come up at 2nd level.
CSCdv24000	A burst of cell can overflow QESAR and SAR stays in waiting state.
CSCdv25828	pnni-links going down and about 10k connections out of 50k going down
CSCdv25840	AXSME-RED: unable to ftp, and sessions are fluctuating
CSCdv26901	CWM fails to discover AINI trunks as the switch returns incorrect va
CSCdv26910	AXSME runtime image crashes in initialization
CSCdv27197	write mem with service compressed enable append the configs
CSCdv27977	REG21:message handler for HMM epid not initialized, causing PXM fail
CSCdv28306	ABR VSVD connection getting added incorrectly on the switch
CSCdv29117	SLT:Stdby PXM will not boot due to IPC buf leak by SHM/HMM on Active
CSCdv29233	DLS: asymmetric bandwidth usage on both ends of a link
CSCdv29485	DLS: Recovery time during PXM hardware replacements
CSCdv30930	After switchcc sysDiag didn't reset axsme after offlndiag done.
CSCdv33052	REG21: dspspvcaddr causing active PXM reset
CSCdv35114	DLS: APS working line will not clear.
CSCdv35156	DLS: APS SF on protection line got cleared automatically
CSCdv41218	AXSME-RED: redund switchover happen itself, connections failed
CSCdv41321	switchcc after delred cause the new standby PXM to reset repeatedly
CSCdv41444	AXSME-RED: After switchcc pnports went to building vc mode
CSCdv42594	REG21:AXSME nni port in auto-config state
CSCdv43500	AXSME-RED: log messages were messed up, log file sizes not same
CSCdv46583	DLS: sframetick lock lost while performing switchcc.
CSCdv54297	SLT: secondary AXSM stays in Init for long time after switchredcd

Table 37 Anomalies Resolved in Release 2.1.70 (continued)

Anomaly ID	Description
CSCdv54577	redundant AXSME with 60+ K maxcon failed when upgrade to 2.1(70)
CSCdv57330	Connection addition fails (disk update failing)
CSCdv57745	pnCcb crashed during interface failure handling
CSCdv58121	Bad AXSM HumVee configuration
CSCdv59137	redman did not read pep table properly, causing lost conns in pxm
CSCdv59536	OD: after switchcc pnni-link went to attempt state
CSCdv59710	PNNI link corrupted after upgrade from 1.0.15 to 1.1(60.101)
CSCdv72837	OD: active pxm didn't send the update to the standby pxm
CSCdv74983	SLT:pnccb task crashed after upgrade to new image
CSCdv76197	REG21: active PXM45 reset, tlb store exception, task snmpMA
CSCdv76600	Memory corruption while sending sig pdu to SAR
CSCdv77165	2.1.70 has pnport resource allocation inconsistencies
CSCdv78427	Routed SPVCs stay in multiple alarms without any reasons
CSCdv79566	REG21:Cant delete the pnport after deleting part/port/dnln
CSCdv79588	REG21:Cant delete the pnport after deleting part/port/dnln.
CSCdv79606	PXM45B SAR unable to send/IPC lost all conn. to all SMs
CSCdv79783	Full coverage offline diag failed on all AXSMs/all nodes
CSCdv84753	call stuck in setup state
CSCdv87248	REG21:pnCcb crash cause PXMs rolling reboot
CSCdv88187	AXSM resets following several prov. and resync failures from CWM.
CSCdv88838	Cannot modify the pcr/scr values for the cbr/vcr connections
CSCdv88844	APS: stdby card unable to send messages to Active
CSCdw00192	2.1(70) delchanloop results in a hidden loop and drop all cells
CSCdw00887	SLT: Some rpm-pr goes to FAIL state when switchcc!
CSCdw02239	SSCOP on existing trunks went down (RESET state)
CSCdw02500	EPD does not work properly on ingress VC-Q
CSCdw02521	REG21: ports stuck in down-in-progress for UNI with DAX cons
CSCdw04225	submit the fix CSCdv20918 into version 2.1
CSCdw05462	AXSME does not upload caclConfigTable in config-upload.
CSCdw13587	PXM hangs or resets when entering diag debugger
CSCdw15710	SLT:in the rpm file status for the ok connections is failed
CSCdw17486	Boot can hang on cold reset due to cache flush
CSCdw22095	PLFM:Lost communication between pxm and axsm cards
S2 Bugs	
CSCds87335	tstconseg gets timeout on local loopback (OAM)
CSCdt05371	DLS:Flt Ins: HD failure on act/stdby PXM - traps not generated
CSCdt07691	DLS:Clk msgs in event log requiring operator action must be sev 1-3
CSCdt20459	DLS:Flt Ins:Mastership tests resulted in crossbar fabric & cd crossb
CSCdt53844	DLS:Flt.Ins:QE0 failure: PXM did not switchover/all cds in cont rese
CSCdt61572	DLS:LAN port spurious interrupt: Message not recorded in event log
CSCdt86036	%TCATM-4-XCONNECT_FAILED when toggling vc-merge

Table 37 Anomalies Resolved in Release 2.1.70 (continued)

Anomaly ID	Description
CSCdu56412	wr me failed, getting startup-config file open failed()
CSCdu62742	AXMB:OC3 1+1APS
CSCdu68442	cnfcon: -frame option doesn't work in cnfcon CLI
CSCdu77654	AutoShut: switchcc enables disabled plane that has xbar errors
CSCdu84598	PER: Add threshold and current reset count info. in the reset log
CSCdu86046	REG21:SPVC fails on AXSME AINI/IISP i/f with mismatch alarm
CSCdu86213	Ethernet chip hung, transit buffer corrupted ox8300fdca
CSCdu88138	AXSME-RED:Mismatch/Empty added redundancy to empty but no redund con
CSCdv00358	Call Release and switchover causes the CM to allocate wrong VPI/VCI
CSCdv01538	DLS: <switchcc>stbycd ready but stby PXM xbar degraded.
CSCdv02243	PXM switchover on Jup causes re-enabling of shut planes.
CSCdv02677	During offline diag and after switchcc, need to send ready ind again
CSCdv02933	Xbar enhancements for troubleshooting crossbar errors
CSCdv03151	AutoShut: AXSM_APS: P_Line of 1:1 stuck in SF after delaps/addaps
CSCdv03742	Policing on NNI should be configurable from SCT.
CSCdv03745	Ingress AIS not detected on SPVC if not an OAM seg endpt.
CSCdv04224	Need to implement a field by field update for upgrades in Rep RAM.
CSCdv04639	AXSME-RED: standby pxm stuck in init state, after active pxm reset
CSCdv04697	AutoShut: Switchcc outage > 0.5s if autoshut/loadsharing disabled
CSCdv04782	Lockout getting erased during Pri Sec Mismatch
CSCdv05897	REG_21: cell loss on ABR VSVD when pumping @ MCR (port SCT = 6)
CSCdv08256	APSAnxB:Clearing improperly after force switchapsln on both sides
CSCdv08462	AXSME-RED: lost everything on PXM hard drive
CSCdv11638	REG_21: port stuck in auto config state b/c qe ingr dropping cells
CSCdv12352	Active AXSM gets reset with lmi-task crash
CSCdv14066	RPM-PR CLI show subinterface existed, but not existed in the agent
CSCdv14490	Error accessing Skystone register after reset
CSCdv14817	UPG:multiple loadrev on AXSM and PXM45 caused standby PXM keep reboo
CSCdv15196	DLS: resetcd on PXM generated xbar alarm but switchcc did not.
CSCdv15287	APSAnxB: dspapslns output un-reflects AnnexB feature
CSCdv15379	APSAnxB:dspapsln show WS2 in SF when WS1 disconnected
CSCdv15874	AutoShut: The standby PXM lost sw alarm info after switchcc
CSCdv16376	mfg:Display incorrect on AXSM/E card.
CSCdv16414	IT/AUTO:Spvc conns failed to reroute during link failure
CSCdv16449	mfg:clrerr command no longer works unless slot# is specified.
CSCdv17391	JUP: error message after successful softswitch.
CSCdv17398	Switchcc caused offdiag reporting failure
CSCdv17888	JUP:redundant rpm(standby/primary) failed if switchcc/burnboot/runrev
CSCdv18182	APSAnxB: Force switching happened after working section 2 in SD stat
CSCdv18671	MGX generates an error while enable/disable scrambling
CSCdv21008	PXM resets when doing a FTP put to a logical directory

Table 37 Anomalies Resolved in Release 2.1.70 (continued)

Anomaly ID	Description
CSCdv21810	DLS: DOSF files found in directory with erroneous date
CSCdv22424	Can not have more than 8 telnet sessions
CSCdv22605	DLS:aps alms not displayed/aps switchover allowed w/ empty/res AXSM
CSCdv23029	CV does not modify Status Trap Enable for AXSME-T3E3 cards.
CSCdv23264	No error status for sonetMediumLineType set-requests
CSCdv23628	APSAnxB: SD alarm when SF threshold=5, sent bert 1E-5 or 1E-4
CSCdv24248	Jup:All RPMs go to boot state for few seconds after PXM switch over
CSCdv24848	SLT:PNNI svcc-rcc keeps flapping between 2 PGLs.
CSCdv24901	SHM: SM not reset on non-fatal-major error while coming up
CSCdv24903	SHM: Brings up unstable Standby PXM as Active and loses coredump
CSCdv24904	sh contro vsi descri:available cell rate is 1 on axsm-e port
CSCdv25115	SLT: SPVCs do not get committed (come active0 after the switchred
CSCdv25962	Unable to cc to RPM-PR Card (IPC port failure)
CSCdv25699	DLS: <dspcdalms> shows feeder alm for BPX LMI oper down alm.
CSCdv26763	AXSME-RED: frame discard should be disable by default
CSCdv28193	AXSME-RED: log was flooded with !!MAX par=4, Cur. par =5
CSCdv29345	SLT: cc to the cards fail and SSI-IPC allocation failures
CSCdv29691	VSI Proxy rejects multipoint-to-point connections
CSCdv29802	DLS:Interface in LOS toggles between SF and SD conditions
CSCdv29887	DLS:addlnloop/dellnloop does not show syntax
CSCdv30222	DLS: clkalm redundancy alm did not appear after loadrev.
CSCdv31000	JTOAM:no VPI/VCI info when dspchanloop
CSCdv31081	REG21: fabric alarm not declared, causing xbar plane shut down
CSCdv31700	BLOCK: improperly error handling when addchanloop and delchanloop
CSCdv31839	SLT/JUP:AXSM Humvee prematurely declare major alarm and link shutdn
CSCdv31893	VSICORE: Resync was not handled properly for VC Merge connection
CSCdv32157	RPM 1:N Redundancy lost on setrev
CSCdv32370	DLS: xbarfabric alm did not appear after runrev
CSCdv33077	OAMLB:resetcd causes some chanloop initialization failed
CSCdv33196	Connection resynch request NOT received by Legacy SM
CSCdv33320	DLS:AXSM showed failed conn to be operationally up
CSCdv34404	Pri Sec Mismatch when Secondary Section in SF & remote APS added bac
CSCdv34426	UPG: syncRAMdb detected when one of the redundancy AXSM reset
CSCdv35386	OAMLB:same and un-meaningful error message for wrong actions on addc
CSCdv35548	upgrade from 2.0.13 to 2.015 on red.AXSM pair causes alarm inconsist
CSCdv35559	OAMLB:Valid OAM cnt increments when sending undefine OAM cells
CSCdv35661	BLOCK: addchanloop failed on conns with both edpts/rtpts on same cd
CSCdv35677	AXSM CLI should allow for provisioning VCC with VCI < 32
CSCdv38031	AXSM stats : CON files need to be zipped and sent to CWM
CSCdv38053	Floating Exception caused card reset w/ device driver as rsttype
CSCdv39732	SHM:dspprfhis time unmatched with system time

Table 37 Anomalies Resolved in Release 2.1.70 (continued)

Anomaly ID	Description
CSCdv40211	Node gets busy does not allow user to execute command when upilmi
CSCdv40230	QE configuration is not restore correctly after delchanloop
CSCdv40509	rpm_port status on rpm card differs from PXM database
CSCdv40835	Jup: a active rpm (secondary) failed on softswitch to standby
CSCdv42482	Standby stays in Empty Resvd after Restoreallcnf.
CSCdv42608	DLS:AXSM show conn to be failed, while PXM shows conn is up
CSCdv42771	Reschedule offline diag on PXM does not cancel previous timer
CSCdv43232	DLS: Online diag error on switchcc/resetcds
CSCdv43371	Error in code related to diagnostics on standby card
CSCdv44062	Operational Status UNKNOWN trap generated after deleting RPM subif
CSCdv44690	dspredInfoPtr is uninitilaized in function shmProcCliDspRedMsg
CSCdv45070	DLS:AXSM shows routed SPVC to be in CONDN when UNI port is down
CSCdv45241	AXMB:OC3 1+1APS; Pline in SF state after reseat front card.
CSCdv45755	REG21:Standby PXM not getting updated when PGL priority changed to 0
CSCdv45835	REG21:No PGL elected when PGL priority changed & switchcc done
CSCdv46609	none ports getting reported to ccm
CSCdv46616	clrspvcnonpers on none ports- problems due to ccm
CSCdv46842	SLT: For one line both active & prot. line go SF after BC reinserted
CSCdv47078	AXSME detects Path Trace Mismatch and generates RDI-P
CSCdv47100	SCR in VSI Commit message filled wrongly for CBR3 connections
CSCdv47136	Upgrades: abortrev/setrev from 3.0 has errors when rebuild from disk
CSCdv47168	UPGRADES: reset standby card after loadrev complete get clrallcnf
CSCdv47189	delred does not work on RPM slot if prim & sec slots are EMPTY
CSCdv47372	AXSM-E: roots conns dangling after toggling VC merge
CSCdv47410	APSAnxB:Pnport down after delapsln on both ends with prim card activ
CSCdv47448	AXMB:OC12 1+1APS; R&R BC, both WL&PL in SF; remote PL stuck in SF
CSCdv47962	DLS:Working line goes into SD after forced switch to it.
CSCdv48339	REG:saveallcnf did not save the configuration on a node
CSCdv49668	Missing varbind #10 from trap 60156 and 60157
CSCdv49932	tstdelay on XPVP connection (pop1/ausm-8t1 to pop2/axsme-oc3) failed
CSCdv51689	Cannot route and terminate calls with TNS
CSCdv52151	Fix for CSCdu75634 not correctly implemented post-2.1(60)
CSCdv52164	SLT: cons fail due to VP is not set(should be set) in MPG
CSCdv52479	Re-insertion of b/c caused SD on lines on other b/c
CSCdv54606	Checksum error found in alarm file on Jup node
CSCdv54801	RPM-PR cannot boot up after 1:N Redundancy
CSCdv54875	SVC calls cannot go through
CSCdv55210	popup message update_slow_filter:empty slow match list appearing.
CSCdv55257	display of the default values in dsppnctlvc is incorrect.
CSCdv55598	When provisioning 10k connection, 6k failed, no indicating the cause
CSCdv56021	AXSM-E: Getting VSI error when LSC resync with AXSM-E upon switchred

Table 37 Anomalies Resolved in Release 2.1.70 (continued)

Anomaly ID	Description
CSCdv57867	Auto-Deletion of Trap Manager(s) must be supported: PER-3417
CSCdv58178	Port failure when one Tx and Rx of an aps pair is failed
CSCdv58746	60302 not send out when conn created failed,chanID reused in new con
CSCdv59242	NCCI ATM addr not getting de-regd on stby - mem not freed
CSCdv59346	PSBF getting declared erroneously when SF on Prot Line at Far End
CSCdv59696	CIT30:sscop sends errors due to corruption of frame trailer.
CSCdv61068	Customer needs events related to port up/down in system lo
CSCdv62195	SLT:Checksum not in the configuration file
CSCdv63740	After changing SES nodename to small one, conn shows part of old name
CSCdv64431	SysDiag: online diag error is not updated in SysDiag DBs
CSCdv64521	Virtual path alarms are not working.
CSCdv64906	channel lpbk does not work with ABR conn with VSVD.
CSCdv65489	OD: PXM45 online diag error is ignored. Its statistics are incorrect
CSCdv65508	diskDb: dbIntFailSlotsTrapSend() memory leakage
CSCdv65541	APS Lockout fails when Remote has SF on Protection Line
CSCdv67271	OD: not able to add more than 49998 connections on node
CSCdv67375	SLT: PXM got rst in SES shelf and IPC buffer leaks after configuration
CSCdv67998	xpvc provision fail, mesg conn doesn't exist in cPro db
CSCdv68030	Insufficient array size in snmp-ma can lead to system crash
CSCdv68138	snmpProxy Exception on switchcc of PXM1E
CSCdv68523	SNTP: svcifconfig with nodal atm address caused pxm45 crashed.
CSCdv68632	REG21: avail cell rate not decremented for AXSME ports routing spvcs
CSCdv70276	Restoreallcnf fails saying it cannot deltree
CSCdv70404	upg: Data Bus Error encounter during node sync after DB Extraction
CSCdv70619	RM discard counter is not correct in dspchancnt.
CSCdv71072	LAN flooding causes snmpMgmt run away, PXM reset
CSCdv71518	REG21: xbar status inconsistent b/w standby PXM45 and AXSMs
CSCdv71784	SLT:CDV/CTD can be modified to 0/-1 for AXSME connection
CSCdv71971	CIT30: svc call can get through even when -svcblock ON on via node.
CSCdv72191	SSI: Provide shellconn functions to detect and recover chunk leaks
CSCdv72612	Cannot add redundancy on RPM cards
CSCdv73084	REG21: AXSME online diag failure b/c CC_CELL_CONNECTION_FAIL @ bay 0
CSCdv73141	duplicate entries in dspchanloop and they cannot be deleted.
CSCdv73601	dspchancnt -r has very poor granularity in the cell stats
CSCdv73701	CIT30: dangling SVC on IISP interface.
CSCdv74771	dsppnni-path command does not update SPT when bw becomes available
CSCdv75571	Set/Clear of ReservedSlotPtr not being done properly
CSCdv75575	FAS: Remote File access timeout due to incorrect file locking
CSCdv76788	clrdiagerr did not restart AXSM-E online diag test
CSCdv77401	Via and end node had pnCcb exception after pathtrace enabled.
CSCdv77868	dsppncons -type ctrl output loops

Table 37 Anomalies Resolved in Release 2.1.70 (continued)

Anomaly ID	Description
CSCdv77874	FAS is using freed ipc message (causing standby to stay in stage 1)
CSCdv78258	Multi-point connections not bulk synced
CSCdv78321	XBAR:Xbar err not reported on PXM45 the second time unless print don
CSCdv78414	Incorrect handling for active Slave Pep in ConCommit Q when rx Setup
CSCdv79353	SysDiag ignore online diag error after switchcc (see CSCdt46582)
CSCdv79733	DEV: ADDR-5-ADDR_ERROR in dsperrs after reroutes
CSCdv80455	Popup on nodes running AXSM image
CSCdv80960	put network debug tools into CLI commands
CSCdv81531	REG21: nni port stuck in down in progress
CSCdv81644	AXSM-E: Connection Reassert Error upon toggling vc-merge
CSCdv81833	Port stuck in down in progress
CSCdv82064	PXM45 doesn't send complete Revision number in Config upload file
CSCdv82164	File locks are not given up in the FileAccessServer
CSCdv82348	SLT:Unable to make nrtvbr SVC calls from MGX8850R2 consistently
CSCdv83144	APS Annex-B, Receiving 4 extra cells after Forced Switch
CSCdv84169	Make LAN default secondary mgmt interface
CSCdv84265	config_verify: using multiple tools requires user interaction
CSCdv84308	config_verify does not produce detailed AXSME connection data
CSCdv84361	JAN:ssiMemChunkAssign() chunk corrupted in CMTask
CSCdv84895	After replacing the chassis can't restore previous cnf with stdby pxm
CSCdv85820	trap order not correct for 60082, 60052, 60055 in switchback rpm-pr
CSCdv85993	AXSME HW revision incorrect
CSCdv87157	CIT30:Pep mismatch between act/stdby PXMs after resetting AXSM.
CSCdv88161	IPFR xpvc connection fails first attempt with invalid error messages
CSCdv88924	SLT: SAR sends error not receiving trap after switchcc
CSCdv89142	SLT:Constant node resync caused by -2 trap
CSCdv90344	SLT:Constant node resync caused by -2 trap
CSCdv90453	xconnect setup failed timeout on LSC
CSCdv90737	DEV: SVC ABR call w/o ABC MCR fails
CSCdv91293	REG21: SVC fails if passAlongCap on remote pnni port disabled
CSCdv91322	npeg1: Router crashed running 2 xPOS fast switched
CSCdv91332	Standby PXM45 Failed to come to standby
CSCdv91334	tons of 60401 traps generated when switchcc of pxm45 cards
CSCdw01349	Port in down-in-progress for a long time
CSCdw03474	bookfactor is not applied when cbr pcr > configured bw.
CSCdw05198	PXM rejects modification on master end of connection say networkbusy
CSCdw05363	PXM software error reset core dumps after offline diag started
CSCdw05534	upg: Coredump on OC48 redundant pair upgrade. Online diag failed
CSCdw06681	REG2.1: NNI pnport is in down in progress state
CSCdw07416	mismatch stat value for Egress CLP1 cells discarded (stat ID 9)
CSCdw07942	REG21:cnfcon -frame option does not work on SES shelf

Table 37 Anomalies Resolved in Release 2.1.70 (continued)

Anomaly ID	Description
CSCdw09128	ACR does not rate down effectively under congestion
CSCdw09499	Invalid ResetReason received with ShelfRestart trap 60004
CSCdw09693	Enhance RMI to recover from window maxing out conditions
CSCdw10046	No traps/event logs when feeder LMI fails
CSCdw10074	No traps for SF/SD conditions (when no switchover)
CSCdw10629	CIT30:AXSM card became Empty Resvd/Empty after abortrev
CSCdw10812	Few SPVC are in temporary failure.
CSCdw11917	dbgfailsvc does not get failure node information
CSCdw13155	should not have more than 192 interfaces in pnni
CSCdw13285	Jup&MGX:dspcds show RPM backcards active regardless they are empty
CSCdw13381	REG21:Offline diag did not run on PXM and card in empty rsvd state
CSCdw15489	diag: offline fail when node reset/switchcc/cnftime occurred.
CSCdw16283	Unable to ftp complete SES stats file for the 100k network
CSCdw17365	Duplicate key instances in the Connection stats files from AXSM-E
CSCdw17431	REG21: standby PXM1 failed after clrallcnf/restoreallcnf in SES PNNI
CSCdw21654	Reboot command failed to reboot the card
CSCdw21901	Offline diag failed on stdby pxm45: HDD file sys related failure
CSCdw23117	Standby PXM45 takes too long to come up.
CSCdw38893	rmi sync problem causes dspbecnt/dspapslns/dsplns problems
CSCdw39431	cpro task hogging semaphores - resulting in CWM sync problems
S3 Bugs	
CSCds18548	Zenith Card Type for VSI slaves CTC registration
CSCds25915	Add a new command dspstbyclksrcs
CSCds64512	Need support for Jup DC PEMs, new PSUs
CSCds81130	Plug and play option for port is not working.
CSCdt52074	DLS:Line alarm severity should be higher in event log
CSCdt53946	DLS:Event log messages for VC lookup failed
CSCdt53954	DLS:Event log messages - halfLeg removal failed
CSCdt60594	DLS:Event Log:QE48 SAR error and mem block assignment messages
CSCdt79438	Fix Compiler Warning.
CSCdt95907	Need one command to show amt of bw available and overbooking info
CSCdu28121	DLS:Card removal/insertion messages should be logged as Sev 1-4
CSCdu47283	Coredump feature enhancement tracking bug
CSCdu62578	Jup: RPM-PR backcards can not be detected with dspcds
CSCdu69697	AXSM CLI addport syntax help display left out VUNI type 4
CSCdu71393	DLS: popup--relMsgCount: 0 endpoints 100 time since swo 70
CSCdu73090	AutoShut: HMM log gives incorrect slot number for Xbar errs
CSCdu75603	Check-in ID for stats changes per CWM request.
CSCdu77909	Diag:dspdiagerr record cleared after switchcc, SW need improved
CSCdu82183	Node Name change via SNMP is not reflected in Feeder
CSCdu82562	REG_21:improper error message when enabling ilmi on VNNI w/wrong vpi

Table 37 Anomalies Resolved in Release 2.1.70 (continued)

Anomaly ID	Description
CSCdu86488	DLS:Reroute perf. affected by conn teardown/setup race condition
CSCdu87737	SRM -- snmpwalk on ifTable cause buffer leak
CSCdu88108	pnCliTask stack usage exceeds the 70% margin and floods the log
CSCdu88446	snmpget returns NOSUCHNAME for a registered trap manager
CSCdu89296	MGX8850-snmpgetnext operation on AXSM cards not working
CSCdu89595	With RDI Fix a switchaps causes momentary port down.
CSCdv00091	Incorrect handling of VSI NAK reason codes 11 and 12
CSCdv00733	DLS:Evt.Log:switchcc caused SPVC-RAM-DISK AUDIT error msgs.
CSCdv03305	dsplog -mod CRDMP only show 5 open/close pairs for 8 AXSM coredump
CSCdv03937	AXSM-E T3/E3 card shows similar configs for upper and lower bays
CSCdv04762	check-in Id for CWM request line stats change
CSCdv05265	FC descrip for AXSME card are not in the ext-poll from boot
CSCdv05710	PREfix: Using uninitialize tmpFileName[] in minicsr_clean_zipfile()
CSCdv05978	Netbase modules event log cleanup
CSCdv09384	int_vsvd & ext_vsvd in atm_connection DB not sync up for axsme
CSCdv09393	checkin ID for diag and stats
CSCdv11263	SPVCs are derouted during sync failure in IFFM Conn Cmt
CSCdv11854	clrallcnf works inconsistently on RPM slots
CSCdv14381	dsplog cleanup for resetcd, switchred and switchcc
CSCdv14409	AXSME rejects SCT Cosb CLR value 15
CSCdv17268	cnfalm command for AXSME does not have support for e3 line.
CSCdv17318	VPI for a VNNI port can be set to 0
CSCdv19048	Evtlog: Severity-4- resync error occurred
CSCdv19681	Bad values in ifTable
CSCdv19871	strcpy err
CSCdv21177	QE Sar Dispatcher attempts an unnecessary message free operation
CSCdv21653	No notification to user about ethernet link failure
CSCdv22430	Offline diag should generate traps when it fails (SW Enhancement)
CSCdv22864	Status Enquiry retries do not happen second time
CSCdv23177	PNNI route agent should exclude interfaces which are not up in IFM
CSCdv25125	AXSME-RED: spvcm_logged error during node rebuild
CSCdv26359	DLS: popup on AXSM after runrev executed.
CSCdv27524	Need master/slave filter on dspconcnt and dspcons
CSCdv28449	Alarm update interval should be faster
CSCdv29799	DLS:spvcHelp command output appears on all telnet sessions
CSCdv29805	DLS:switchapsln results in switch failed due to some unknown reason
CSCdv29813	DLS:Evt.Log:SSI-MEMBLKERROR/SSI-PARMINVALID msgs during configuration
CSCdv30045	Use FreeOctetString when MakeOctetString is used
CSCdv30929	Memory leak for conntrace
CSCdv33190	Enhance miniCsr to a) take slot# b) not delete DB dir from restore

Table 37 Anomalies Resolved in Release 2.1.70 (continued)

Anomaly ID	Description
CSCdv34005	Changes to clean up the MSG files in the pxm cm code
CSCdv34338	DIAG: cannot schedule offline diag more than 1-day in advance
CSCdv34471	DLS:dspcon error message generated on all open telnet sessions
CSCdv35333	Need to zip the stat files for storing it on the RAM DISK
CSCdv35399	Remove double reference to HMM_DEVTYPE_HUMVEE in hmm_pxm.c
CSCdv35569	pncac not proper on particular cards after upgrade 2.0.13-2.0.15
CSCdv36199	Need R/W test coverage for BRAM, HDD in PXM45 offline diags
CSCdv36558	Change Axsm Alarm Reporting for Customer change of dspcdalm
CSCdv36812	Interworking b/n 2.1 and 3.0 nodes with Gat PerUtilIE results in dro
CSCdv36928	800 dash number not consistent
CSCdv36941	do not append additional params in EQOS IE in outgoing Setup msg
CSCdv39156	Adding VNNI port with certain VPI wrongly rejected
CSCdv39167	shm Set function is copying the wrong information in the fields
CSCdv39207	Introduce dspadjlnalm cmd to display adjacent line alms for aps line
CSCdv39735	MSG Sev1 - Sev4 Documentation - SPVC/CONPRO Module
CSCdv39751	Add ASIC Core Dump support for QE1210, CBC, and SABRE1210
CSCdv39925	MDC enhancement and warnings clean up
CSCdv40099	Add Rx directional oversubscribed information to dsppnportrsrc
CSCdv40142	Bad SNMP Trap sent when default SPVC Prefix is configured
CSCdv40294	Add ASIC core dump support for switching fabric ASIC
CSCdv40350	Need event logs when SNMP set/get operation fails on conns
CSCdv40715	DB2: UPdate msg files
CSCdv41892	DLS: dspdisk command shows more free space then allocated size.
CSCdv42305	DLS: Incorrect error message for cnfsig command.
CSCdv42828	Compare only priority of current in Delete CLock processing
CSCdv43406	SF doesn't clear after BERT tester is stopped with WLine removed
CSCdv43701	Upgrades: the STBY_SLOT_UPD_INFO contains no versioned info
CSCdv46101	Changes to clean up the MSG files in the pxm shm code
CSCdv46108	Add more description, troubleshooting information in event msg files.
CSCdv46656	MGX/BPX: Incompatible info_length interpretation in sys_cap IG
CSCdv47106	APSAnxB: section mismatch in active line only when lockout cleared
CSCdv49344	VcMerge & Multicast connection: delete failure handing and logs.
CSCdv49699	Prot. Line goes into SD after autoswitch
CSCdv49738	REG21:Scope in n/w addr. table different than one configured
CSCdv49987	accessing pointer after freeing memory
CSCdv50522	DB2: Remove obsolete CLI commands
CSCdv50787	All 8 HUMVEE xcvr are enabled
CSCdv51387	Reference to non-existent SCT file during upgrade.
CSCdv51523	ENVMON: need support for fourth PSU in Jup chassis
CSCdv52005	Cleanup: change all the memcmp on the revision to use shmRevCmp fcn
CSCdv53433	Add a high watermark variable to track writing RAM Disk

Table 37 Anomalies Resolved in Release 2.1.70 (continued)

Anomaly ID	Description
CSCdv55514	Event log definitions/TAC details/Recommended Actions Enhancements
CSCdv56487	Event logging changes for atmsig/CC modules
CSCdv58411	memory not freed if addition of a new interface fails
CSCdv60729	cleanup of ipc related enhancements
CSCdv68551	dspcon d47185 does not clear port RX RDI on a dex connection.
CSCdv68569	cwTrapLineModuleNumber value is not correct in some Back Card traps
CSCdv70651	remove redundant code to avoid erroneous error log.
CSCdv76794	Rename the file to the same file will cause file system corruption
CSCdv79379	AXSM Diag: resend RESULT_IND message to SysDiag
CSCdv79389	AXSME Diag: resend RESULT_IND message if not receive SysDiag confirm
CSCdv80445	AXSM: dspchancnt does not work for vc-merge connections
CSCdw03321	sync-up for connection update is too long
CSCdw03642	VSICORE: ConnCmt w/ local processing is not forwarded to stdby
CSCdw05442	upg: Single went into failed during runrev
CSCdw06349	Popup error messages from cnfpnni-intf
CSCdw06725	The event log on active card for major error on standby not good

Anomaly Status Changes in Release 2.1.70

Table 38 lists anomalies that have changed status in Release 2.1.70.

Table 38 Anomalies that Have Changed Status in Release 2.1.70

Anomaly ID	Description
S1 Anomalies	
CSCdt80393	pxm in slot 7 shown as empty reserved after doing a switchcc (7 to 8); Unreproducible
CSCdv14596	AXSME-RED: all the cards were getting crossbar error on node; Closed
CSCdv30024	DLS:PXM in continuous reboot mode after replacement of HD on node; Duplicated
CSCdv40153	AXSME-RED: standby pxm continuously reboot; Closed
CSCdv48326	stdby PXM card Went into Failed state on sysBackupBoot; Duplicated
S2 Anomalies	
CSCdu32920	AXSME_APS: Plug in stby PXM45B caused device driver err; node reset; Duplicated
CSCdu35571	AXSME_APS: AXSMB does not clear card alarm state MAJOR; Unreproducible
CSCdv02677	During offline diag and after switchcc, need to send ready ind again; Unreproducible
CSCdv12161	dspconinfo on pxm45 shows different count than RPM; Unreproducible
CSCdv16846	DLS:PXM45 stuck in empty/reserved state; Closed
CSCdv22579	DLS:Brown-out testing:AXSM/B OC12 card went into mismatch; Closed
CSCdv25110	AXSME-RED: watchdog timed out, standby pxm got reset; Unreproducible

Table 38 Anomalies that Have Changed Status in Release 2.1.70

CSCdv38370	DLS: after loadrev, stdby PXM hangs at init, resets and core dumps; Duplicated
CSCdv40211	Node gets busy does not allow user to execute command when upilmi; Unreproducible
CSCdv40313	SPVC connections cannot get routed (failed). BW and channels available; Closed
CSCdv41618	AXMB:OC3 1+1APS; WL in SF, reject Forced P->W; Lockout P->W,PL in SF; Closed
CSCdv43536	DLS: Inconsistent alarm reporting.; Duplicated
CSCdv45704	Connection count between PXM mib database and RPM doesn't match; Unreproducible
CSCdv46114	SLT:SM_ALARM file has 0 bytes; Unreproducible
CSCdv46195	SLT:SM_CON_UPDATE file is empty for pop-2 and jup; Unreproducible
CSCdv47316	RPM Redundancy switchover generates sub-if deletion, conn alarm trap; Duplicated
CSCdv48323	DLS:AXSM core dump/diag failed after switchredcd; Duplicated
CSCdv48884	T1:Upper BCard R&R causes 3 Wlines to go into SF; Duplicated
CSCdv49080	LMI alms appear on feeder when connections are in alarm.; Duplicated
CSCdv49623	DLS:Deleting slave end caused master to go into mismatch; Closed
S3 Anomalies	
CSCdt53948	DLS:Event log messages for CTC app event handler failed; Closed
CSCdt61868	Tag-vc goes into bindwait state on UNI port; Closed
CSCdu70336	DLS: stbyPXM did not update fan tray information after switchcc; Closed
CSCdu80634	AutoShut: NVRAM chksum failure (UIBC) occurs after resetsys; Duplicated
CSCdv08270	DLS:SD took 1 min to clear after LOS cleared (delapsln/addapsln); Closed
CSCdv17142	DLS: explanation for blocking of switchcc after switchredcd/resetcd; Closed
CSCdv18980	EvtLog: DOSFAIL messages -opening/reading/closing the files; Duplicated
CSCdv19080	Evtlog: Severity-4-FIPC invalid FIPC passed as an argument.; Duplicated
CSCdv32683	Evt.Log: NOVRAM infoGet failed message appeared after switchcc; Duplicated
CSCdv33539	Evt.Log: New COS max BW out of bounds message in dsplog.; Unreproducible
CSCdv33552	Evt.Log: Source string long then Dest Buffer Size.; Duplicated
CSCdv33710	Evt.Log: PnNet/ILMI/attempt to add duplicate address; Duplicated
CSCdv40632	DLS: Trap 60007:cwIpAddressChange not generated when IP address rest; Closed
CSCdv40668	DLS: Node IP address changes lost after sysFlashBootBurn; Closed
CSCdv41974	DLS: No error syntax message for the cnfrrtparm command; Closed
CSCdv47185	DLS:AXSM core dump; Closed

Known RPM-PR/MPLS Anomalies

Table 39 lists the anomalies that pertain to the route processor module and the MPLS feature.

Table 39 Known RPM-PR/MPLS Anomalies

Anomaly ID	Description
S1Anomalies	
CSCdv07798	Symptoms: receiving side of rpm-pr dropped 50% traffic when it should not drop Condition: None Workaround: None
CSCdv09704	Symptoms: RPM-RPM vbr traffic drops below scr rate Condition: None Workaround: None
CSCdv19084	Symptom: ABR/VBR-nrt does not work correctly on RPM-PR if the CB clock is set at 21Mhz. The PCR or SCR values or not enforced correctly. Condition: Traffic shaping test ABR/VBR-nrt with CB at 21Mhz Workaround: Change CBC to 42Mhz but better with another card on the same CB. Or design the shaping values to accommodate this variation.
CSCdv19895	Symptom: RPM-PR and FRSM Interop. Condition: During the connection management Workaround: Unknown

This document is to be used in conjunction with the documents listed in the "Related Documentation" section.

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