Xedge MSPx Version 7.2.4

System Software Release Notes

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Documentation

Revision History: GDC P/N 032R901-V724

Issue	Date	Release Description
1	February 2011	Initial Release of Xedge Switch Software Version 7.2.4 (P/N 200U300-C01)
2	July 2011	Correction to list of fixes in this release.

Related Publications

Description		Part Number
Xedge/ProSphere System Quick Reference (all models/version)		032R299-000
Xedge System Hardware Installation Manual (all models/versions)		032R440-000
Xedge 6000 Ver. 6.2.X Configuration Guide Xedge 6000 Ver 6.2.X Diagnostics Guide Xedge 6000 Ver 6.2.X Release Notes Xedge 6000 Ver 6.2.X Cumulative Patch Notes Xedge 6000 Ver 6.2.X Technical Reference	(for Ver 6.2X Slot Controllers/LIMs only)	032R400-V62X 032R500-V62X 032R901-V62X 032R901-V62X-XX 032R310-V62X
Xedge MSPX Ver 7.X Configuration Guide Xedge MSPX Ver 7.X Release Notes Xedge MSPX Ver 7.X Cumulative Patch Notes	(for Ver 7.X Slot Controllers/LIMs only)	032R401-V7XX 032R901-V7XX 032R901-V7XX-XX
ProSphere NMS Version 5.X User Manual		032R610-V5XX
ProSphere NMS Version 4.4.0 Installation and Release Notes (CORE, XEM, GFM and MVS) ProSphere NMS Version 5.X Installation and Release Notes (CORE, XEM, GFM and SPM)		032R906-V440 032R906-V5XX

–REV is the hardware revision (**–000**, **–001**, etc.)
–VREV is the most current software version (**–V510, V620, V720,** etc**.**)
In addition to the publications listed above, always read the Patch Release Notes supplied with your products.

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Section 1 - Xedge MSPx System Software Version 7.2.4

1.0   Overview

This document is provides software installation and additional operation guidelines for Xedge MultiService Packet Exchange (MSPx) Version 7.2.4 which supports the Xedge ISG2, PCX, PCX2, or PCL slot controllers and their associated LIMs. In addition to Version 7.2.x controllers, an Xedge switch can house a wide variety of Xedge adaptation and cell controllers that operate under Version 6.2.x switch code; however, those controllers can only be installed in nonslot-0 positions in the switch.

For detailed installation or operation procedures, refer to the Xedge MSPx Configuration Guide listed in the front of this document. For compatible Xedge switch products supported under Version 6.2.x, refer to the associated Xedge 6000 documentation.

Additional information is available at **http://www.gdc.com** or from your Authorized Xedge/ProSphere field service representative. Always refer to the Cumulative Patch release notes that accompanied your Xedge upgrade for important feature information.

2.0   New in Xedge Version 7.2.4

This version of the Xedge MSPx software adds the following hardware and software functionality:

For PCX, PCX2, ISG2 only:

- Supports SNMPV3

PCX2 only:

- High performance Fast Routing with Network Processor (NP) assist. *(For Beta testing only)*

- PseudoWire over IP Tunnels *(For Beta testing only)*

- LSP (Label Switch Path) Protection

For PCX / PCX2 only:

- PTP - IEEE 1588 Precision Time Protocol. In this release, the PTP feature can be used for transport of CE/SIO, VSM or LCE16 synchronous circuits via the FE or GE uplink of a PCX controller. *(For Beta testing only)*

3.0   Fixed in Xedge Version 7.2.4

In this version, the following conditions have been resolved:

- (MR10211) SPVC intermittently did not connect after ISG2 red switchover.

- (MR10299) Tunnel Management allowed a stopped tail/transit to go **Admin Down**.

- (MR10320) PCX1: Eight or more PHE/LSP interfaces caused PCX1 to keep rebooting.

- (MR10327) PHE creation error **sf cannot create vc** was displayed as **available bw error** in the detail.

- (MR10335) Tspec MIB incorrect; did not match PCX.

- (MR10334) MOLN not working (Legacy and Tunnel)

- (MR10350) SAP could not change Max SAP rate on SAPs.

- (MR10358) PVC grabbed Resman and SPVC could not start.

- (MR10362) PCX2 restarted after enabling FE/MPLS/10.1.1.1/30

- (MR10364) In the PCX2, SPVCs for Mezz services were taking resources from ATM0 rather than ATM1.

- (MR10370) Event table overflowed with ASIO timing stats PCX and ACP.

- (MR10376) In PCX2, EoATM over ATMoMPLS+Tspec+PVC cfgd for 100 Mbps passed 70Mbps.

- (MR10383) In IP Tunnel PW: Scr IP remains displayed after an error condition s/b cleared.

- (MR10391) In PCX2, VLANoATM over ATMoDM+Tspec+PVC configured for 12 Mbps had errors.

- (MR10394) LOS alarm not working on ASIO trap sent from slot controller

- (MR10403) Tspec users stuck after killing a Frame Policy. Only cleared after reboot.

- (MR10405) IP Tunnel state remained up with OSPF route removed.

- (MR10406) System allowed duplicate PW labels without error check/message.

- (MR10409) GE ports with fast route enabled and without Frame Policy dropped packets.

- (MR10410) Field needed to indicate MAC resolution in the DM Tunnel MIB; should be static or ARP.

- (MR10422) For PCL, traffic stopped when T1s took excessive hits.

- (For PCL) Version 724 provides a fix for a known problem where data would stop passing from the IMA T1/E1's toward the DS3/E3. GDC engineering has found that the Mitel Semiconductor Octal IMA/UNI PHY device can inexplicably forward received IMA control and Idle cells toward the PCL. When the FPGA on the PCL basecard received these unexpected cells, the FPGA inadvertently created a loop condition, which would halt traffic toward the DS3/E3 interfaces. Xedge Version 724 contains a modification to the basecard FPGA which detects and removes the unexpected IMA control and idle cells, hence removing the looping/lockup condition.

4.0   New/Changed MIBs

- New MIB: ptp.mib

- Shifted the Loopback IP Addr from M-84-0 to M-94-22. Code is there to take care of backward compatibility.

- Files mibs/apexCommon.mib and ../../723v4a/mibs/apexCommon.mib differ: SnmpV3 Changes - Includes Authentication and Traps

- Files mibs/apex.mib and ../../723v4a/mibs/apex.mib differ: Introduced Frame Policy Descriptor for Fast Routing

- Files mibs/apexSlot0.mib and ../../723v4a/mibs/apexSlot0.mib differ:
  SnmpV3 security, New Slim Type.

- Files mibs/apexVc.mib and ../../723v4a/mibs/apexVc.mib differ:
  Number of SVC changed from 4000 to 2000 for P_Series

- Files mibs/dlsplim.mib and ../../723v4a/mibs/dlsplim.mib differ:
  Added a new enum to scfClkSel called **loop**

- Files mibs/evc.mib and ../../723v4a/mibs/evc.mib differ:
  Obsoleted proSphereFrameTspecMapTable,
  Added framePolicyDescTable,
  Added a new Trap ethPhyLinkAlarm

- Files mibs/gdcPnni.mib and ../../723v4a/mibs/gdcPnni.mib differ:
  Added a new Field pnniSwitchToPnni

- Files mibs/ipCfg.mib and ../../723v4a/mibs/ipCfg.mib differ:
  Added ipNodeConfig,
  Added BGP and Other fields to the IpIntfCfgTable,
  Added IfState and Uptime to the OsfpNbrTable,
  Added ipFastRouteTable,
  Moved arpStatusTable from MPS-TE-STD-MIB.mib,
  Moved loopbackIpAddr from MPLS-TE-STD-MIB.mib to ipNodeConfig

- Files mibs/MPLS-LSR-STD-MIB.mib and ../../723v4a/mibs/MPLS-LSR-STD-MIB.mib differ:
  Consolidated LSR and TE Mib to under one MPLS Mib Tree.

- Files mibs/MPLS-TE-STD-MIB.mib and ../../723v4a/mibs/MPLS-TE-STD-MIB.mib differ: Changed loopbackIpAddr to obsoleteloopbackIpAddr under mplsTeStdMIB,
  Added mplsTunnelPWUseCount and mplsTunnelCorrelationTag,
  Added dmTunnelTransportType for Dry Martini MIBS

- Moved arpStatusTable to IpConfigTable

- Files mibs/xlim.mib and ../../723v4a/mibs/xlim.mib differ:
  Added slim(30)

5.0   Version 7.2.4 Components

The table below lists slot controllers and LIMs supported in Xedge Version 7.2.4, and their required software files, if any. Refer to this list during software installations and upgrades to ensure that correct files are downloaded to each module.

Table 1: Hardware /Software Reference

Product Description	Label	Required Files	Part Number
Slot Controller, IP Services Gateway Module	ISG2	`startup_isg.tz` `startup_isg_pnni.tz`	200P001-002
Slot Controller, Packet Cell Switch with Utopia LPM-1	PCX2	`startup_pcx2.tz` `startup_pcx2_pnni.tz`	200M010-001
Slot Controller, Packet Cell Switch with Hybrid LPM-2	PCX2		200M011-001
Slot Controller, Packet Cell Switch with Serdes LPM-4	PCX2		200M008-001
Slot Controller, Packet Cell Switch with Utopia LPM-1	PCX	`startup_pcx.tz` `startup_pcx_pnni.tz`	200M001-001
Slot Controller, Packet Cell Switch with Hybrid LPM-2	PCX		200M002-001
Slot Controller, Packet Cell Switch with Serdes LPM-4	PCX		200M003-001
Slot Controller, Packet Cell Link with LPM-1	PCL	`startup_pcl.tz`	200M006-001
LIM, 8-port OC-N/STM-N for Singlemode or Multimode SFP inserts	OC-N/STM-N	`oc12.cod`	200-P003-001
LIM, Legacy Circuit Emulation 16 Link	LCE-16	`lce.cod`	032P187-001
LIM, Dual-port, short reach, OC-3c/STM-1 w/single port APS	155M-2	`oc3.cod`	032P150-011
LIM, Dual-port, intermed reach, OC-3c/STM-1 w/single port APS	155I-2	`oc3.cod`	032P150-012
LIM, Dual-port, long reach, OC-3c/STM-1 w/single port APS	155L-2	`oc3.cod`	032P150-013
LIM, Dual-port, short reach, OC-3c/STM-1, w/dual port APS	155M-APS	`oc3.cod`	032P150-001
LIM, Dual-port, intermed reach, OC-3c/STM-1 w/dual port APS	155I-APS	`oc3.cod`	032P150-002
LIM, Dual-port, long reach, OC-3c/STM-1 w/dual port APS	155L-APS	`oc3.cod`	032P150-003
LIM, Dual port, STM-1 Electrical LIM for ATM transport	155E-2	`oc3.cod`	032P151-001
LIM, DSX-1 8-link Inverse Multiplexing for ATM	DSX1-IMA	`e1ds1.cod`	TBD
LIM, E1 8-link Inverse Multiplexing for ATM	E1-IMA	`e1ds1.cod`	TBD
LIM, DSX-1 16-link Inverse Multiplexing for ATM	DSX1-IMA	`e1ds1.cod`	032P153-003
LIM, E1 16-link Inverse Multiplexing for ATM	E1-IMA	`e1ds1.cod`	032P153-013
LIM, DSX-1 16-link Inverse Multiplexing for ATM	DSX1-IMA+	`e1ds1.cod`	032P153-023
LIM, E1 16-link Inverse Multiplexing for ATM	E1-IMA+	`e1ds1.cod`	032P153-033
LIM, Quad Port Adaptive Serial I/O LIM --	ASIO	--	032P194-001
T1 BITS Node Timing Module	NTM-DS1	`ntm_t1.bin`	032P062-001
E1 BITS Node Timing Module	NTM-E1	`ntm_e1.bin`	032P089-001

6.0 Version 7.2.4 Software Files

The table below lists the Xedge MSPx Version 7.2.4 software files provided on the Xedge Switch Software CD-ROM. Note that file sizes will change with a subsequent patch release.

Table 2: Software Reference Information

Directory	Filename & Description	File Size	Version
\dir1\cod	`startup_isg.tz`	3212849	7.2.4
\dir1\cod	`startup_isg.tz_pnni`	3520410	7.2.4
\dir1\cod	`startup_pcl.tz`	3692185	7.2.4
\dir1\cod	`startup_pcx.tz_`	8269071	7.2.4
\dir1\cod	`startup_pcx.tz_pnni`	8576947	7.2.4
\dir1\cod	`startup_pcx2.tz_`	6583107	7.2.4
\dir1\cod	`startup_pcx2.tz_pnni`	6891558	7.2.4
\dir1\cod	`e1ds1.cod`	98512	7.2.0v9
\dir1\cod	`lce.cod`	225126	6.2.0v30
\dir1\cod	`oc12.cod`	229194	1.0.5
\dir2\mib	`aa15.mib`	--	7.2.0
\dir2\mib	`AHEAD-IMPORTS-MIB.mib`	--	7.2.0
\dir2\mib	`AHEAD-PW-ENET-MIB.mib`	--	7.2.0
\dir2\mib	`AHEAD-PW-MIB.mib`	--	7.2.0
\dir2\mib	`AHEAD-PW-PSN-MIB.mib`	--	7.2.0
\dir2\mib	`apex.mib`	--	7.2.0
\dir2\mib	`apexCommon.xos_mib`	--	7.2.0
\dir2\mib	`apexSlot0.xos_mib`	--	7.2.0
\dir2\mib	`apexVc.xos_mib`	--	7.2.0
\dir2\mib	`atm.xos_mib`	--	7.2.0
\dir2\mib	`atmPort.mib`	--	7.2.0
\dir2\mib	`atmPnni.mib`	--	7.2.0
\dir2\mib	`cac.xos_mib`	--	7.2.0
\dir2\mib	`dlsplim.mib`	--	7.2.0
\dir2\mib	`ether.mib`	--	7.2.0
\dir2\mib	`evc.mib`	--	7.2.0
\dir2\mib	`gdcPnni.xos_mib`	--	7.2.0
\dir2\mib	`hdls.mib`	--	7.2.0
\dir2\mib	`ima.mib`	--	7.2.0
\dir2\mib	`imports.mib`	--	7.2.0
\dir2\mib	`mgntInterface.mib`	--	7.2.0
\dir2\mib	`MPLS-LSR-STD-MIB.mib`	--	7.2.0
\dir2\mib	`MPLS-TE-STD-MIB.mib`	--	7.2.0
\dir2\mib	`nodeStats.mib`	--	7.2.0
\dir2\mib	`plpp.mib`	--	7.2.0
\dir2\mib	`ptp.mib`	--	7.2.4
\dir2\mib	`qaal2.mib`	--	7.2.0
\dir2\mib	`rfc1213.xos_mib`	--	7.2.0
\dir2\mib	`sfp.mib`	--	7.2.0
\dir2\mib	`slotstats.mib`	--	7.2.0
\dir2\mib	`xBridge.mib`	--	7.2.0
\dir2\mib	`xlim.mib`	--	7.2.0
\dir2\mib	`xlimaps.mib`	--	7.2.0
\dir2\mib	`xlimds1.mib`	--	7.2.0
\dir2\mib	`xlime1.mib`	--	7.2.0
\dir2\mib	`xlimesonet.mib`	--	7.2.0

7.0   Feature Compatibility with Previous Versions

The table below provides a comparison of features based on Xedge system software version. Dashes indicate a feature or module not supported by the software version. A "CR" designation indicates a controlled release. An Xedge MultiService network can include:

- Xedge MSPx switch with an Xedge packet controller in slot-0 (Ver 7.x). Nonslot-0 positions can hold packet controllers (Ver 7.x), cell controllers (Ver 6.2.x) and adaptation controllers (Ver 6.2.x) with corresponding LIMs.

- Xedge 6000 switch with adaptation or cell controllers at Ver 6.2.x or earlier.

Table 3: Feature Comparison

SLOT CONTROLLERS	522	600	610	620	710	721	722	723	724
SMC Switch Management Controller	--	Yes	Yes	--	--	--	--	--	--
ISG(1) Adaptation Controller	--	CR	Yes	--	--	--	--	--	--
ISG2 Packet Controller	--	--	--	--	Yes	Yes	Yes	Yes	Yes
PCX Packet Controller	--	--	--	--	Yes	Yes	Yes	Yes	Yes
PCX-2 Packet Controller	--	--	--	--	--	--	--	Yes	Yes
PCL Packet Controller	--	--	--	--	--	Yes	Yes	Yes	Yes
ACP & ACS Cell Controller	Yes	Yes	Yes	--	--	--	--	--	--
ACP2 & ACS2 Cell Controller	Yes	Yes	Yes	Yes	--	--	--	--	--
CE Adaptation Controller	Yes	Yes	Yes	Yes	--	--	--	--	--
CHFRC Adaptation Controller	Yes	Yes	Yes	Yes	--	--	--	--	--
HPG, HS	--	--	--	--	--	--	--	--	--
ECC Cell Controller	Yes	Yes	Yes	Yes	--	--	--	--	--
FRC Adaptation Controller	Yes	Yes	Yes	Yes	--	--	--	--	--
MS/QED	--	--	--	--	--	--	--	--	--
ETH Adaptation Controller	Yes	Yes	Yes	Yes	--	--	--	--	--
SCE Adaptation Controller	Yes	Yes	Yes	--	--	--	--	--	--
VE Adaptation Controller	Yes	--	--	--	--	--	--	--	--
VSM Adaptation Controller	Yes	Yes	Yes	Yes	--	--	--	--	--
STM System Termination Module	Yes	Yes	Yes	Yes	--	--	--	--	--
LINE INTERFACE MODULES	**522**	**600**	**610**	**620**	**710**	**721**	**722**	**723**	**724**
DSX1/E1-IMA LIMs (4 ATM ports)	Yes	--	--	--	--	--	--	--	--
DSX1/E1-IMA LIMs (8 ATM ports)	--	--	--	--	--	--	Yes	Yes	Yes
DSX1/E1-IMA LIMs (16 ATM ports)	--	Yes	Yes	Yes	--	Yes	Yes	Yes	Yes
LCE-16 LIM	Yes	Yes	Yes	Yes	--	--	Yes	Yes	Yes
DS1 LIM	Yes	Yes	Yes	Yes	--	--	--	--	--
E1 LIM	Yes	Yes	Yes	Yes	--	--	--	--	--
DS3 LIM	Yes	Yes	Yes	Yes	--	Yes	Yes	Yes	Yes
E3 LIMs	Yes	Yes	Yes	Yes	--	Yes	Yes	Yes	Yes
HSSI LIM (DTE)	Yes	Yes	Yes	Yes	--	--	Yes	Yes	Yes
HSSI LIM (DCE)	Yes	Yes	Yes	Yes	--	--	--	--	--

Table 3: Feature Comparison (Continued)

OC-3c/STM-1 LIM	Yes	Yes	Yes	Yes	--	--	--	--	--
OC-N/STM-N LIM	--	--	--	--	Yes	Yes	Yes	Yes	Yes
STM-1 Electrical LIM	Yes	Yes	Yes	Yes	--	--	--	--	--
Serial I/O LIMs	Yes	Yes	Yes	Yes	--	Yes	Yes	Yes	Yes
ASIO LIMs	--	--	--	--	--	--	--	Yes	Yes
DELIM STM-1 LIM	Yes	Yes	Yes	Yes	--	--	--	--	--
VJLIM LIM (NTSC, PAL)	--	--	--	--	--	--	--	--	--
VH320 LIM (NTSC/PAL)	--	--	--	--	--	--	--	--	--
MPG2V LIM (MPEG-2)	Yes	--	--	--	--	--	--	--	--
NODE TIMING MODULES	**522**	**600**	**610**	**620**	**710**	**721**	**722**	**723**	**724**
DS1 Node Timing Module	Yes	Yes	Yes	Yes	--	--	--	--	--
E1 Node Timing Module	Yes	Yes	Yes	Yes	--	--	--	--	--
SWITCH FABRIC MODULES	**522**	**600**	**610**	**620**	**710**	**721**	**722**	**723**	**724**
XH Switch Fabric	Yes	Yes	Yes	Yes	--	--	--	--	--
XS Switch Fabric	Yes	Yes	Yes	Yes	--	--	--	--	--
XM Switch Fabric	Yes	Yes	Yes	Yes	--	--	--	--	--
CM Multiplexer	Yes	Yes	Yes	Yes	--	--	--	--	--
FEATURE SUPPORT	**522**	**600**	**610**	**620**	**710**	**721**	**722**	**723**	**724**
PNNI Routing	--	--	--	Yes	--	--	--	--	--
ISG Next Tunnel	--	--	Yes	--	--	--	--	--	--
ISG RIP2	--	--	Yes	--	--	--	--	--	--
ISG Proxy ARP	--	--	Yes	--	--	--	--	--	--
IMA MIN/MAX	--	--	--	Yes	--	--	--	--	--
Select Route	--	--	Yes	Yes	--	--	--	--	--
PVC Table Entries	1000	6000	6000	6000	--	--	--	--	--
ECC Differentiated UBR for MTS	--	Yes	Yes	Yes	--	--	--	--	--
IP Routing	--	CR	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Q.SIG	Yes	Yes	Yes	Yes	--	--	--	--	--
VP Queues with the ECC	Yes	Yes	Yes	Yes	--	--	--	--	--
Billing	Yes	Yes	Yes	Yes	--	--	--	--	--
VSM Logical Multicast	Yes	Yes	Yes	Yes	--	--	--	--	--
VSM2 with FAX Relay	Yes	Yes	Yes	Yes	--	--	--	--	--
MTS 1.0	Yes	Yes	Yes	Yes	--	--	--	--	--
CE PVC Multicast	Yes	Yes	Yes	Yes	--	--	--	--	--
DTL	Yes	Yes	Yes	Yes	--	--	--	--	--
ECC Automatic Protection Switching	Yes	Yes	Yes	Yes	--	--	--	--	--
External Alarm	Yes	Yes	Yes	Yes	--	--	--	--	--
ILMI Address Registration	Yes	Yes	Yes	Yes	--	--	--	--	--

Table 3: Feature Comparison (Continued)

Link Alarms	Yes	Yes	Yes	Yes	--	--	--	--	--
Maximum IP Routing Table	200	512	512	512	512	512	512	512	512
OAM F4/F5 flows	Yes	Yes	Yes	Yes	--	--	Yes	Yes	Yes
RFC 1483 (Encapsulation)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VSM PVC SPVC Multicast	Yes	Yes	Yes	Yes	--	--	--	--	--
Slot-0 Redundancy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
System Timing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UNI 3.1 SVC Point-To-Point	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UNI 3.1 IISP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UNI 3.1 MSC Point-To-Point	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UNI 3.1/4.0 Point to Multipoint	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UNI 4.0 Signaling Point-To-Point	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VJLIM Capped Variable Bit Rate	--	--	--	--	--	--	--	--	--
Video PVC Multicast (VJLIM)	--	--	--	--	--	--	--	--	--
Video SPVC Multicast (VJLIM)	--	--	--	--	--	--	--	--	--
Video PVC Multicast (MPG2V)	Yes	--	--	--	--	--	--	--	--
Video SPVC Multicast (MPG2V)	Yes	--	--	--	--	--	--	--	--
Logical Multicast	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSPF, RIP2 Routing	--	--	--	--	Yes	Yes	Yes	Yes	Yes
IP QoS	--	--	--	--	Yes	Yes	Yes	Yes	Yes
MEF-compliant Ethernet Private Line	--	--	--	--	Yes	Yes	Yes	Yes	Yes
Ethernet Pseudowires over MLPS	--	--	--	--	Yes	Yes	Yes	Yes	Yes
Ethernet Pseudowires over ATM	--	--	--	--	Yes	Yes	Yes	Yes	Yes
Ethernet Pseudowires over VLAN	--	--	--	--	--	--	Yes	Yes	Yes
ATM over MPLS	--	--	--	--	Yes	Yes	Yes	Yes	Yes
ATM Pseudowires over VLAN (Dry Martini)	--	--	--	--	--	--	Yes	Yes	Yes
Pseudowire interconnects	--	--	--	--	Yes	Yes	Yes	Yes	Yes
MPLS cross-connects	--	--	--	--	Yes	Yes	Yes	Yes	Yes
VLAN cross-connects	--	--	--	--	Yes	Yes	Yes	Yes	Yes
SSH, SCP, SFTP	--	--	--	--	Yes	Yes	Yes	Yes	Yes
LSP MOLN connections (in Slot0)	--	--	--	--	--	--	--	Yes	Yes
OSPF MIB support	--	--	--	--	--	--	--	Yes	Yes
SNMPV3 support in PCX, PCX2, ISG2	--	--	--	--	--	--	--	--	Yes
PCX2: Fast Routing with NP assist	--	--	--	--	--	--	--	--	Note 1
PCX2: PseudoWire over IP Tunnels	--	--	--	--	--	--	--	--	Note 1
PCX2: LSP (Label Switch Path) Protection	--	--	--	--	--	--	--	--	Note 1
PCX2: PTP - IEEE 1588 PTP	--	--	--	--	--	--	--	--	Note 1

> *Note:*   *1. Features are supported for Beta testing only. Contact your GDC representative for general availability.*

8.0   Xedge V 7.2.4 Installation Overview

The Slot Controller/LIM Log

Before updating software for new or existing controllers, you will need an accurate list of the types of Xedge modules for the switch (controllers, NTMs and LIMs), their slot locations, and the software files required for each. To simplify this process, you will use the following tables in this section:

> *Table 1: Hardware /Software Reference*
>
> *Table 2: Software Reference Information*
>
> *Table 4: Slot Controller/LIM Log*

1.   Make a copy of the Slot Controller/LIM Log Sheet *(Table 4:)*.

2.   In the "Slot Controller Installed" column, write the abbreviated front panel product name of each slot controller, NTM or LIM (i.e., PCX, PCX2, ISG2, VSM, E3-2C, etc.). Refer to *Table 1:* to verify the module type, of necessary.

3.   Use the Software File List *(Table 2:)* to find the software files required for each controller, NTM or LIM in the node. Write the file names in the "Software Files Required" column, and the software version in the "Code Version" column.

4.   Create a new directory on your hard drive **(C:\Xedge)** to receive the files.

5.   Insert the Xedge CD in the CDROM drive and copy the files to the newly created directory.

6.   After reading the software considerations below, proceed to the desired section:

   •   *Section 8.1 Update Existing Controllers*

   •   *Section 8.2 Install a New Controller*

Important Software Considerations

   •   IMPORTANT! Do not select the **Boot run time code** option if prompted.

   •   IMPORTANT! For the ISG2 in redundant slot-0 applications, you must transfer the **startup_isg.tz** file for the redundant slot-0 individually, not via broadcast mode.

   •   When performing a software upgrade for a packet-based controllers (PCX, PCX2, PCE, ISG2 or PCL), it is important to always use the **startup_*xxx*.tz** file provided on the Release CD, where *zzz* is either **pcx**, **pcx2**, **pcl**, **pce**, or **isg**. Within these tar files are the Xedge system files: kernel, boot, file system and FPGA files.

   As of Xedge Software Version 7.2.0, when a slot controller is loaded with new software and restarted, its system files are extracted from the **startup_*xxx*.tz** file, a new **XOS_*xxx*.tz** file is created, and the **startup_*xxx*.tz** file is removed.

   •   If there are any non-packet-based Xedge controllers in the shelf (e.g., FRC, CHFRC, ECC, ETH, VSM, ACP, ACS, or CE), refer to the Xedge Version 6.2.x documentation and release notes for complete installation and operation procedures.

Table 4: Slot Controller/LIM Log

Slot Number	Controller Installed	LIMs Installed	Software Files Required	Code Version	Sent ✔
Slot-0 Main				Ver 7.2.4	
Slot-0 Standby		--		Ver 7.2.4	
Slot 1					
Slot 2					
Slot 3					
Slot 4					
Slot 5					
Slot 6					
Slot 7					
Slot 8					
Slot 9					
Slot 10					
Slot 11					
Slot 12					
Slot 13					
Slot 14					
Slot 15					
NTM Primary					
NTM Secondary					

Note: *Depending on your application and chassis type, some slot positions may be unused.*

Note: *In redundant slot-0 applications, install only ISG2 cards in the Main and Standby slot.*

Note: *You do not have to log information for the Switch Fabric modules.*

Note: *When your switch has Xedge cell or adaptation controllers that employing Version 6.2.x code (e.g., CHFRC, FRC, CE, ACP, ACS, VSM, ECC, ETH), those modules must be installed in nonslot-0 positions only. Refer to Release Notes and Patch Notes supplied with that software release for specific software installation and operation guidelines.*

8.1 Update Existing Controllers

For the procedures below, you should have the new files resident on your hard drive as described in *Section 8.0*. Refer to your log sheet and *Table 2:* as needed.

8.1.1 Transfer Files to Slot-0 Controller

This procedure transfers Xedge software files from a directory on your hard drive to the slot-0 controller via a Telnet link to the Ethernet management port.

1. At the slot-0 controller, set the Node Authentication Table to allow SNMP access.

2. Initiate a management session (FTP, TFTP, SSH or SCP).

3. Working from your log sheet, transfer the required files to the management port IP address. If using FTP, be sure to deposit the files in the `/mnt/flash0` directory.

4. When all files have been transferred to slot-0, proceed to *Section 8.1.2*.

8.1.2 Transfer Files from Slot-0 to Other Slots

This procedure transfers files from Slot-0 to other slot controllers in the switch in broadcast mode to all modules, or individually (slot-by-slot) according to the modules installed.

Broadcast Transfer

Wait until the Root Menu displays an Active message for all nonslot-0 controllers.
This process can take from 10 minutes (for a few controllers) to an hour for a full system.

5. At the Root Menu select **File system**, then type **Directory**.

6. Verify that all required files have transferred to Slot-0 as described in *Section 8.1.1*.

7. Type: **eXit** until the File Operations screen is displayed.

8. Select: **TFTP**

9. Select: **Broadcast file**

10. Type: *[filename]***.cod**

11. Select **Send**. Wait until the transfer is complete, then proceed to the next step.

Note: *For a redundant slot-0, you cannot transfer the* **startup_isg.tz** *file via broadcast.*

Slot-by-Slot Transfer

With the log sheet as a guide, send the files required by each controller to the proper slot, as described below. Substitute the actual file/slot name for *[filename]* and *[slotnumber]*.

12. At the File Operations screen, select: **TFTP**

13. Type *[filename]* and then press Enter.

    •   If the file is for a nonslot-0 controller, type: *[slotnumber]* then press Enter.

    •   If the file is for the out-of-service ISG2, type: **redund** and then press Enter.

14. Repeat *Step 12.* through *Step 13.* for all files listed on your log sheet.

15. When finished, **eXit** back to the Root Menu.

    •   Wait for the **Slot 0 Redund: available** status to display: **Yes**.

    •   Wait for the **File transfer** prompt and then toggle to **Inactive**.

16. Restart each updated controller via the sppropriate Warm Start procedure for your application, as described in *Section 8.3*.

8.2   Install a New Controller

All controllers are shipped from the factory without software and with a default IP address. The following procedures install a new controller into an existing switch with an in-service slot-0 controller. Note that the procedures vary depending on the new card's intended slot: nonslot-0 or slot-0 (out-of-service). Refer to *Table 2:* and your log sheet as needed.

Note: *IMPORTANT! Before you begin, be sure the required software files are already resident in the* `/mnt/flash0` *directory of the slot-0 controller, as described in* *Section 8.1.1.*

1.   For a new controller, check that the rotary switch on the controller is in the proper position for slot-0 or nonslot-0 operation in the associated chassis:

- •   Set Rotary Switch to `8` for a non-slot 0 controller intended for any Xedge chassis. Skip to *Step 2.*

- •   Set Rotary Switch to `4` for a ISG2 slot-0 card intended for the Standby Slot of a, Xedge 6280, 6640 or 6645 chassis. Skip to *Step 9.*

- •   Set Rotary Switch to `0` for a slot-0 controller intended for the Main Slot of any Xedge chassis.

Note: *IMPORTANT! Xedge 6002 and 6160 chassis do not support slot-0 redundancy. When replacing the (main) slot-0 controller in those chassis, be aware that all services will be disrupted. Consult your configuration manual for installation instructions.*

8.2.1   For Non-Slot 0 Card

2.   Install the controlled in the desired non-slot 0 position.

3.   At the File Operations screen, select: `TFTP`

4.   From slot-0, select `SEND`.

5.   Type *[filename]* and then press Enter.

6.   Type: *[slotnumber]* then press Enter.

7.   Repeat *Step 2.* through *Step 6.* for all required software for the controller.

8.   Restart the controller via the non-disruptive Warm Start procedure, as described in *Section 8.3*. The controller will be fully loaded and ready for configuration.

8.2.2   For Slot-0 Card

Note: *If this is a new redundant system, before you begin, configure the In-Service slot-0 for redundant operation, as described in the configuration manual.*

9.   Install the ISG2 controller in the Out-of-Service slot-0 position.

10.   The exisiting system software automatically downloads all required software files to the new controller along with the `config.cfg` file.

11.   Restart the controller via the non-disruptive Warm Start procedure, as described in *Section 8.3*. The card will be fully loaded, configured and operational as the Out-of-Service slot-0 controller.

8.3 Warm Start Procedures

The following procedures perform a non-disruptive or disruptive Warm Start on a single card or the entire switch. Warm Starting is intended for use in the following circumstances:

- Put new software or a new **config.cfg** into effect.

- Initialize a change in resources (e.g., new LIM).

- Resolve an isolated or system-level anomolie that may be effecting performance.

Note: *IMPORTANT! Use only non-disruptive warm start procedures if your system requires uninterrupted operation at all times.*

8.3.1 Non-disruptive Warm Starts

During the non-disruptive Warm Start procedures provided below, the In-Service slot-0 controller remains in continuous operation, so there is no interruption of services and management communication to other cards in the shelf.

To Warm Start the slot-0 cards, the switch must be equipped with properly configured redundant ISG2s in the Main and Standby Slot-0 positions. Each ISG2 is then warm started separately to ensure continuity of service via an In-Service card.

Warm Start a Nonslot-0 Card

1. Perform a **Force Reload Restart**.

2. The controller will restart with any new software or **config.cfg** in effect.

Warm Start the Slot-0 Cards (Redundant ISG2s):

1. Telnet to the Out-of-Service ISG2.

2. Perform a **Force Warm Start**.

3. Wait for the **Slot 0 Redund: available** status to display: **Yes**.
   Any new software is now in effect for the Out-of-Service ISG2.

4. Perform a switchover on the In-Service ISG2, putting it out of service.

5. Once the redundant ISG2 has control of the switch, Telnet to the Out-of-Service ISG2.

6. Perform a **Force Warm Start**.

7. Wait for the **Slot 0 Redund: available** status to display: **Yes**.
   Any new software is now in effect for the Out-of-Service ISG2.

8.3.2 Disruptive Warm Starts (Entire Switch)

A disruptive Warm Start will force a restart of the entire switch. This allows you to warm start all controllers in the shelf simultaneously.

Note: *Be aware that the following procedures will disrupt all management communication and services in the shelf until a slot-0 controller returns to the In-Service state.*

Warm Start a Redundant Switch:

1.   Perform a **Force Warm Start** on the Out-of-Service controller.

2.   Terminate the Telnet session (**Ctrl-T**).

3.   While the Out-of-Service card is unavailable, perform a **Force Reload Restart** on the In-Service slot-0 card.

4.   With both ISG2s simultaneously warm-starting, all other controllers in the switch will simultaneously Warm Start.

5.   As the switch comes out of a Warm Start, individual nonslot-0 cards will wait for the first slot-0 controller to come out of Warm Start and assume In Service status. The second slot-0 controller will assume Standby status.

6.   Any new software or **config.cfg** will be in effect for the respective cards.

Warm Start a Non-Redundant Switch

1.   Telnet to the slot-0 controller.

2.   Perform a **Force Warm Start** on the controller.

3.   Terminate the Telnet session (**Ctrl-T**).

4.   With the slot-0 controller warm-starting, all other controllers in the switch will simultaneously Warm Start.

5.   As the switch comes out of a Warm Start, individual nonslot-0 cards will wait for the slot-0 controller to come out of Warm Start and take up In Service operation.

6.   Aany new software or **config.cfg** will be in effect for the respective cards.

9.0 Operational Guidelines

Follow the guidelines in this section for optimal performance of the installed Xedge modules. Contact your authorized field representative as needed.

Note: *For overviews of operational capabilities and performance parameters of any Xedge slot controller, refer to the Xedge/ProSphere Quick Reference.*

9.1 System Guidelines

- When using multiple signaling channels, CAC for switched connections is done on logical SAPs and physical SAPs; CAC for PVCs is done on physical SAPs only.

- Do not use the Debug option available in the Diagnostics/Inject_cell/OAM screen. This is supplied as a SERVICE SUPPORT TOOL ONLY.

- To avoid degraded Telnet performance, do not perform nested Telnet sessions.

- When the screen menu prompts you to type **esc** to abort, you may have to press Escape two or more times.

- The auxiliary port on the Xedge 6160 (MAC1) chassis is not supported.

- The filtering database on a bridge does not consistently report the source mac address from the sending device. An invalid entry is reported when sending 64- and 128-byte frames across 4 bridges at the same time.

9.2 Configuration Guidelines

- (MR10408) The interface type for the ASIO LIM is not automatically detected; it must be configured by the user.

- Ensure resources are available when configuring PVCs. Services which require more resources than are available will not activate. No error messages are generated in this case.

- Do not configure a PVC or SPVC with all the following parameters set to 0: SSlot, Slink, SVPI, SVCI, DSlot, DLink, DVPI, and DVCI. The system uses this setting internally.

- For NNI only, SPVC VCI starts are fixed at 0. The VCI start of 32 displayed on the screen reminds the user that VCIs below 32 are reserved and should be used with caution.

- A new option has been added to the SVC Resource Table, Auto SAP OFF with the default set to No. If set to Yes, the software automatically turns off this SAP when there is a signaling failure between the end-to-end signaling entities.

Note: *If you enable the Auto SAP Off option, i.e., by selecting Yes, you will need to manually turn on the SAP after a failed trunk is restored.*

- Ensure all bundles are active before saving the **config.cfg file**. If not, upon reboot, the bundles do not return to the running state.

- Do not change the VP Start range for a link to 0 without deleting all the circuits over the link. If you change the VP Start range on an NNI to 0, it changes the link type to a UNI, it re-initializes the VC routing RAM, and then kills every circuit on the link. The only work-around is to change the VP range back again and warm-start the slot controller.

- The Xedge 6645 (DV2) chassis has contacts for two external user status inputs. The alarm handler allows these inputs and their SNMP Traps to be either enabled or disabled. The inputs can be defined as active-open or active-closed, and the alr_cls.txt file allows them to generate Critical, Major, or Minor alarm types. Although the SMM in the Xedge 6280 (IMX) chassis still generates alarms correctly, the Xedge 6645 (DV2) chassis now ignores the input status. If configured to active-open or active-closed, a contact closure has no effect.

9.3   File System Guidelines

- During a TFTP, a copy of the original file being overwritten is maintained in flash while the new file is being transferred. The new file has the **>~** characters preceding the file name (e.g., **>~1ds1.cod**). When the file transfer is successful, the original files are marked dirty and the new file is renamed to exclude the **>~** characters.

- To improve TFTP reliability with a SUN workstation, type **?** at the TFTP prompt, then set the SUN workstation retransmit timer to 1 second (**re 1** *<cr>*) and maximum time-out to 120 seconds (**ti 120** *<cr>*).

9.4   Slot Controller Guidelines

- When the PCX, PCX2, PCL or ISG2 is in a nonslot-0 position, either a PCx, PCx2, PCL or ISG2 must be in slot-0.

- At 99% of bandwidth on the PCX/PCX2 Traffic Shaping and UBR will be fully functional with no cell loss.

- When Actual APS Direction Mode differs from configured APS Directional Mode (e.g., local LTE set to bidirectional and remote side set to unidirectional), an **APS Mode Mismatch** trap will be sent and the Actual APS Directional Mode will switch to **Unidirectional**. Although this clears the APS Mode Mismatch Failure Alarm, the mismatching configuration will persist until APS Directional Mode is manually changed.

9.5   Redundancy Guidelines

- In an Xedge 7.X switch, inserting any slot controller other than an ISG2 in the redundant slot-0 position can cause conflict with the slot-0 controller and disrupt communication to the node.

- When redundancy is available, any configuration changes made and saved to the **config.cfg** file will update the redundant slot-0 Controller automatically. As the file transfers, the Root Menu will show **File transfer = Active** and the redundant controller LEDs will show a TFTP in progress. All module front panel LEDs will illuminate, and then illuminate one at a time, from top to bottom. This sequence repeats until the TFTP transfer is complete.

10.0   Known Limitations

10.1   Configuration

- When running full-feature system software, do not use the Load option in the Manage configuration menu to manually load configuration files as this is an unsupported function and may cause the slot controller to reboot.
- When setting the time and date, always supply the leading zero for the hour setting. Otherwise, the tens digit of the minutes setting is cleared.
- As more entries are enabled with traps at the authentication table, traffic will increase on the management circuit, reducing performance.

10.2   Signaling

- SVCs do not reroute in the Xedge switch if Explicit DTLs are used.
- The Display Route feature displays only information for SVCs/SPVCs that use DTL style routing.

10.3   Traffic Management

- When MOLN is changed to a new VPI/VCI the user must do a restart on the slot controller for the resource change.
- When a link type is configured as NNI, MOLN is assumed to be required. In certain cases, the user may want to allow proprietary signalling messages between nodes, but not management traffic. This can be accomplished by configuring the MOLN VC to use a different VPI / VCI on each end of the link.

10.4   Line Interface Modules

- Terminate all configured LIM ports with the appropriate impedance when a link cable is disconnected to prevent the generation of link-up and link-down alarms.
- For the E3-2C LIM, when an AIS condition exists on the link, a loss of frame is displayed in the Alarm Handler.
- For the OC-3c/STM-1 series LIMs, Secondary Line fault causes Primary ref status to change when using a STM1 Dual.

10.5   Packet Controllers

- An ISG2 installed in an Xedge 6280 chassis will report that the Secondary BITS clock is not good, even though that chassis does not have a Secondary NTM.
- ProSphere Routing Manager (RTM) displays the ISG2, PCX, PCX2, or PCL as an SMC or ECC, respectively. This does not affect operation of the application or devices.
- Re-scanning alarm class file (`M,42`) after changes will function properly, however the load status is not reported to the MIB.
- In a redundant shelf, Craft defaults as `Parallel` but should be `Y cable Mode`.
- For ISG2, the `medIa, I` option is not supported; hence, a user cannot determine the amount of memory available for files.
- For PCX or PCX2, bi-directional traffic on a multicast PVC is not supported in this release.
- PCX and PCX2 support both ports of the 2-port SI-2C LIM. If the 4-port SI-4C LIM is installed, only two ports will be supported.

General DataComm