555-4001-599

Meridian SuperNode

Meridian SL-100

Peripheral Module Release Document (PM RELDOC)

MSL15 Standard 09.03 May 2001

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Version 09.03, Standard, MSL15. Removed M3900 Firmware.

Version 09.02, Standard, MSL15. Corrected step procedure LIU7 and associated flow chart to reflect update to step 13. Updated MS multi–port card flow chart . Updated with XA-Core information.

February 2001

Version 08.05, Standard, MSL14. ENET procedures updated..

Version 08.04, Standard, MSL14. This document is updated to include corrections to XPM load information.

November 2000

Version 08.03, Standard, MSL14. This document is updated to include corrections to EIPE11AT load information.

October 2000

Version 08.02, Preliminary, MSL14. This document is updated to include the EIPE11AT load.

July 2000

Version 08.01, Preliminary, MSL14. This document is updated to include the following changes:

- LCME13AX is replaced by LCME13AY
- QLI13BB is replaced by QLI13BB_000510
- QLI12BC is replaced by QLI12BC_000502

May 2000

Version 07.05, Standard, MSL12. This document is updated to include the following changes:

- lcme11bd is replaced by lcme12ba to fix outstanding CSRs

April 2000

Version 07.04, Standard, MSL12. This document contains miscellaneous updates.

April 2000

Version 07.03, Standard, MSL12. This document is updated to include the following changes:

- deletes CTM on the ISM shelf
- updates ESA hardware information
- upissues ODT12BC to ODT13BB

March 2000

Version 07.02, Preliminary, MSL12. This document provides preliminary release MSL12 PM load lineups. This version includes new information for MSL12 firmware, load names, and load name suffixes.

February 2000

Version 07.01, Preliminary, MSL12. This document provides preliminary information for release MSL12 (PM loads are still at the MSL11 version).

February 2000

Version 06.05, Standard, MSL11. This document is updated to include a correction to procedures in the enhanced DCH section.

February 2000

Version 06.04, Standard, MSL11. This document is updated to include the following changes:

- Change EDRMAE06 EDRAM to EDRMAE06 EDRAM 4 Minute (1X80AA)
- Change UPFWQH04 Universal XPM processor firmware load to UPFWQH04 Universal XPM processor firmware load (EDC)
- ED16AA03 EDRAM 16 Min (1X80BA) is added
- IPE09AB IPE is added
- ESHxx and EXCxx loads are deleted from the DCH section
- Change EDRAM to EDRAM 4 Min
- Change all MX77NB03 to UPFWNP04
- Change the AX74 for MSL11 to UPFWNP04
- HBFWQF01 firmware load is deleted
- Firmware load to MSL11, UPFWNP04, is added
- OTM section is deleted
- IPE is added to load history table
- SXFAE08 is up–issued to SXFWAE09

October 1999

Version 06.03, Standard, MSL11. This document is updated to include a correction to procedures in the enhanced DCH section.

September 1999

Version 06.02, Preliminary, MSL11. This document is released to include the following:

- correction to "updating the LGC or LTC" update procedure in chapter 4.
- removal of MX77NB03 loadnames in the "pm to load cross reference" table in chapter one for ISDN peripheral modules (PM).
- addition of Series III PMs.
- modification to the post release software manager (PRSM) commands in the ENET update procedure.
- addition of Spectrum Peripheral Module (SPM) information.
- addition of communications services platform (CSP) Series III peripheral modules (PM).
- addition of emergency stand-alone processor circuit card (NTMX45AA)

September 1999

Version 06.01, Preliminary, MSL11. This document provides preliminary information on the peripheral module updates for MSL11. This version includes new information for MSL11 firmware, load names, and load name suffixes.

Contents

About this document

When to use this document

Use this document to update the software in Meridian SL-100 peripheral modules (PM) and hardware types. This document provides load names, update procedures, and other release-specific information. Use this document when updating an office to one of the following MSL15 Product Computing-Module Loads (PCL): MSLI0015 or MSDI0015.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the *next* software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the *same* software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in *Master Index of Publications*.

This document is written for all MSL-100 offices. More than one version of this document may exist. To determine whether you have the latest version of this document and how documentation for your product is organized, check the release information in *Master Index of Publications*.

How to use this document

After receiving this document and the PM load tape, perform the following tasks.

1. Review “Overview of release” in this document. This chapter provides release notes, load names, and other information critical to updating PMs and other hardware types.
2. Review “Overview of update process” in this document. This chapter summarizes the update process and describes when to use each procedure in this document.
3. Review “Overview of PMUPGRADE” in this document. This chapter summarizes PMUPGRADE, the new utility that automates many of the administrative tasks of PM updates.
4. Perform the procedure “Preparing for a PM update” or “Preparing for a PM update using PMUPGRADE” in this document.
5. Schedule the update of each PM and hardware type in the office.
6. Update the PMs and hardware types, following the schedule and using the appropriate procedures in this document. Perform the procedure “Starting a PM update shift” when you begin a PM update shift, and perform the procedure “Finishing a PM update shift” when you complete a PM update shift.

Compliance with local policies

This document is written for all MSL-100 customers updating to an MSL15 PCL. However, many customers have company-specific and office-specific policies regarding PM updates. Review these policies, and resolve any differences between the policies and this document, before beginning the PM update process.

Backwards-compatibility

This document is backwards-compatible to MSL11 with the following Communications Services Platform (CSP) loads.

- CSP11 (XPM12 and CSP11-based PCLs)

References in this document

The following documents are referred to in this document:

- *One Night Process Software Delivery Procedures*, 297-8991-303
- *Post-Release Software Manager (PRSM) Operating Procedures*, 297-8991-540
- *Enhanced Digital Recorded Announcement Machine Peripheral Module Software Release Document*, 297-8991-598

What precautionary messages mean

The types of precautionary messages used in Nortel Networks documents include attention boxes and danger, warning, and caution messages.

An attention box identifies information that is necessary for the proper performance of a procedure or task or the correct interpretation of information or data. Danger, warning, and caution messages indicate possible risks.

Examples of the precautionary messages follow.

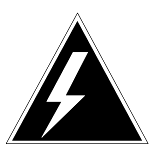
ATTENTION Information needed to perform a task

> **ATTENTION**
>
> If the unused DS-3 ports are not deprovisioned before a DS-1/VT Mapper is installed, the DS-1 traffic will not be carried through the DS-1/VT Mapper, even though the DS-1/VT Mapper is properly provisioned.

DANGER Possibility of personal injury

> **DANGER**
> **Risk of electrocution**
> Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed. The inverter contains high-voltage lines. Until the fuses are removed, the high-voltage lines are active, and you risk being electrocuted.

WARNING Possibility of equipment damage



> **WARNING**
> **Damage to the backplane connector pins**
> Align the card before seating it, to avoid bending the backplane connector pins. Use light thumb pressure to align the card with the connectors. Next, use the levers on the card to seat the card into the connectors.

CAUTION   Possibility of service interruption or degradation

> **CAUTION**
> **Possible loss of service**
> Before continuing, confirm that you are removing the card from the inactive unit of the peripheral module. Subscriber service will be lost if you remove a card from the active unit.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows is a command:

>BSY

Commands and fixed parameters

Commands and fixed parameters that are entered at a MAP terminal are shown in uppercase letters:

>BSY CTRL

Variables

Variables are shown in lowercase letters:

>BSY CTRL ctrl_no

The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

The following excerpt from a procedure shows the command syntax used in this document:

1 Manually busy the CTRL on the inactive plane by typing

>BSY CTRL ctrl_no
and pressing the Enter key.

where

ctrl_no is the number of the CTRL (0 or 1)

Example of a MAP response:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

How procedures are organized

Each procedure in this document contains a summary flowchart and a list of steps. The flowchart summarizes the procedure, and the list of steps provides detailed instructions for the procedure. Review the summary flowchart, and then follow the list of steps to perform the procedure.

Overview of release

This chapter provides release notes, load names, and other information critical to updating peripheral modules (PM) and other hardware types. Use this information when performing the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” in this document and when scheduling the update of each PM and hardware type.

Changes in update process

This section reflects changes in the PM update process.

ENET update requirements with Spectrum Peripheral Module (SPM)

The spectrum peripheral module (SPM) is a new multi-application high speed Meridian SuperNode (MSL-100) Series III PM. The SPM provides customized network access capabilities.

When an SPM is present on the MSL-100 switch, perform a manual update for the ENET (enhanced network) in order to maintain communication with the SPM. Do not use SWUPGRADE PM to perform an automated update for the ENET when an SPM is present on the MSL-100 switch. Only the administration, preparation, and planning activities of the automated process are supported for the ENET when an SPM is present on the MSL-100 switch.

PPXL audit before manual update of table PMLOADS

For offices at MSL10 or higher and when table PMLOADS is updated manually, an additional step must be performed for each pre-patched XPM loadfile (PPXL) in the office. Use the Post-Release Software Manager (PRSM) LFAUDIT command to audit each PPXL before table PMLOADS is updated. The LFAUDIT command identifies the post-release software updates (PRSU) in the PPXL to the PRSM database.

Use the procedure “Preparing for a manual PM update” in this document to perform the LFAUDIT command. If the “Preparing for a manual PM update” procedure and the LFAUDIT command are used, PPXLs are successfully added to table PMLOADS. If the “Preparing for a manual PM update” procedure and the LFAUDIT command are not used, the MAP terminal displays an error message similar to the following:

```
PRSM data missing
To correct, enter the PRSM command level.  Then type:
   LFAUDIT PPXL ELIO9AX  ELIO9AX_980107  S00DPMLOADS
```

If PMUPGRADE is used to update table PMLOADS, take no additional action. PMUPGRADE performs the audit automatically.

SLM tape cartridge contains PM load and PRSU files

Offices without 9-track tape drives require the implementation of this new software delivery process. When the system load module (SLM) tape cartridge label text indicates *Patches: Yes*, the tape contains PM load and PRSU files, including PPXL files. When the SLM tape cartridge indicates *Patches: No*, the office receives any applicable PRSUs through prior software delivery methods.

The satellite distribution center (SDC) uses backup volume format to manufacture the new SLM tape cartridge. The procedure “Prepare for a manual PM update” in this document describes the required multi-file restore (MFR) command syntax to copy PM load and PRSU files from the SLM tape cartridge to the SLM disk volume. The backup volume format does not impact the automated PM update process.

Note: *PRSU* and *patch* are used interchangeably in this document.

Integrated services node auto imaging

ATTENTION

Follow office policy on imaging when upgrading the nodes in the office for this release. Office policy may vary from the steps described in this document.

With Integrated Auto Imaging (IAI), the MSL-100 switch automatically takes an image of an integrated service node (ISN) when one of the following actions occur.

- Table datafill is changed
- PRSUs are applied.

Automated PM updates

Two command interpreter (CI) level utilities, PMUPGRADE and SWUPGRADE PM, are available to automate PM updates. Nortel Networks is introducing these utilities over several releases, the upgrade path of your office determines the level of available functionality.

PMUPGRADE automates the administration and planning phases of the PM update. SWUPGRADE PM automates the update phase of the PM update. Refer to the chapter “Overview of automated update process” in this document for more information on automated PM updates.

Release notes

The following notes reflect issues encountered during previous release updates and during the verification of this release. These notes may be helpful in preventing or troubleshooting problems during your PM update. This section also contains descriptions of applicable features for the current software release.

Note: The ESA shelf has only one unit, thererfore the `UNIT_NO` parameter in the LOADFW command is not required.

RLCM emergency stand-alone processor circuit card (MSL11)

This software release introduces the remote line concentrating module (RLCM) emergency stand-alone (ESA) circuit card (NTMX45AA). There are no hardware changes associated with the NTMX45 circuit card. The NTMX45AA circuit card permits firmware downloading to the loadable bank when the shelf is in-service (InSv) or manual busy (ManB).

NTSX05AA processor (MSL10)

The NTSX05AA processor is the fourth generation processor circuit card introduced into XMS-based peripheral modules (XPM) and common peripheral modules (CPM). This processor is designed to provide more real time capacity and memory capacity than previous processors. The NTSX05AA processor is used in the same hardware slots in XPM and CPM shelves as previous processor circuit cards. In-service firmware downloading supports the NTSX05 processor.

The NTSX05AA processor is used in the following integrated services digital network (ISDN) and non-ISDN peripheral modules (PM).

- line trunk controller (LTC) directly supporting remote ISDN line drawer (ILD)
- line group controller (LGC) directly supporting remote ILD
- LTC with ISDN
- LGC with ISDN
- digital trunk controller ISDN (DTCI)

In-service firmware downloading (MSL09)

In-service firmware downloading permits XMS-based peripheral modules (XPM) firmware loading in an XPM unit while the unit is in service (InSv).

This feature reduces the amount of time one unit of the XPM is out-of-service (OOS). In-service firmware downloading supports NTMX77, NTAX74 and NTSX05 processors.

Note: In-service firmware downloading refers to the loading of the firmware while the unit is InSv. The upgrade of the firmware occurs with the XPM unit out of service (OOS).

This feature introduces the LOADFW command. The LOADFW command distinguishes the firmware load application from the firmware upgrade application. The command syntax for the LOADFW command is:

```
LOADFW: Load Firmware onto a PM or unit.
       All parameter will execute LOADFW on
       all PMs in the post set of the same
       PM type displayed on the MAP.
Parms: <DEVICE> {UNIT <UNIT_NO> {0 TO 1},
                 PM,
                 INACTIVE,
                 ACTIVE}
        [<FILENAME> STRING]
         [UPGRADE]
         [NOWAIT]
         [ALL]
```

To download firmware to the XPM, execute one of the following commands. The following are examples of default syntax.

>LOADFW PM

or

>LOADFW UNIT unit_no

or

>LOADFW INACTIVE

Note 1: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

Note 2: By using the LOADFW command without the UPGRADE option, the firmware downloads to the MSL-100 system.

XPM Firmware Loader Robustness CM Component disables the firmware option of the LOADPM command. A message is output to the user if the firmware option of the LOADPM command is used. This message states this option is not supported and to use the LOADFW command.

Loadfile verification

Integrity checks are performed on the firmware for loadfile accuracy. A loadfile record length check ensures the file is a firmware file before submission to the XPM. If the record length is not 54, a message is output to the user and the LOADFW command fails.

Another accuracy check is a 32-bit cyclic redundancy check (CRC) along with a 16-bit checksum. The computing module (CM) sends a validation message to the XPM to verify the accuracy of the firmware load. The XPM extracts the CRC and checksum that is in the firmware load. The XPM computes the CRC value and the checksum. The XPM compares the computed and extracted values to see if the values are the same. The XPM sends the result of the comparison to the CM.

To verify the firmware load enter the following command at the MAP display terminal:

>QUERYPM CNTRS

Firmware upgrade

After loadfile verification, the XPM can be upgraded to the new firmware. To upgrade the firmware use one of the following command string sets:

>BSY PM
>LOADFW PM UPGRADE
>RTS PM

or

>BSY UNIT unit_no
>LOADFW UNIT unit_no UPGRADE
>RTS UNIT unit_no

or

>BSY INACTIVE
>LOADFW INACTIVE UPGRADE
>RTS INACTIVE

Note 1: By using the LOADFW command with the UPGRADE option, the firmware is upgraded to the new firmware load.

Note 2: To ensure the new firmware is loaded, the command string set must be performed consecutively.

When this procedure is performed on a by-unit basis, perform a switch of activity (SwAct) followed by the RTS command. Execute the LOADFW command with the UPGRADE option on the now inactive unit.

Use of the RTS command options FORCE and NOWAIT provide a faster cursor return at the MAP terminal. Use of the FORCE option aborts diagnostics. Use of the NOWAIT option aborts on-screen status reports, such as, `PASSED or FAILED`.

The following table lists parameters used with the LOADFW command.

LOADFW parameters

Parameter	Value	Definition
UNIT	n/a	Peripheral module unit
PM	n/a	Peripheral module
INACTIVE	n/a	State of peripheral module
ACTIVE	n/a	State of peripheral module
unit_no	0 or 1	PM unit number
filename	n/a	Name of firmware file. If the firmware file is not specified, the firmware load found in the appropriate inventory table is used.
UPGRADE	n/a	Upgrades the PM to the new firmware load. UPGRADE is an optional parameter.
ALL	n/a	Permits the use of the LOADFW command on a posted set of PMs. ALL is an optional parameter.
NOWAIT	n/a	Returns the prompt before the command is finished, on-screen status is not visible. NOWAIT is an optional parameter.

Note: In this table N/A is an abbreviation for not applicable.

—end—

Patches CBB02 and CBB04

> **ATTENTION**
>
> Some functionality in this document may require CM patches CBB02 and CBB04.

Enhanced Dynamic Data Sync (EDDS)

Dynamic data describes various state information in an XMS-based peripheral module (XPM) unit, such as link and module states. These states are normally set through link changes and call processing. When an inactive unit is returned to service (RTS), that unit must receive a snapshot of this state information in order to preserve warm swact functionality. This state information is encapsulated (enclosed) in the form of data-sync tables tied to the XPM data sync mechanism.

One of the enhancements provided by EDDS is the reporting of table mismatches between the active and inactive unit when data-sync occurs. If the inactive unit receives a data-sync table it does not recognize from the active unit, the inactive unit produces a software error (SWERR). This SWERR is generated in PMDEBUG along with a PM189 log.

The data reported by this SWERR usually contains the table-id of the unknown table. The format is “tbl_skipped xx yy zz”, where “xx yy zz” is a sequence of hexi-decimal data. If the inactive unit has software release XPM08 or above, “xx” represents the unknown table-id. For PM upgrades this SWERR indicates a valid mismatch in functionality for specific table-ids, as listed in the next table.

> ***Note:*** For XPM07 no valid data is reported with this SWERRR. XPM07 only reports a table is being skipped, it does not report any table-id information.

If any “tbl_skipped” SWERRs appear that do not match the previously mentioned pattern, report the SWERR to the next level of support.

The next table list PMs and associated loads that may generate the “tble_skipped” SWERR. If the loads in the next table or higher versions of these loads are in the active unit of an XPM, and you are data-syncing to a lower load in the inactive unit, “tble_skipped” SWERRs may be produced.

Tble_skipped swerr peripheral modules

PM	Load	Table–id
DTC, LGC, LTC	ECL08	#5C, #5D, #5E (ISDN ILD tables)
DTC with CCS7 (DTC7)	ED781	#63, #64 (C7 link manager tables)
DTC, LGC, LTC, RCC, RCC2, SMA, SMA2, SMU	ECL09, ELI09, ESI09, ESR09, XM209, XSC09, XRI09	#5A (SPID info)

Example

If upgrading to ECL09 from ECL07, four “tbl-skipped” SWERRs with unintelligible words appear, as XPM07 only reports a table is being skipped. If upgrading to ECL09 from ECL08, only one “tbl_skipped 5A AB EF” SWERR appears. The table_id skipped is the #5A SPID.

LOADPM failures on ISDN XPMs

A faulty ISDN Signaling Pre-Processor (NTBX01) circuit card may cause a LOADPM failure on an ISDN XPM. However, the faulty card does not appear on the list of failed circuit cards.

If a LOADPM fails on an ISDN XPM unit, check for the following responses:

- The LOADPM fails at the same percentage of completion on each attempt.
- The LOADPM failure generates a PM181 log, indicating a load failure, with the following reason.

```
Failed to load.
Fail message received from PM.
```

If a LOADPM failure generates the above responses, replace the NTBX01 circuit card early in troubleshooting. The faulty NTBX01 circuit card does not appear on the list of failed cards, but the circuit card could be the cause of the LOADPM failures on the ISDN XPM unit.

PRSM notes

This section contains notes related to the PRSM. This information may be helpful in preventing or troubleshooting problems during the PM update.

No corresponding load during PRSU application

During PRSU application PRSM may generate the following warning.

```
*WARNING:Though the loadname of the destination has been
*WARNING:changed in PRSM, there is not a corresponding
*WARNING:loadset in PRSM that matches the loadname
*WARNING:that the destination currently has:  EDH08BC
```

PRSM generates this warning if a new load that requires PRSUs is assigned to a unit before the PRSUs are applied. Follow the update procedures in this document, assign the new load to a unit only after PRSUs are applied.

DBAUDIT during PM upgrade

If a manual or automated DBAUDIT is performed at the incorrect time during a PM upgrade, PRSUs associated with the previous load are tied to the new PM load.

Following are examples of DBAUDITs performed at the incorrect time during a PM upgrade.

- An automated DBAUDIT runs while a unit is being upgraded.
- A manual DBAUDIT is performed after the new load is assigned to the unit but before the unit is loaded with the new load.
- A manual DBAUDIT is performed on a subset of units being upgraded with the same load.

To prevent a DBAUDIT from running at the incorrect time, follow these precautions.

- Check table AUTOOPTS, if necessary, change the time the PRSM automated processes start. The procedure “Starting a PM update shift” includes this step.
- Perform a manual DBAUDIT only when specified in the update procedures in this document.

PRSU file storage

The following section includes recommendations for the storage of PRSU files for new loads, previous loads, and older loads.

PRSU files for new loads

Keep a copy of the PRSU files for the new XPM and ISN PM loads until the office completes the one-night process (ONP). PRSM will use these files on the new side to populate the PRSM database.

When the office completes the ONP, you can erase the PRSU files for the new ISN PM loads. Check office policy, before any files are erased.

Keep PRSU files for the new XPM loads on one of the following devices:

- store file device (SFDEV)
- the same device that contains the PM load as datafilled in table PMLOADS
- a device datafilled in table PADNDEV

PRSU files for previous loads

Do not erase PRSU files for the previous XPM or ISN PM loads until the following actions occur.

- The office completes all PM upgrades for this release.
- PRSM completes a successful DBAUDIT on the updated PMs.
- PRSM completes a successful File Audit.

When the File Audit runs, PRSM validates the PRSUs for previous loads. The status for previous loads is changed to Not Needed (NN). PRSM will no longer list these PRSU files in any PRSM reports.

If previous PRSU files are erased before these actions occur, PRSM cannot validate these files. PRSM changes the status of PRSU files to Needs Validating (NV), against the PMs with these new loads. Each day when the PRSM File Audit runs it attempts to validate these PRSUs. The attempt fails and the MSL-100 switch generates numerous PRSM logs as a result.

If these PRSU files are moved to another device during the PM upgrade, confirm the device is datafilled in table PADNDEV. If the new device is datafilled in table PADNDEV, PRSM can validate these PRSUs during the File Audit.

PRSU files for older loads

An MSL-100 switch can have PRSU files for older PM loads no longer used. Check office policy on the storage of these files.

If these files are erased, the following is increased:

- available storage space

- the speed of the PRSM automated processes

The PRSM File Audit attempts to validate any PRSU it locates on the MSL-100 switch, not entered in the PRSM database. This includes PRSU files for older loads. If the PRSUs for older loads are erased, the number of PRSUs the File Audit attempts to validate is decreased. This decrease increases the speed of the File Audit.

Changing the CMR load name in field OPTCARD

> **CAUTION**
> **Possible service interruption**
> The following section, and the update procedures in this document, provide the specific steps to change the CMR load name in field OPTCARD. Use of other commands will lead to service interruptions.

The procedures in this document provide the specific steps to change the CLASS modem resource (CMR) load name in the OPTCARD field of a PM inventory table. The following list summarizes these steps:

1. Access the OPTCARD field with the CHA OPTCARD command.
2. Press the Enter key to scroll through the fields until prompted for the CMR load name.
3. Enter the new CMR load name.
4. Press the Enter key to scroll through the fields to reach the blank OPTCARD prompt.
5. Exit the OPTCARD field with the $ command.

Do not use a chained command, such as CHA OPTCARD cmr_load, and do not use a $ while in the OPTCARD range. Either of these commands deletes all OPTCARD entries below the CMR load and possibly lead to service outages.

Central processing unit occupancy

Central processing unit (CPU) occupancy directly affects loading times. Loading times will increase with higher CPU occupancy. If CPU occupancy exceeds 38 percent, consider updating one PM at a time or rescheduling the PM update.

> ***Note:*** This recommendation is based on an NT40 with Junctored network (JNET).

Message switch load

> **ATTENTION**
>
> Depending on the office's upgrade path, the message switch (MS) may require additional memory to support this release. Contact the next level of support or the Nortel Networks software delivery prime for additional information.

The PM load tape for this release includes a MS load. This load is a back up load. The MS is typically updated one to two days prior to the application date (AD) or ONP date. Use the MS load included on the ONP tape. Procedures to update the MS are included in *One Night Process Software Delivery Procedures, 297-8991-303*.

ACD offices

Offices that support Automatic Call Distribution (ACD) may receive the following message during a PM update to this release.

```
WARNING:  Call Forcing moved to Table ACDGRP
Reference feature AF6054 and NTP 297–2041–350.
```

Tables ACDGRP, ACDLOGIN, and ACDENLOG should have been changed after an update to an MSL03 or higher PCL to support a change in call forcing tone. The MSL-100 switch generates the warning if the tables were not changed.

If this warning is generated during a PM update to this release, change the datafill in the tables before continuing. Incorrect datafill may direct the call forcing tone to the base telephone and affect service.

Refer to *Warning 950146 ACD: Call Forcing Tone for LET/LEC/CDN04* and the *Translations Guides* for your office for more information.

LOADPM parameters

Do not use the CC parameter with the LOADPM command unless the parameter is specifically included in the update procedure in this document. When a PM is loaded with the LOADPM command, it always receives the new load from central control (CC) even though the MAP display may indicate that mate loading is occurring. When the CC parameter is not used, the new load is routed from the CC to the PM through the mate unit. When the CC parameter is used, the new load is routed from the CC directly to the PM.

Do not use the FORCE parameter with a command unless the parameter is specifically included in the update procedure in this document. The FORCE parameter forces the MSL-100 switch to skip some functions, such as diagnostic tests, which could lead to service interruptions. When the FORCE parameter is included in a procedure, steps within the procedure are added to perform any critical functions skipped by the parameter.

Peripheral module to baseline cross reference

This section contains information regarding peripheral module firmware and usage of the remote firmware loader tool.

CAUTION
Failure to use the RFWLOAD tool to upgrade firmware to the UPFWQyxx series, results in a loss of service.

With MSL10, Nortel Networks introduced a second firmware load for PM processors, UPFWQyxx. As with all loadnames, this loadname is comprised of two fields. “UPFWQ” is the load-type field of the loadname. “yxx” is the edition-code field of the loadname.

For NTMX77 PMs up to and including the MSL09 PCL, load-type “UPFWN” is available. Therefore, the default firmware loadname to use when performing simple PM upgrades in preparation for a new MSL115 PCL is UPFWNS01. In the majority of cases UPFWNS01 is the firmware to use.

For NTSX05 based peripherals, there is only one firmware loadname that can be used: SXFWyyxx. “yyxx” is the edition-code field of the loadname.

If one of the following installations or planned change is occurring, use the RFWLOAD tool to upgrade the firmware to the UPFWQyxx series.

Please read the following sections pertaining to XPM firmware.

Use loadname SXFWAH01 during:

- the installation of the NTSX05 PM processor hardware.
- the installation of Centrex IP Gateway hardware.
- a planned change in the high-level data link control (HDLC) protocol between an extended distance remote and its host PM.

Note 1: SXFWAH01 supports DMS-X and Q.703 protocols.

Note 2: UPFWQK01 supports DMS-X and Q.921 HDLC link access procedure on the D-channel (LAPD) protocols.

Note 3: Q.703 and Q.921 protocols are not compatible.

If one of the four activities just mentioned is occurring, use the remote firmware loader (RFWLOAD) tool to upgrade the firmware to the UPFWQyxx series, otherwise service will be lost. Refer to the section “Remote firmware loader tool” in this chapter for additional information regarding the use of the RFWLOAD tool.

For additional questions regarding firmware loading, please contact your Nortel Networks representative before attempting to load the selected PMs.

Remote firmware loader tool

Access to the RFWLOAD tool is accomplish by using the tools supervisor (TOOLSUP) utility. Use the following steps to obtain access to, and use the RFWLOAD tool.

To obtain permission to use the RFWLOAD tool perform the following:

1 At the command interpreter (CI) prompt, type

>TOOLSUP

and press the Enter key.

2 At the TOOLSUP prompt, type

>ACCESS ON RFWLOAD

and press the Enter key.

3 Enter the TOOLSUP password for the RFWLOAD tool. The TOOLSUP password is the standard technical assistance support (TAS) password.

4 If the password is entered correctly the following message is generated by the MSL-100 switch.

```
RFWLOAD permitted

RFWLOAD access will expire 48 hours from now.

                   **WARNING**
You have permitted access to command(s) that require
skilled and knowledgeable users.  Proper use is required
to avoid possible service degradation.  Please ensure only
trained and qualified personnel proceed.
```

The RFWLOAD tool can be entered at any MAP level. To use the RFWLOAD tool perform the following:

CAUTION
Converting from Q.703 HDLC protocol to Q.921 HDLC protocol
This tool is to be used to convert from the Q.703 HDLC messaging protocol to the Q.921 HDLC messaging protocol, for extended distance remote configurations. Unless you are completely familiar with the commands in this tool, please type QUIT now.

1 Access the RFWLOAD tool, type

>RFWLOAD

and press the Enter key.

2 Enter the command to start the remote firmware upgrade for the PM.

>UPGRADEFW pm_type pm_no firmware

and press the Enter key.

where:

pm_type	is the specified PM to upgrade
pm_no	is the number of the specified PM to upgrade
firmware	is the firmwae load for the PM

Example use of the UPGRADEFW command:

UPGRADEFW LTC 0 UPFWQK01

3 To exit the remote firmware loader type

>QUIT

and press the Enter key.

The next table lists applicable XPM processors, firmware baselines and current firmware releases. To support this release, the XPM must have a firmware load at the firmware baseline or at a later release, such as the current release.

XPM processor (NTAX74, NTMX77 or NTSX05) firmware baseline

XPM	Description	XPM processor	Current firmware release
DTC	DTC with ISDN (DTCI). Provisioned with NTMX76, high-level data link control (HDLC) and IP Gateways provisioned in table IPINV.	NTSX05	SXFWAH01
	DTC with CCS7 (DTC7).	NTMX77	UPFWNS01
	DTC with CCS7 (DTC7).	NTMX77	UPFWNS01
	DTC with ISDN (DTCI).	NTSX05	SXFWAH04
	DTC with CCS7	NTSX05	SXFWAG04
	Digital trunk controller (DTC).	NTMX77	UPFWNS01
ESA	ESA with NTMX45AA processor	NTMX45	UPFWNS01
LGC	LGC with subtending RCC2. NTMX76 and HDLC provisioned. See Note 2 when upgrading to NTSX05.	NTMX77 NTSX05	UPFWQK01 SXFWAH04
	LGCI with subtending RCC2. NTMX76 and HDLC provisioned. See Note 2 when upgrading to NTSX05.	NTSX05	SXFWAH04
	LGC with subtending RCC2. No NTMX76 or HDLC provisioned.	NTMX77 NTSX05	UPFWNS01 SXFWAH04
	LGCI with subtending RCC2. No NTMX76 or HDLC provisioned.	NTSX05	SXFWAH04

Note 1: The host and remote XPM must be using a version of firmware which supports the Q.921 protocol. Firmware that supports the Q.921 protocol are UPFWNSyxx or UPFWQyxx for NTMX77 and NTAX74, and SXFWyyxx for NTSX05.
Note 2: The RFWLOAD tool automates the firmware upgrade process. Refer to the section titled “Remote firmware loader tool” in this chapter for information regarding the use of the RFWLOAD tool.

—continued—

XPM processor (NTAX74, NTMX77 or NTSX05) firmware baseline (continued)

XPM	Description	XPM processor	Current firmware release
LGC (cont)	LGC with ISDN line drawer (ILD)	NTSX05	SXFWAH04
	Line group controller (LGC).	NTMX77 NTSX05	UPFWNS01 SXFWAH04
LTC	LTC with subtending RCC2. NTMX76 and HDLC provisioned. See Note 2 when upgrading to NTSX05.	NTMX77 NTSX05	UPFWQK01 SXFWAH04
	LTCI with subtending RCC2. NTMX76 and HDLC provisioned. See Note 2 when upgrading to NTSX05.	NTSX05	SXFWAH04
	LTC with ISDN (LTCI). Provisioned with NTMX76, HDLC and IP Gateways provisioned in table IPINV.	NTSX05	SXFWAH04
	LTC with subtending RCC2. No NTMX76 or HDLC provisioned.	NTMX77 NTSX05	UPFWNS01 SXFWAH04
	LTCI with subtending RCC2. No NTMX76 or HDLC provisioned.	NTSX05	SXFWAH04
LTC	LTC with ISDN (LTCI).	NTSX05	SXFWAH04
	LTC with ILD	NTSX05	SXFWAH04

Note 1: The host and remote XPM must be using a version of firmware which supports the Q.921 protocol. Firmware that supports the Q.921 protocol are UPFWNSyxx or UPFWQyxx for NTMX77 and NTAX74, and SXFWyyxx for NTSX05.
Note 2: The RFWLOAD tool automates the firmware upgrade process. Refer to the section titled “Remote firmware loader tool” in this chapter for information regarding the use of the RFWLOAD tool.

—continued—

XPM processor (NTAX74, NTMX77 or NTSX05) firmware baseline (continued)

XPM	Description	XPM processor	Current firmware release
LTC (cont)	Line trunk controller (LTC).	NTMX77 NTSX05	UPFWNS01 SXFWAH04
PDTC/ DTCO	Peripheral digital trunk controller (PDTC)/	NTMX77	UPFWNS01
		NTSX05	SXFWAH04
PDTC/ DTCO	Digital trunk controller overseas (DTCO)		
RCC	Remote cluster controller (RCC).	NTMX77	UPFWNS01
RCC2	Remote cluster controller 2 (RCC2). With host peripheral provisioned with NTSX05 processor. See Note 2 if host peripheral is upgraded to NTSX05 processor with MX76 cards.	NTAX74	UPFWQK01 UPFWQK01
	Remote cluster controller 2 (RCC2). See Note 2 if host peripheral is upgraded to NTSX05 processor with 6X69 cards.	NTAX74	UPFWNS01 UPFWNS01
SMA	Subscriber carrier module-100 access (SMA).	NTAX74	UPFWNS01
SMA2	Subscriber carrier module-100 access 2 (SMA2).	NTAX74	UPFWNS01
SMS	Subscriber carrier module-100S (SMS).	NTMX77	UPFWNS01

Note 1: The host and remote XPM must be using a version of firmware which supports the Q.921 protocol. Firmware that supports the Q.921 protocol are UPFWNSyxx or UPFWQyxx for NTMX77 and NTAX74, and SXFWyyxx for NTSX05.
Note 2: The RFWLOAD tool automates the firmware upgrade process. Refer to the section titled “Remote firmware loader tool” in this chapter for information regarding the use of the RFWLOAD tool.

—continued—

XPM processor (NTAX74, NTMX77 or NTSX05) firmware baseline (continued)

XPM	Description	XPM processor	Current firmware release
SMSR	Subscriber carrier module-100S remote (SMSR).	NTMX77	UPFWNS01
SMU	Subscriber carrier module-100 urban (SMU).	NTMX77	UPFWNS01
Note 1: The host and remote XPM must be using a version of firmware which supports the Q.921 protocol. Firmware that supports the Q.921 protocol are UPFWNSyxx or UPFWQyxx for NTMX77 and NTAX74, and SXFWyyyx for NTSX05. ***Note 2:*** The RFWLOAD tool automates the firmware upgrade process. Refer to the section titled "Remote firmware loader tool" in this chapter for information regarding the use of the RFWLOAD tool.			
—end—			

Peripheral module loads

This release includes the following types of files:

- PM loads
- PRSUs
- PPXLs

PM loads are the traditional PM load files. The load name for a base load consists of two fields: load_type and edition_code.

The load_type field identifies the type of load. This field consists of the first three to four characters of the load name, and it can include any combination of letters or digits. The next table lists possible naming conventions for field load_type.

> ***Note:*** Refer to the "Load history" table in this chapter for a complete list of PM load types supported in this release.

Naming conventions for PM load_type

Syntax	Example
zzz	**LCM**01D, **MTM**KA02, **D1T**005, **ETC**04BF1, **ECL**06GBH
zzzz	**LCME**06BH, **RMTM**KA01, **MPCX**33AB,
Note: The character *z* represents a letter or digit.	

The edition_code field identifies the version of the type of load. The edition_code field consists of the remaining three to five characters of the load name. The following table lists possible naming conventions for the edition_code field.

> ***Note:*** Refer to the Load history table in this chapter for a complete list of each version of each type of load.

Naming conventions for PM edition_code

Syntax	Example
xxnn	MTM**KA02**
nnxx	LCME**06BH**
nnn	D1T**005**
nnx	LCM**01D**
nnxxn	ETC**04BF1**
nnxxx	ECL**06GBH**
Note: The character *x* represents a letter, the character *n* represents a digit, and the character *z* represents a letter or digit.	

Post release software update

A PRSU is software created as one of the following:

- a procedure replacement to correct software deficiencies delivered to all affected sites
- an enhancement to the original design delivered to all affected sites and activated on a per office basis
- a fix for a data corruption deliverable, delivered only to the affected office

- a delivery mechanism for early feature deployment that contains new features and is activated on a per site basis by a controlled password

  Note: For naming conventions and additional patching information, refer to *Post-Release Software Manager (PRSM) Reference Guide*.

Pre-patched XPM loads

PPXLs are loads that have corrective PRSUs built into the files. PPXLs do not reduce the number of PRSUs against a given load. PPXLs reduce the number of PRSUs manually applied to the load along with reducing loading time.

PPXLs are identified by a date extension to the base load name. For example, ECL05BX_950215 is the pre-patched load for base load ECL05BX.

CAUTION
Possible service interruption
Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. If the LOADPM CC command is used when performing this type of update, PRSM applies all patches built into the PPXL. Obsolete patches are not removed and patches not built into the PPXL are not applied.

CAUTION
Possible service interruption
PPXLs automate the process of manually patching the load. Use the ASSIGN command to set the load to each PM unit. Failure to use the ASSIGN command results in patches not built into the PPXL not being applied.

Use the PATCHLIST command at the CI level to display the list of patches built into the PPXL. Example as follows:

>XPMLFP
>PATCHLIST FILE <PPXL file_name>

Note: The volume must be listed before using this command.

Only the base load name needs to be datafilled in the associated PM inventory table. In order to determine the full PPXL file-name to load, the PM loader software uses the base load name in the inventory table to index field ACTFILE in table PMLOADS. Following is a sample tuple from table PMLOADS.

```
           LOADNAME
            ACTFILE       ACTVOL
            BKPFILE       BKPVOL      UPDACT
   -------------------------------------------
            ECL07BI
      ECL07BI_951105   S00DPMLOADS
      ECL07BI_951105   S01DPMLOADS         N
```

Download or copy the PRSUs for the PPXL to the MSL-100 switch. Refer to the “PRSU file storage” section in this chapter for recommendations on the storage of PRSU files. A PPXL reduces the number of PRSUs manually applied to the load, but the PRSUs for the PPXL must reside on the MSL-100 switch prior to datafilling in table PMLOADS. If the PRSUs for the PPXL are not on the MSL-100 switch, problems will develop later in the PM loading process. For security, this volume should be duplicated on another disk.

> ***Note:*** If the SLM tape cartridge label text indicates *Patches: Yes*, the tape includes the required PRSUs for XPM and ISN load files.

The XPM may have additional PRSUs applied or removed in the same manner used with XPM loads in the past. Any PRSUs built into the PPXL may be removed from the load as long as the PRSU file is present on the disk.

If the office is at MSL10 or higher and table PMLOADS is manually updated, use the PRSM command LFAUDIT to audit each PPXL before updating table PMLOADS. The LFAUDIT command identifies the PRSU in the PPXL to the PRSM database. Use the procedure “Preparing for a manual PM update” in this document to perform the LFAUDIT command. If PMUPGRADE is used to update table PMLOADS take no additional action. PMUPGRADE performs the audit automatically.

Load to release cross reference

The next table lists the PM and non-CM loads supported by this release and updated during the PM update process. Use this table to confirm the office has received all the loads necessary for the PM update.

> ***Note:*** Date extensions are not included for pre-patched loads.

Load to release cross reference

Load name	Load description
ADCMQA01	Basic DCM
ARS15BH	LIU7 with 8 Mbyte and 36-link channelized access
ATMKA02	Basic ATM
ATS15BH	LIU7 with 32 Mbyte and channelized access
BLMTB01	Basic LM
BRLMVA03	Remote LM
BTMKA02	8-wire POTS trunk module
CMR10A	Basic CMR
DLMXPM04	Digital line module
DTUBAD01	DTU with BERT
DTUDAA01	Enhanced DTU
DTUHAA02	DTU for off-hook balance tests
ECL14BC	Basic DTC/LGC/LTC with MX77
ED714BC	DTC with MX77 and CCS7
ED16AA03	EDRAM 16 Minute (1X80BA)
EDH15AY	Enhanced DCH
EDRMAE06	EDRAM 4 Minute (1X80AA)
EIPE12AH	IPE Enhanced (EIPE)
ENC15BC	Basic ENET
ERLMVA02	Remote LM with stand-alone load
ESA10AQ	Basic ESA (NT6X45)
ESR14BC	RCC with MX77
ETC15BC	EIU telnet
F8C15BC	Basic FRIU
ILDRAF04	Firmware load for ISDN line drawer controller
IPE09AB	Intelligent Peripheral Equipment (IPE)
IOMRAX01	Basic IOM
LCM01D	Basic LCM

—continued—

Load to release cross reference (continued)

Load name	Load description
LCME15AB	Enhanced LCM with ISDN
LPC15BC	Basic LIM load
LRS15BH	LIU7 with two cards and 8 meg
LTS15BH	LIU7 with two cards and 32 Mbyte non-channelized V.35 access
MPC003AC	1980 CCIT X.25 MPC
MPC403AC	1984 CCIT X.25 MPC
MPCA03AC	Async MPC
MPCX33AB	BX.25 MPC
MPF15BC	MS_multiport card firmware
MSA14BC	ESA with NTMX45
MTMKA02	Basic MTM
MTULJ04	Basic MTU
MUC15BC	Basic MS
NRS15BC	Basic NIU
ODI15AY	PDTC/DTCO
XAIO01AG	XA-CORE IOP card
PK10CU10	XA-CORE CMIC card
QD715AY	DTC with SX05 (CCS7)
QDI15AY	PDTC/DTCO with SX05 (ISDN)
QDT15AY	PDTC/DTCO with SX05 (CCS7)
RDCMPA02	Remote DCM
RMM10A	Basic RMM
RMTMKA01	Remote TM
SXFWAH01	SX05 processor firmware load
TKMTKA02	TM/MTU combo
UPFWNS01	Universal XPM processor firmware load
UPFWQK01	Universal XPM processor firmware load (EDC)
XAIO01AK	XA-CORE input/output processor (IOP)

—continued—

Load to release cross reference (continued)

Load name	Load description
XAPE01AG	XA-CORE processor element (PE)
XLCM15AB	LCM with 256 Kbyte
XM215AY	SMA2 with AX74
XRC15BH	Basic XLIU
XRI15AY	RCC2 with AX74
XSC13BB	SMA with AX74
—end—	

PM to load cross reference

The next table lists each PM type, hardware and associated load supported by this release. The PMs, hardware and loads for three prior releases are also displayed in the next table. Use this table to identify the PMs to be updated in the office.

The first three columns identify the type of PM. The type column lists the kind of PM or other hardware type as posted at the MAP display. The description column describes the service provided by the PM. The hardware column lists product engineering codes (PEC) for some circuit cards in some PMs. The hardware column may be helpful in identifying the type of PM in the MSL-100 switch or the type of load for that PM.

> ***Note 1:*** Gating hardware is any hardware required for a particular release. Gating hardware PECs are are identified in the table.
>
> ***Note 2:*** For assistance with acronyms used in this table, refer to the chapter “List of terms” in this document.

The middle columns list loads for each PM for recent releases. Only PMs with loads that are changed since the office’s current release require updating.

> ***Note:*** Date extensions for pre-patched loads are not included.

The column Size lists the size of the file in SLM blocks, which may be helpful in allocating volumes to hold the copied loads. Re-issued loads and pre-patched loads may cause variations between the actual size of the load and the size listed in the table.

ATTENTION
An issue of a load in the CD version of this document may be different from an issue of a load on the PM load tape. For example, ECL07BE may be listed in the CD version of this document as ECL07BA. This difference is due to the production schedule of the CD. Refer to the document that accompanied the PM load tape for the correct load names and issues.

PM to load cross reference

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
ATM	ATM		ATMKA02	ATMKA02	ATMKA02	ATMKA02
AX74	XPM processor card	NTAX74AA	UPFWNP04	UPFWNQ03	UPFWNR04	UPFWNS01
CMR	CMR	NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
CTM	CTM	NT1X81AA	MTMKA02	MTMKA02	MTMKA02	MTMKA02
DCH	DCH	NTBX02BA	EDH12BC	EDH13BB	EDH14BC	EDH15AY
DCM	DCM		ADCMQA01	ADCMQA01	ADCMQA01	ADCMQA01
	Remote DCM		RDCMPA02	RDCMPA02	RDCMPA02	RDCMPA02

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

—continued—

PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
DLM	DLM		DLMXPM04	DLMXPM04	DLMXPM04	DLMXPM04
DTC	DTC with NTMX77	NTMX77AA and up	ECL12BC UPFWNP04	ECL13BB UPFWNQ03	ECL14BC UPFWNR04	ECL14BC UPFWNS01
	DTC7	NTMX77AA and up	ED712BC UPFWNP04	ED713BB UPFWNQ03	ED714BC UPFWNR04	ED714BC UPFWNS01
	DTC7	SX05			QD714BC	QD715AY
DTCI	DTCI and NTMX77	NTMX77AA and up	(see note 1)	(see note 1)	(see note 1)	(see note 1)
	DTCI and NTSX05	NTSX05AA	QLI12BC_00 0502 SXFWAE09	QLI13BB_00 0510 SWFWAE09	QLI14BC SXFWAG04	QLI15AY SXFWAH01
DTU	DTU for BERT tests	NT4X23AA and up	DTUBAD01	DTUBAD01	DTUBAD01	DTUBAD01
	DTU with NT4X45	NT4X45	DTUDAA01	DTUDAA01	DTUDAA01	DTUDAA01
	DTU for off-hook balance tests	NT4X23AA and up	DTUHAA02	DTUHAA02	DTUHAA02	DTUHAA02
EDRM	EDRAM 4 Minute	NT1X80AA	EDRMAE06	EDRMAE06	EDRMAE06	EDRMAE06
	EDRAM 16 Minute	NT1X80BA	ED16AA03	ED16AA03	ED16AA03	ED16AA03
EIU	EIU		ETC12BF	ETC13BD	ETC14BG	ETC15BC

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

—continued—

PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
ENET	ENET	NT9X13KA	ENC12BF	ENC13BD	ENC14BG	ENC15BC
ESA	ESA with NT6X45	NT6X45	ESA10AQ	ESA10AQ	ESA10AQ	ESA10AQ
	ESA with NTMX45	NTMX45	MSA12BC UPFWNP04	MSA13BB UPFWNQ03	MSA14BC UPFWNR04	MSA14BC UPFWNS01
FRIU	FRIU	NTEX31BA and up	F8C12BI	F8C13BH	F8C14BJ	F8C15BH
ILD	ISDN line drawer controller	NT6X45DA	ILDRAD15	ILDRAE03	ILDRAF04	ILDRAF04
IOM	IOM (hi-speed)		IOMHAX01	IOMHAX01	IOMHAX01	IOMHAX01
	IOM (standard)		IOMRAX01	IOMRAX01	IOMRAX01	IOMRAX01

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

—continued—

PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
IPE	IPE Standard	NT7D07AC	IPE09AB	IPE09AB	IPE09AB	IPE09AB
	IPE Enhanced	NT7D07BA	EIPE11AT	EIPE11AT	EIPE11AT	EIPE12AH
LCM/ ELCM	LCM/ELCM (64 Kbyte)	NT6X51AA	LCM01D	LCM01D	LCM01D	LCMO1D
	LCM /ELCM (256 Kbyte)	NT6X51AB/ AC	XLCM12AZ	XLCM13AX	XLCM14BA	XLCM15AB
	RLCM (64 Kbyte)		LCM01D	LCM01D	LCM01D	LCM01D
	RLCM (256 Kbyte)		XLCM12AZ	XLCM13AX	XLCM14BA	XLCM15AB
	Enhanced distance capability RLCM		EDC10BH	EDC10BH	EDC10BH	EDC10BH
LCME	LCME		LCME12BA	LCME13AY	LCME14BA	LCME15AB
LGC	LGC	NTMX77AA and up	ECL12BC UPFWNP04	ECL13BB UPFWNQ03	ECL14BC UPFWNR04	ECL14BC UPFWNS01
		NTSX05AA	QLI12BC_00 0502 SXFWAE09	QLI13BB_00 0510 SXFWAF10	QLI14BC SXFWAG04	QLI15AY SXFWAH01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

—continued—

PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
LGC (cont)	LGC with subtending RCC	NTMX77AA and up	ECL12BC UPFWNP04	ECL13BB UPFWNQ03	ECL14BC UPFWNR04	ECL14BC UPFWNS01
		NTSX05AA	QLI12BC_00 0502 SXFWAE09	QLI13BB_00 0510 SXFWAF10	QLI14BC SXFWAG04	QLI15AY SXFWAH01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
	LGC with ILD	NTSX05AA	QLI12BC_00 0502 SXFWAE09	QLI13BB_00 0510 SXFWAF10	QLI14BC SXFWAG04	QLI15AY SXFWAH01
	LGCI with NTMX77	NTMX77AA and up	(see note 1)	(see note 1)	(see note 1)	(see note 1)
		NT6X78AA and up				
		NTBX02BA				
	LGCI with NTSX05	NTSX05AA NT6X78AA and up	QLI12BC_00 0502 SXFWAE09 CMR10A	QLI13BB_00 0510 SXFWAF10 CMR10A	QLI14BC SXFWAG04 CMR10A	QLI15AY SXFWAH01 CMR10A
		NTBX02BA	EDH12BC	EDH13BB	EDH14BC	EDH15AY

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to "PM to patch cross-reference" in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section "XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware" in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the "Type" field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
LGC (cont)	LGCI with NTMX77 and subtending RCC	NTMX77AA and up	(see note 1)	(see note 1)	(see note 1)	(see note 1)
		NT6X78AA and up				
		NTBX02BA				
	LGCI with NTSX05 and subtending RCC	NTSX05AA	QLI12BC_000502 SXFWAE09	QLI13BB_000510 SXFWAF10	QLI14BC SXFWAG04	QLI15A SXFWAH01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
		NTBX02BA	EDH12BC	EDH13BB	EDH14BC	EDH15AY

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
LGC	LGCI with NTMX77 and subtending RCC2	NTMX77AA and up NT6X78AA and up NTBX02BA	(see note 1)	(see note 1)	(see note 1)	(see note 1)
	LGCI with NTSX05 and subtending RCC2	NTSX05AA	QLI12BC_000502 SXFWAE09	QLI13BB_000510 SXFWAF10	QLI14BC SXFWAG04	QLI15AY SXFWAH01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
		NTBX02BA	EDH12BC	EDH13BB	EDH14BC	EDH15AY
LIM	LIM	NT9X13DD or NT9X13DB with NT9X14DB	LPC12BF	LPC13BD	LPC14BG	LPC15BC
LIU7	LIU7 with 8 Mbyte and 36-link channelized access	NTEX26AA NTEX22BA and up	ARS12BI	ARS13BH	ARS14BJ	ARS15BH

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
LIU7 (cont)	LIU7 with 2 cards and 8 Mbyte with non-channelized V.35 access	NT9X77AA or NT9X77AB NTEX22BA and up	LRS12BI	LRS13BH	LRS14BJ	LRS15BH
	LIU7 with 2 cards and 8 Mbyte and DS–0A non-channelized access	NT9X78 NTEX22BA and up	LRS12BI	LRS13BH	LRS14BJ	LRS15BH
	LIU7 with 32 Mbyte and channelized access	NTEX26AA NTEX22BA and up		ATS13BH	ATS14BJ	ATS15BH
	LIU7 with 2 cards and 32 Mbyte non-channelized V.35 access	NT9X77AA or NT9X77AB and up		LTS13BH	LTS14BJ	LTS15BH
	LIU7 with 2 cards and 32 Mbyte and DS-0A non-channelized access	NT9X78 or NTEX22BA and up		LTS13BH	LTS14BJ	LTS15BH
LM	LM		BLMTB01	BLMTB01	BLMTB01	BLMTB01
	Remote LM		BRLMVA03 ERLMVA02	BRLMVA03 ERLMVA02	BRLMVA03 ERLMVA02	BRLMVA03 ERLMVA02

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
LTC	LTC with NTMX77	NTMX77AA and up	ECL12BC UPFWNP04	ECL13BB UPFWNQ03	ECL14BC UPFWNR04	ECL14BC UPFWNS01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
	LTC with NTSX05	NTSX05AA NT6X78AA and up	QLI12BC_00 0502 SXFWAE09 CMR10A	QLI13BB_00 0510 SXFWAF10 CMR10A	QLI14BC SXFWAG04 CMR10A	QLI15AY SXFWAH01 CMR10A
	LTC with MX77 and subtending RCC	NTMX77AA and up	ECL12BC UPFWNP04	ECL13BB UPFWNQ03	ECL14BC UPFWNR04	ECL14BC UPFWNS01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
	LTC with NTSX05 and subtending RCC	NTSX05AA	QLI12BC_00 0502 SXFWAE09	QLI13BB_00 0510 SXFWAF10	QLI14BC SXFWAG04	QLI15AY SXFWAH01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
	LTC with NTMX77 and subtending RCC2	NTMX77AA and up	ECL12BC UPFWNP04	ECL13BB UPFWNQ03	ECL14BC UPFWNR04	ECL14BC UPFWNS01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
	LTC with ILD	NTSX05AA	QLI12BC_00 0502 SXFWAE09	QLI13BB_00 0510 SXFWAF10	QLI14BC SXFWAG04	QLI15AY SXFWAH01

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
LTC (cont)	LTCI with NTMX77	NTMX77AA and up NT6X78AA and up NTBX02BA	(see note 1)	(see note 1)	(see note 1)	(see note 1)
	LTCI with NTSX05	NTSX05AA NT6X78AA and up NTBX02BA	QLI122BC SXFWAE09 CMR10A EDH12BC	QLI13BB_00 0510 SXFWAF10 CMR10A EDH13BB	QLI14BC SXFWAG04 CMR10A EDH14BC	QLI15AY SXFWAH01 CMR10A EDH15AY
	LTCI with NTMX77 and subtending RCC	NTMX77AA and up NT6X78AA and up NTBX02BA	(see note 1)	(see note 1)	(see note 1)	(see note 1)
	LTCI with NTSX05 and subtending RCC	NTSX05AA	QLI12BC_00 0502 SXFWAE09	QLI13BB_00 0510 SXFWAF10	QLI14BC SXFWAG04	QLI15AY SXFWAH01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
		NTBX02BA	EDH12BC	EDH13BB	EDH14BC	EDH15AY

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
LTC (cont)	LTC with NTMX77 and subtending RCC2	NTMX77AA and up	(see note 1)	(see note 1)	(see note 1)	(see note 1)
		NT6X78AA and up				
		NTBX02BA				
	LTCI with NTSX05 and subtending RCC2	NTSX05AA	QLI12BC_00 0502 SXFWAE09	QLI13BB_00 0510 SXFWAF10	QLI14BC SXFWAG04	QLI15AY SXFWAH01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
		NTBX02BA	EDH12BC	EDH13BB	EDH14BC	EDH15AY

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
MPC	MPC for X.25 1980 CCIT compliant protocol (MPC0)	NT1X89AA and up	MPC003AC	MPC003AC	MPC003AC	MPC003AC
	MPC for X.25 1984 CCIT compliant protocol (MPC4)	NT1X89AA and up	MPC403AC	MPC403AC	MPC403AC	MPC403AC
	Asynchronous MPC (MPCA)	NT1X89AA and up	MPCA03AC	MPCA03AC	MPCA03AC	MPCA03AC
	MPC for X.25 protocol in packet switch network and synchronous V.32 dialup (MPCX)	NT1X89AA and up	MPCX33AB	MPCX33AB	MPCX33AB	MPCX33AB
MS	MS	Refer to “MS load” in this chapter	MUC12BF	MUC13BD	MUC14BG	MUC15BC
	MS multi-port card	NT9X17BB or NT9X17CA or NT9X17DA	MPF12BF	MPF13BD	MPF14BG	MPF15BC
MTM	MTM		MTMKA02	MTMKA02	MTMKA02	MTMKA02
	Remote MTM		RMTMKA01	RMTMKA01	RMTMKA01	RMTMKA01

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
MTU	MTU	NT2X11BA and up	MTULJ04	MTULJ04	MTULJ04	MTULJ04
NIU	NIU		NRS12BF	NRS13BD	NRS14BG	NRS15BC
OAU	OAU		MTMKA02	MTMKA02	MTMKA02	MTMKA02
PDTC/ DTCO	CCS7	NTMX77AA and up	ODT12BC	ODT13BB	ODT14BC	ODT15AY
PDTC/ DTCO	ISDN	MX77AA	ODI12BC	ODI13BB	ODI14BC	ODI15AY
PDTC/ DTCO	CCS7	SX05	QDT12BC	QDT13BB	QDT14BC	QDT15AY
PDTC/ DTCO	ISDN	SX05	QCI12BC	QCI13BB1	QCI14BC	QDI15AY
RCC	RCC	NTMX77AA and up	ESR12BC UPFWNP04	ESR13BB UPFWNQ03	ESR14BC UPFWNR04	ESR14BC UPFWNS01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
RCC2	RCC2 with NTMX77	NTMX77AA and up	(see note 1)	Note 1.	Note 1.	Note 1.
		NT6X78AA and up				
		NTBX02BA				

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
	RCC2 with NTAX74	NTAX74AA and up	XRI12BC UPFWNP04	XRI13BB UPFWNQ03	XRI14BC UPFWNR04	XRI15AY UPFWNS01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
		NTBX02BA NTBX01AC or NTBX01BA	EDH12BC	EDH13BB	EDH14BC	EDH15AY
RMM	RMM		RMM10A	RMM10A	RMM10A	RMM10A
SMA	SMA with NTAX74	NTAX74AA	XSC12BC UPFWNP04	XSC13BB UPFWNQ03	XSC13BB UPFWNR04	XSC13BB UPFWNS01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
		NTBX02BA	EDH12BC	EDH13BB	EDH14BC	EDH15AY
	SMA2 with NTAX74	NTAX74AA	XM212BC UPFWNP04	XM213BB UPFWNQ03	XM214BC UPFWNR04	XM215AY UPFWNS01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
		NTBX02BA	EDH12BC	EDH13BB	EDH14BC	EDH15AY
SMS	SMS with NTMX77	NTMX77AA and up	ESS12BC UPFWNP04	ESS13BB UPFWNQ03	ESS13BC UPFWNR04	ESS13BC UPFWNS01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
SMSR	SMSR with NTMX77	NTMX77AA and up	ECR12BC UPFWNP04	ECR13BB UPFWNQ03	ECR13BB UPFWNR04	ECR13BB UPFWNS01
SMU	SMU with NTMX77	NTMX77AA and up	ESU12BC UPFWNP04	ESU13BB UPFWNQ03	ESU13BB UPFWNR04	ESU13BB UPFWNS01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
SMU (cont)	SMU with NTMX77 and ISDN	NTMX77AA and up	ESI12BC UPFWNP04	ESI13BB UPFWNQ03	ESI13BB UPFWNR04	ESI13BB UPFWNS01
		NT6X78AA and up	CMR10A	CMR10A	CMR10A	CMR10A
		NTBX02BA	ESH12BC	ESH13BB	ESH13BB	ESH13BB
STM	STM		MTMKA02	MTMKA02	MTMKA02	MTMKA02
TM8	TM8		BTMKA02	BTMKA02	BTMKA02	BTMKA02
XA-Core	Computing module interface card (CMIC)	NTLX05AB			PK10CU10	PK10CU10
	Input output processor (IOP)	NTLX03AA or NTLS03AB or NTLX03BA or NTLX03BB			XAIO01AG	XAIO01AG
	Processor element (PE)	NTLX02CA			XAPE01AG	XAPE01AG

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM to load cross reference (continued)

PM Type	Description	Hardware	MSL11	MSL12	MSL14	MSL15
XLIU	XLIU		XRC12BI	XRC13BH	XRC14BJ	XRC15BH
XPM proc. firm.		NTAX74 and up	(note 1)	(note 1)	(note 1)	(note 1)
		NTMX77 and up	(note 1)	(note 1)	(note 1)	(note 1)
XPM proc. firm (cont)		NTAX74 or NTMX77	UPFWNP04 *or* UPFWQH04	UPFWNQ03 *or* UPFWQI03	UPFWNR04 *or* UPFWQJ04	UPFWNS01 *or* UPFWQK01
		NTSX05 NTMX45	SXFWAE09 UPFWNP04	SXFWAF10 UPFWNQ03	SXFWAG04 UPFWNR04	SXFWAH01 UPFWNS01

Note 1: Software load not available with this release.
Note 2: A load name in **bold** type is a pre-patched load. Refer to “PM to patch cross-reference” in this chapter for a list of pre-patched loads for this release.
Note 3: If a PM type needs an XPM processor firmware load, this table lists the firmware baseline with the PM load. Refer to the section “XPM processor (NTAX74, NTMX77, NTSX05 or NTMX45) firmware” in this chapter for information on XPM processor firmware baselines.
Note 4: EDRAM is abbreviated as EDRM in the “Type” field due to space limitations.
Note 5: RCC and RCC2 PMs along with their host peripherals should have universal loadnames.

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PM load history

The next table lists each load type supported by the MSL-100 product line and versions of these load types for recent MSL-100 software releases. This table is included in this document to assist in planning PM updates. Use the PM-to-load cross-reference table in this chapter to identify the specific PMs and loads to be updated in the office.

Load history

Load type	Load description	MSL11	MSL12	MSL14	MSL15
ADCM	Basic DCM	ADCMQA01	ADCMQA01	ADCMQA01	ADCMQA01
ARS	LIU7 with eight meg and 36-link channelized access	ARS12BI	ARS13BH	ARS14BJ	ARS15BH
ATM	Basic ATM	ATMKA02	ATMKA02	ATMKA02	ATMKA02
AX74	AX74 firmware	(see note)	(see note)	(see note)	(see note)
BLM	Basic LM	BLMTB01	BLMTB01	BLMTB01	BLMTB01
BRLM	Remote LM	BRLMVA03	BRLMVA03	BRLMVA03	BRLMVA03
BTM	Basic TM8 POTS	BTMKA02	BTMKA02	BTMKA02	BTMKA02
CMR	Basic CMR	CMR10A	CMR10A	CMR10A	CMR10A
DTUB	DTU with BERT	DTUBAD01	DTUBAD01	DTUBAD01	DTUBAD01
DTUD	DTU with NT4X45	DTUDAA01	DTUDAA01	DTUDAA01	DTUDAA01
DTUH	DTU for off-hook balance tests	DTUHAA02	DTUHAA02	DTUHAA02	DTUHAA02
ECL	Basic DTC/LGC/LTC with MX77	ECL12BC	ECL13BB	ECL14BC	ECL14BC
ECR	SMSR with MX77	ECR12BC	ECR13BB	ECR13BB	ECR13BB
ED7	DTC with MX77 and CCS7	ED712BC	ED713BB	ED714BC	ED714BC
EDH	Enhanced DCH	EDH12BC	EDH13BB	EDH14BC	EDH15AY
EDRM	EDRAM 4	EDRMAE06	EDRMAE06	EDRMAE06	EDRMAE06
EDRM	EDRAM 16	ED16AA03	ED16AA03	ED16AA03	ED16AA03
ENC	ENET	ENC12BF	ENC13BD	ENC14BG	ENC15BC
ERLM	Remote LM	ERLMVA02	ERLMVA02	ERLMVA02	ERLMVA02
ESA	ESA with NT6X45	ESA10AQ	ESA10AQ	ESA10AQ	ESA10AQ
ESA	ESA with NTMX45	MSA12BC	MSA12BC	MSA12BC	MSA12BC
ESH	Enhanced DCH for SMU with MX77 and ISDN	ESH12BC	ESH13BB	ESH13BB	ESH13BB

Note: Software load not available with this release.

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Load history (continued)

Load type	Load description	MSL11	MSL12	MSL14	MSL15
ESI	SMU with MX77 and ISDN	ESI12BC	ESI13BB	ESI13BB	ESI13BB
ESR	RCC with MX77	ESR12BC	ESR13BB	ESR14BC	ESR14BC
ESS	SMS with MX77	ESS12BC	ESS13BB	ESS13BC	ESS13BC
ESU	SMU with MX77	ESU12BC	ESU13BB	ESU13BB	ESU13BB
ETC	EIU telnet	ETC12BF	ETC13BD	ETC14BG	ETC15BC
F8C	Basic FRIU	F8C12BI	F8C13BH	F8C14BJ	F8C15BH
ILDR	ISDN line drawer controller firmware load	ILDRAD15	ILDRAE03	ILDRAF04	ILDRAF04
IOMH	IOM (hi-speed)	IOMHAX01	IOMHAX01	IOMHAX01	IOMHAX01
IOMR	IOM (standard)	IOMRAX01	IOMRAX01	IOMRAX01	IOMRAX01
IPE	IPE (standard)	IPE09AB	IPE09AB	IPE09AB	IPE09AB
IPE	IPE (enhanced)	EIPE11AT	EIPE11AT	EIPE11AT	EIPE12AH
LCM/ ELCM	Basic LCM	LCM01D	LCM01D	LCM01D	LCM01D
LCME	Enhanced LCM with ISDN	LCME12BA	LCME13AY	LCME14BA	LCME15AB
LPC	LIM load	LPC12BF	LPC13BD	LPC14BG	LPC15BC
LRS	LIU7 with 2 cards and 8 Mbyte	LRS12BI	LRS13BH	LRS14BJ	LRS15BH
MPC0	1980 CCIT X.25 MPC	MPC003AC	MPC003AC	MPC003AC	MPC003AC
MPC4	1984 CCIT X.25 MPC	MPC403AC	MPC403AC	MPC403AC	MPC403AC
MPCA	Async MPC	MPCA03AC	MPCA03AC	MPCA03AC	MPCA03AC
MPCX	BX.25 MPC	MPCX33AB	MPCX33AB	MPCX33AB	MPCX33AB
MPF	MS_multi port card firmware	MPF12BF	MPF13BD	MPF14BG	MPF15BC
MSA	ESA with NTMX45	MSA12BC	MSA13BB	MSA14BC	MSA14BC

Note: Software load not available with this release.

—continued—

Load history (continued)

Load type	Load description	MSL11	MSL12	MSL14	MSL15
MTM	Basic MTM	MTMKA02	MTMKA02	MTMKA02	MTMKA02
MTU	Basic MTU	MTULJ04	MTULJ04	MTULJ04	MTULJ04
MUC	Basic MS	MUC12BF	MUC13BD	MUC14BG	MUC15BC
MX77	MX77 processor firmware load	UPFWNP04	UPFWNQ03	UPFWNR04	UPFWNS01
NRS	Basic NIU	NRS12BF	NRS13BD	NRS14BG	NRS15BC
ODI	PDTC/DTCO (SS7) with MX77	ODI12BC	ODI13BB	ODI14BC	ODI15AY
ODT	DTCO/PDTC	ODT12BC	ODT13BB	ODT14BC	ODI15AY
QD7	DTC7 with SX05			QT714BC	QD715AY
QCI	PDTC/DTC0 with ISDN with SX05	QCI12BC	QCI13BB1	QCI14BC	QDI15AY
QDT	PDTC/DTC (SS7) with SX05	QDT12BC	QDT13BB	QDT14BC	QDT15AY
QLI	DTC/LGC/LTC with SX05 and ISDN	QLI12BC_00 0502	QLI13BB_00 0510	QLI14BC_00 0510	QLI15AY_000 510
RDCM	Remote DCM	RDCMPA02	RDCMPA02	RDCMPA02	RDCMPA02
RMM	Basic RMM	RMM10A	RMM10A	RMM10A	RMM10A
RMTM	Remote MTM	RMTMKA01	RMTMKA01	RMTMKA01	RMTMKA01
SXFW	SX05 processor firmware load	SXFWAE09	SXFWAF10	SXFWAG04	SXFWAH01
TKMT	TM/MTU combo	TKMTKA02	TKMTKA02	TKMTKA02	TKMTKA02
UPFW	Universal XPM firmware load (EDC)	UPFWNP04 *or* UPFWQH04	UPFWNQ03 *or* UPFWQI03	UPFWNR04 *or* UPFWQJ04	UPFWNS01 *or* UPFWQK01
XLCM	LCM/ELCM with 256K	XLCM12AZ	XLCM13AX	XLCM14BA	XLCM15AB
XM2	SMA2 with AX74	XM212BC	XM213BB	XM214BC	XM215AY
XRC	Basic XLIU	XRC12BI	XRC13BH	XRC14BJ	XRC15BH

Note: Software load not available with this release.

—continued—

Load history (continued)

Load type	Load description	MSL11	MSL12	MSL14	MSL15
XRI	RCC2 with AX74 RCC2 with MX77	XRI12BC	XRI13BB	XRI14BC	XRI15AY
XSC	SMA with AX74	XSC12BC	XSC13BB	XSC13BB	XSC13BB

Note: Software load not available with this release.

—end—

Overview of automated update process

ATTENTION

Nortel Networks is introducing this functionality over several releases. This chapter describes all available functionality. The current release in the office determines the level of available functionality.

This chapter describes each phase of the process to perform automated PM updates. This chapter also describes how to access on-line help, control the automated PM update, and troubleshoot problems.

PM update process

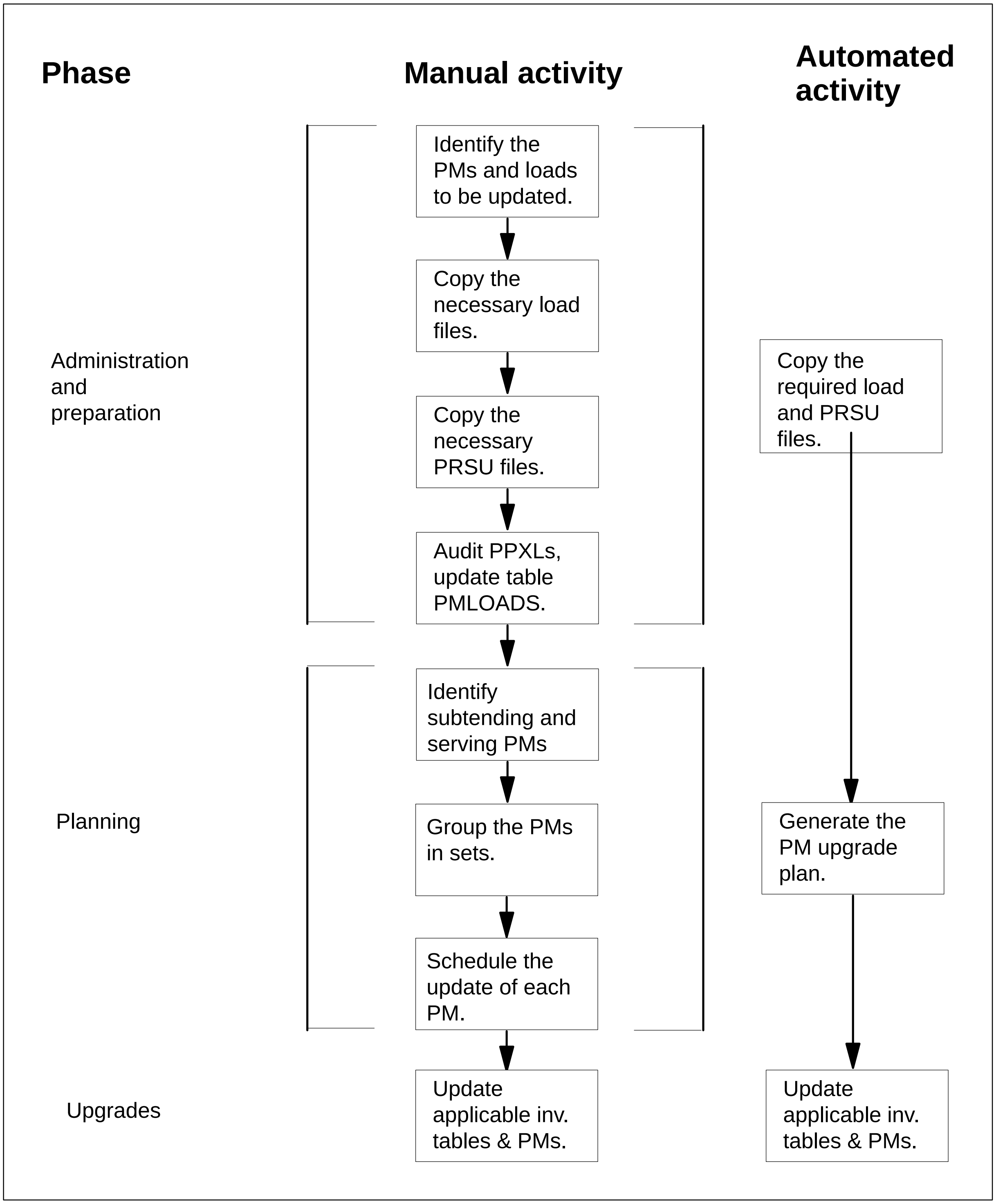
The PM update consists of the following phases and activities.

- Administration and preparation
  - — Identify the load and post release software update (PRSU) files required by the office.
  - — Copy the required load and PRSU files.
  - — Audit any pre-patched XPM loads (PPXL) for the Post-Release Software Manager (PRSM) database.
  - — Update table PMLOADS.
- Planning
  - — Identify the subtending and serving PMs in the office that need to be updated
  - — Group the PMs to be updated in sets if possible.
  - — Schedule the update of each PM or set of PMs to be updated
- Upgrades
  - — Update each PM inventory table that needs the new PM load
  - — Update each PM or set of PMs that needs to be updated

The PM update process can be a manual process, an automated process, or a combination of the two processes. The command interpreter (CI) utilities PMUPGRADE and SWUPGRADE PM support the automated process.

The next figure illustrates the phases of the PM update process and the activities supported by the manual and automated processes.

Overview of PM update process



Alarms generated during the automated PM update process are the same as alarms generated during a manual PM update.

The current software release in the office determines the level of functionality available for automated PM updates. The following table lists BASE layers, software releases, automated functionality and activities available for each release. Use this table to determine the level of functionality available in your office for this PM upgrade.

Available automated functionality

BASE layer	Software release	Automated functionality	Automated activities
BASE09	MSL08	Administration and preparation	• Select load and PRSU files • Copy load and PRSU files • Update table PMLOADS
		Planning	• Generate PM upgrade plan
		Upgrades	• Execute PM upgrade plan for XPMs • Execute PM upgrade plan for LCMs • Execute PM upgrade plan for EIUs, FRIUs, and XLIUs • Execute PM upgrade plan for ICRMs and DSPMs • Execute PM upgrade plan for DCH cards
BASE10	MSL09	Administration and preparation	• Select load and PRSU files • Copy load and PRSU files • Update table PMLOADS
		Planning	• Generate PM upgrade plan

Note: Software release indicates the current software release in the office.

—continued—

Available automated functionality (continued)

BASE layer	Software release	Automated functionality	Automated activities
BASE 10 (cont)		Upgrades	• Execute PM upgrade plan for XPMs • Execute PM upgrade plan for LCMs • Execute PM upgrade plan for EIUs, FRIUs, and XLIUs • Execute PM upgrade plan for ICRMs and DSPMs • Execute PM upgrade plan for DCH cards • Execute PM upgrade plan for MS multi-port cards (NT9X17)
BASE11	MSL10	Administration and preparation	• Select load and PRSU files • Copy load and PRSU files • Update table PMLOADS
		Planning	• Generate PM upgrade plan
		Upgrades	• Execute PM upgrade plan for XPMs • Execute PM upgrade plan for LCMs • Execute PM upgrade plan for EIUs, FRIUs, and XLIUs • Execute PM upgrade plan for ICRMs and DSPMs • Execute PM upgrade plan for DCH cards • Execute PM upgrade plan for MS multi-port cards (NT9X17) • Execute PM upgrade plan for ENETs • Execute PMUPGRADE Plan Report for ENETs ***Note:*** Do not perform an automated update for the ENET when an SPM is present on the MSL-100. Use the procedure “Update the ENET” in this document to perform a manual ENET update. • Execute PM upgrade plan for NIUs
Note: Software release indicates the current software release in the office.			
—end—			

Automated administration and preparation

PMUPGRADE automates the following administrative activities of PM updates.

- Selects load files
- Selects PRSU files
- Copies load and PRSU files
- Audits any PPXLs for the PRSM database
- Updates table PMLOADS

By automating these activities, PMUPGRADE simplifies the PM update process and decreases the administrative time to prepare for a PM update. If necessary, a maintenance technician can continue to perform these administrative tasks manually.

Note: If the system load module (SLM) tape cartridge label text indicates *Patches: Yes*, the tape includes the required PRSUs for XPM and integrated service node (ISN) load files.

Load file selection

PMUPGRADE performs the following actions to select the PM load files that it will copy for an office.

- PMUPGRADE reviews the PM inventory tables and identifies the PM loads used in the office.
- PMUPGRADE compares the loads used in the office to the new load files on the PM load tape.
- PMUPGRADE selects all the new load files that are a different version than the comparable loads used in the office.

The following table lists examples of how PMUPGRADE selects PM load files for the office.

Examples of PMUPGRADE load file selection

Load in office	Load on PM load tape	PMUPGRADE action
ECL05BC	ECL06BH	PMUPGRADE selects ECL06BH. The load on the PM load tape is a different version.
MTMKA02	MTMKA02	PMUPGRADE does not select MTMKA02. The load is the same version.

PMUPGRADE creates the list of selected PM load files for the office. A maintenance technician can exclude or include PM load files from the list. Steps in the procedure "Preparing for a PM update using PMUPGRADE" in this document describe how to modify the list of selected files generated by PMUPGRADE.

Post release software update file selection

ATTENTION

PMUPGRADE uses the $XREF patch control file to select PRSUs for the required loads. This file is not available with all methods of patch delivery. This file is included when PRSUs are delivered to the office on a 9-track tape or an SLM tape cartridge labeled, *Patches: Yes.*.

The patch control file is not included when the office downloads PRSUs electronically from Nortel. If the patch control file is not available, PMUPGRADE bypasses all patching steps and generates the following message.

```
WARNING:  No Patch Control File Found.  No patch files
selected.
```

If PMUPGRADE bypasses patch selection and generates this message, manually identify and copy the required PRSUs.

File copy

PMUPGRADE automatically copies PM load files and PRSU files to the designated volume. In support of this functionality, PMUPGRADE introduces two new types of volumes: distribution volumes and destination volumes. A distribution volume is the volume that contains the new files. The distribution volume for PM load files, for example, is the SLM tape drive. A destination volume is the volume where the new files will be copied.

The next table lists the volume names used by PMUPGRADE and explains each name.

PMUPGRADE volume names

Volume name	Explanation	Acceptable volume types	Explanation
Load File Distribution	SLM volume that contains the new PM load files	SLM tape	Automatically set from the Load File Destination volume
Load File Destination	Volume where the new PM load files are copied	SLM disk volume	
Patch File Distribution	Volume that contains the new PM PRSU files	9-track tape SLM disk volume DDU volume SFDEV SLM tape	If SLM tape is used, it must be the same as the Load File Distribution.
Integrated service node (ISN) Patch Destination	Volume where the new ISN PM PRSU files are copied	SLM disk volume DDU volume SFDEV	SLM disk volume is the only acceptable value if Patch File Distribution is a SLM tape.
XPM Patch Destination	Volume where the new XPM PRSU files are copied	SLM disk volume DDU volume SFDEV	SLM disk volume is the only acceptable value if Patch File Distribution is a SLM tape.

If the PM inventory table includes a selected load file, PMUPGRADE does not copy the file from the SLM tape or update table PMLOADS. For example, MX77NB03 is not copied from the SLM tape if it is already used in the office.

Prior to copying loads and PRSUs, PMUPGRADE audits the destination volumes and attempts to verify that sufficient disk space is available. If disk space is not available, PMUPGRADE prompts the user to stop the operation or copy as many files as possible.

PMUPGRADE also checks for duplicate load files. If the load file exists on the destination volume, PMUPGRADE will not copy the file from the SLM tape or update table PMLOADS.

Audit of PPXLs

PMUPGRADE audits any PPXLs in the PM update for the PRSM database. This audit uses the PRSM LFAUDIT command to identify the PRSUs in the PPXL.

Update of table PMLOADS

PMUPGRADE adds a new tuple in table PMLOADS for each new load that is copied to the MSL-100 system. If the tuple exists, PMUPGRADE issues a warning and does not add the tuple.

PMUPGRADE issues a warning when it finds a load referenced in one of its supported inventory tables, but not entered in table PMLOADS. Following are some reasons this condition may occur:

- A load, such as the NT9X17 firmware load datafilled in table MSFWLOAD, or the MS software load is not datafilled in table PMLOADS.
- A load, such as the distributed processing peripheral (DPP) datafilled in table DPP, may be datafilled in table PMLOADS.

When adding a tuple to table PMLOADS, PMUPGRADE issues an error message if the PRSUs for a PPXL do not reside on the MSL-100 switch. Refer to “PRSU file storage” in chapter 1 for recommendations on the storage of PRSU files.

Supported loads

PMUPGRADE supports all PM loads that meet the following conditions:

- The office receives the load on SLM tape.
- The load is entered in one of the following inventory tables:
  - — APINV
  - — CCHINV
  - — CSMINV
  - — DCHINV
  - — DCMINV
  - — DLMINV

- DPP
- DSPMINV
- ENINV
- EXNDINV
- ICRMINV
- IPEINV
- LCMDRINV (for MSL09 and higher PCLs)
- LCMINV
- LCRINV
- LIMINV
- LIUINV
- LMINV
- LTCINV
- LTCRINV
- MDBSINV
- MNCKTPAK
- MPC
- MSBINV
- MSFWLOAD
- MSINV (for MSL10 and higher PCLs)
- NIUINV
- OFCVAR
  - tuple DTULDINFO
  - tuple DTUOHBTLD
  - tuple EDTULDFILE
  - tuple MTULDINFO
- RCCINV
- RMMINV
- STINV
- TMINV
- TPCINV
- TSTEQUIP

— VCHINV

— XESAINV

PMUPGRADE also supports the message switch (MS) load. If the MS load is updated during the PM update, the SET INCLUDELOADS command can be used to add the load to the list of selected loads. If the MS load is updated during the front-end update, the load should be manually copied. Do not use PMUPGRADE.

CAUTION
Loss of information for automated PM update
Run PMUPGRADE only on the primary PM load tape. Do not run PMUPGRADE on multiple PM load tapes within a PM update cycle.

Pre-patched XPM loads

PMUPGRADE generates warning and error messages when it encounters one of the following conditions.

Incorrect table PADNDEV datafill

PMUPGRADE may detect an error when it attempts to update table PMLOADS with a PPXL. This error occurs if the XPM Patch Destination volume is not datafilled in table PADNDEV.

Perform one of the following steps to avoid or recover from this error.

- To avoid the error, datafill table PADNDEV with the XPM Patch Destination volume before performing the START FILECOPY command.
- To recover from the error, list the XPM Patch Destination volume and manually add the tuples to table PMLOADS after PMUPGRADE completes the FILECOPY.

PRSU not found

When PMUPGRADE updates table PMLOADS, it issues an error message if the PRSUs for a PPXL do not reside on the MSL-100 switch. Refer to “PRSU file storage” in chapter 1 for recommendations on the storage of PRSU files.

Automated planning

PMUPGRADE generates a PM upgrade plan based on the results of its FILECOPY phase. PMUPGRADE identifies the PMs in the MSL-100 switch and creates a plan based on serving or subtending PM relationships.

This plan is organized by tasks, and the order of tasks reflects peripheral side (P-side) to central side (C-side) PM configurations. The next figure illustrates a sample PMUPGRADE Plan Report.

Sample PMUPGRADE Plan Report

```
PMUPGRADE PLAN REPORT

Upgrade Layer: 1
-----------------

TASK 1:
SITE:
LOADS:  FROM EDH05AO TO EDH81AZ
NODES:  DCH 1
        DCH 2
        DCH 3
        DCH 4
        DCH 5
        DCH 6
REQUIRES: none
AUTOMATED: NO


TASK 2:
SITE:
LOADS:  FROM ARS04AQ TO ARS08BC
NODES:  LIU7 101
        LIU7 102
        LIU7 103
REQUIRES: none
AUTOMATED: NO


TASK 3:
SITE:
LOADS:  FROM LRS04AQ TO LRS08BC
NODES:  LIU7 104
        LIU7 109
        LIU7 113
        LIU7 114
        LIU7 123
        LIU7 211
REQUIRES: none
AUTOMATED: NO


TASK 4:
SITE:
LOADS:  FROM ERS07BM TO ETC08AX
NODES:  EIU 116
REQUIRES: none
AUTOMATED: NO
```

Sample PMUPGRADE Plan Report (continued)

```
TASK 5:
SITE:
LOADS:  FROM ED707BM TO ED781AZ
        FROM MX77NG03 TO MX77NI05
NODES:  DTC 0
        DTC 1
        DTC 3
        DTC 7
        DTC 9
REQUIRES: none
AUTOMATED: YES


TASK 6:
SITE:
LOADS:  FROM ELI05AO TO ELI81AZ
        FROM MX77NG03 TO MX77NI05
NODES:  DTCI 19
REQUIRES: none
AUTOMATED: YES



Upgrade Layer: 2
-----------------

TASK 7:
SITE:
LOADS:  FROM NRS07BM TO NRS08AX
NODES:  NIU 1
REQUIRES: TASK 5, 6, 4, 2, 3
AUTOMATED: NO


TASK 8:
SITE:   REM4
LOADS:  FROM RMM04A TO RMM05A
NODES:  RMM 6
REQUIRES: TASK 1
AUTOMATED: NO


TASK 9:
SITE:   REM4
LOADS:  FROM ESA05AO TO ESA81AW
NODES:  ESA 4
REQUIRES: TASK 1
AUTOMATED: YES
```

Sample PMUPGRADE Plan Report (continued)

```
Upgrade Layer: 3
-----------------

TASK 10:
SITE:   HOST
LOADS:  FROM LCME05AI TO LCME81BA
NODES:  LCME 07 0
        LCME 07 1
        LCME 08 0
        LCME 08 1
REQUIRES: TASK 1, 8, 9
AUTOMATED: YES


TASK 11:
SITE:   REM4
LOADS:  FROM XLCM05AI TO XLCM81BA
NODES:  LCM 00 0
REQUIRES: TASK 1, 8, 9
AUTOMATED: YES


TASK 12:
SITE:   HST4
LOADS:  FROM XLCM05AI TO XLCM81BA
NODES:  LCM 00 0
REQUIRES: TASK 1, 8, 9
AUTOMATED: YES


TASK 13:
SITE:
LOADS:  FROM LPC07BM TO LPC08AX
NODES:  LIM 1
REQUIRES: TASK 2, 3, 4, 7
AUTOMATED: NO


Upgrade Layer: 4
-----------------

TASK 14:
SITE:
LOADS:  FROM ELI05AO TO ELI81AZ
        FROM MX77NG03 TO MX77NI05
NODES:  LGC 7
REQUIRES: TASK 1, 8, 9, 10, 11, 12
AUTOMATED: YES
```

Review the upgrade plan to confirm the order of tasks complies with office policy. If the plan does not comply, use the RUNSTEP command during the automated PM upgrade to change the order of tasks.

After the plan is reviewed, split the PM upgrade tasks into PM upgrade shifts. A PM upgrade shift is the length of time each day it takes to perform PM upgrades. A PM upgrade shift can be no more than 14 hours. Office policy and the maintenance window determines the length of the PM upgrade shift. The type and number of PMs determines the number of shifts required to upgrade all PMs in the office. Use office records from previous PM updates and "Loading times" chapter in this document for assistance.

Automated upgrades

Use the procedure "Performing an automated PM upgrade" and the CI-level utility SWUPGRADE PM to perform an automated PM upgrade on PMs datafilled in the following inventory tables:

- DCHINV
- DSPMINV
- ENINV (MSL10 or higher PCL)
- ICRMINV
- LCMINV
- LIUINV (EIUs, FRIUs, and XLIUs only)
- LTCINV
- LTCRINV
- MSFWLOAD (MSL09 or higher PCL)
- NIUINV (MSL10 or higher PCL)
- RCCINV
- XESAINV

The automated PM upgrade provides the following functionality:

- Follow the recommended PM upgrade processes and procedures defined in this document.
- Update the PM inventory table.
- Busy the PM unit or units.
- Upgrade the PM unit or units with any required loads, such as the following loads.
  - — PM software load
  - — XPM processor firmware load

- — CLASS modem resource (CMR) load

- Load the PM unit or units using an efficient method suitable to the office’s operating environment.
- Patch the PM software load, if necessary.
- Return the PM unit or units to service.
- Support PPXLs and pre-patched ISN loads, if required.
- Leave the PMs in their current state if the PM upgrade aborts or fails.
- Check the office operating environment and PM state before upgrading.
- Does not upgrade PMs that are already upgraded, whether the upgrade is done manually or by an automated process.

One-of-a-kind loading

One-of-a-kind loading occurs when one PM is upgraded with the new load before other PMs of the same type in the office. The first PM uses the new load for a specified period before the remaining PMs of the same type are upgraded with the new load.

Use the following process to perform one-of-a-kind loading and an automated PM update.

1. Use the procedure “Preparing for a PM update using PMUPGRADE” in this document.
2. Use the procedure “Performing an automated PM update” in this document.
3. Pause before each step that contains a set of PMs that you prefer to use one-of-a-kind loading.
4. Upgrade one PM in the set manually.
5. Continue with the automated PM update. SWUPGRADE PM will not reload the PM when it upgrades the remaining PMs in the set.

Commands

ATTENTION
Use the information in this section for information only. Use the appropriate procedure in this document to perform an automated or partially automated PM upgrade. Depending on the office's current release, the office may not have all the commands for automated PM upgrades described in this section.

This section describes some of the PMUPGRADE and SWUPGRADE PM commands used during an automated PM update. The PMUPGRADE commands table lists some of the PMUPGRADE commands used during the administration and planning phases of an automated PM update.

PMUPGRADE commands

Command	Parameter	Variable	Description
DISPLAY	**SETTINGS**		Display the current PMUPGRADE settings.
	NODES		Display the PMs and loads for each PM as entered in the inventory tables.
	LOADS		List the PM loads datafilled in table PMLOADS. The active file, active volume, and inventory table for each load are also listed.
	FWINFO		Display all firmware type and load settings. Applicable to MSL10 or higher PCL.
	PLAN		Display the PM Upgrade Plan built by PMUPGRADE.
	ALL		Display all previous PMUPGRADE reports. ALL is the default value.
HELP			Access on-line information on PMUPGRADE commands.
PMUPGRADE			Access the PMUPGRADE utility.

—continued—

PMUPGRADE commands (continued)

Command	Parameter	Variable	Description
QUIT			Quit the PMUPGRADE utility.
SET	**LOADDISTRIB**	<volume_name>	Set the load distribution volume, which is the volume with the new PM load files. This command is applicable for MSL08 or higher PCL.
	LOADDEST	<volume_name>	Set the load destination volume, which is the volume that holds the copied PM loads.
	PATCHDISTRIB	<volume_name>	Set the patch distribution volume, which is the volume with the new PM PRSU files.
	PATCHDISTRIB	**LOADDISTRIB**	Set the Patch Distribution volume to the same volume as the Load Distribution. Use this variable when PMUPGRADE has no PRSU files to copy.
	ISNPATCH	<volume_name>	Set the ISN patch destination volume, which is the volume that holds the copied ISN PRSU files.
	XPMPATCH	<volume_name>	Set the XPM patch destination volume, which is the volume that holds the copied XPM PRSU files.
	CONFIRMATION	**ON** **OFF**	Set the MAP display to request user confirmation before continuing with a command.
	INCLUDELOADS	<load_name>	Add PM loads to the list of loads selected by PMUPGRADE. Repeat variable as required.
	EXCLUDELOADS	<load_name>	Remove PM loads from the list of loads selected by PMUPGRADE. Repeat variable as required.
	FWBASELINE		A firmware load name identified as the baseline load of the indicated firmware type. The existing setting is cancelled if no parameter is provided. Applicable to MSL10 or higher PCL.

—continued—

PMUPGRADE commands (continued)

Command	Parameter	Variable	Description
	FWNEWREL		A firmware load name identified as the new release load of the indicated firmware type. The existing setting is cancelled if no parameter is provided. Applicable to MSL10 or higher PCL.
	FWPREFERRED		The options of CURRENT, BASELINE, or NEWREL; indicating a preferred replacement load for the current load. Applicable to MSL10 or higher PCL.
START	**FILECOPY**		Start the PMUPGRADE process of copying files, copying PRSUs, and updating table PMLOADS.
	PLAN		Build the PM Upgrade plan.

—end—

The SWUPGRADE PM commands table lists some of the SWUPGRADE PM commands used during the upgrade phase of an automated PM update. The SWUPGRADE PM commands table does not list all available commands in the SWUPGRADE level or the SWUPGRADE PM increment. Refer to *One Night Process Software Delivery Procedures 297–8991–303* for additional information on SWUPGRADE.

SWUPGRADE PM commands

Command	Parameter	Variable	Description
CANCEL			Cancel the PM upgrade.
DISPLAY			Display information. “DISP” may be used as a short form of the DISPLAY command.
	STEPS		Display the steps in the PM Upgrade plan.
	VARS		Display SWUPGRADE PM environment variables. Applicable to MSL08 or lower PCL.

—continued—

SWUPGRADE PM commands (continued)

Command	Parameter	Variable	Description
	VAR ALL		Display SWUPGRADE PM environment variables. Applicable to MSL09 or higher PCL.
GO			Resume the execution of the PM upgrade after a pause. The commands CONTINUE and RESUME may be used in place of the GO command.
HELP			Display information on SWUPGRADE PM commands, steps, or environment variables.
	STEP	<step_name>	Display information on a specific PM upgrade step.
	VAR	<variable>	Display information on an environment variable and its current value.
		<command>	Display information on a SWUPGRADE PM command.
OVERRIDE		<step_name>	Override the specified step in the PM upgrade plan. “OVE” may be used as a short form of the OVERRIDE command.
PROMPTING			Permits pausing after each automated step.
	ON		The MSL-100 switch pauses after each automated step to allow the next step to be selected. Prompting ON is the default value.
	OFF		The MSL-100 switch does not pause after each automated step.
QUIT			Quit from the SWUPGRADE PM level.
RUNSTEP		<step_name>	Run or execute a specific step.

—continued—

SWUPGRADE PM commands (continued)

Command	Parameter	Variable	Description
SET	**TRACE_DEVICE**	<device_name>	Set the device to which upgrade output messages are printed.
	CONCURRENCY	<number> **UNLIMITED**	Set the number of PMs to be upgraded concurrently during an automated task.
	SHIFT	**STARTED** **FINISHED** **ABORTED**	Start, finish, or abort an automated PM update shift.
START			Completes the setup for the automated PM upgrade process.
SWUPGRADE	**PM**		Enter the SWUPGRADE increment for PM upgrades.

—end—

On-line help

Both PMUPGRADE and SWUPGRADE PM provide on-line help. Use the HELP command in either utility to enter the on-line help facility.

PMUPGRADE help

Use the HELP command in the PMUPGRADE utility to display all available PMUPGRADE commands. Following is an example of help screen in PMUPGRADE.

```
>help
PMUPGRADE
---------
 The PMUPGRADE CI allows users to prepare and plan for
 the upgrade of peripherals in the office.

 ________________________________________________________
 COMMAND      | FUNCTION
 ________________________________________________________
 HELP         | List and describe all PMUPGRADE commands.
 DISPLAY      | Display one of the PMUPGRADE reports.
 SET          | Set the configurable data for PMUPGRADE.
 START        | Start a phase of PMUPGRADE.
 QUIT         | Exit the PMUPGRADE environment.
```

For additional help on a specific command, type **Q <command>**.

SWUPGRADE PM help

Use the HELP command in the SWUPGRADE PM utility to request help on the SWUPGRADE PM increment or a specific command, step, or environment variable. Following is an example of the initial help screen in SWUPGRADE PM.

```
>help
                          SWUPGRADE

Displays information on the SWUPGRADE commands, the steps,
the variables or the SWUPGRADE increment.

The options are:
  <swupgrade command> – Displays a brief description and the
                        syntax of that command.
  STEP <step>         – Displays a brief description of the
                        behavior of that step.
  VAR <variable>      – Displays a brief description and the
                        current value of that variable.
  (no parameters)     – Displays a brief description of the
                        SWUPGRADE increment and a list of the
                        available CI commands.

Parms: [<entity> {STEP <step> STRING,
                  VAR <variable> STRING,
                  (otherwise) <command> STRING}]
```

Following is an example of a help screen for the START command.

```
>help start

START command
-------------

Starts the Software Upgrade by executing the steps in the
active step list in a sequential fashion starting with the
first one.

The START command is only used to initially start the
process. To continue after the process has paused, use GO,
RESUME or CONTINUE.

NO PARAMETERS.
```

Logs

The following logs can be generated during the automated PM update process.

Logs generated during automated PM update

Log name	Log number	Description	Action
PM	700	Record the start, finish, and abort times of PM upgrade shifts	None
PM	701	Record the start time of a PM upgrade task, lists the nodes to be upgraded and loads to be used during the task	None
PM	702	Record the time of the successful finish of an automated PM upgrade task	None
PM	703	Record the time of completion of an unsuccessful automated task, and reports the success or failure of each node upgraded during the task	Examine the nodes that failed to upgrade. Troubleshoot the problem or contact the next level of support.

How to troubleshoot problems

If problems are encountered during the automated PM upgrade, there are many resources available to identify and correct the source of the problem. Following are some resources that could be helpful in troubleshooting problems.

- The section “Messages” in this chapter
- The output from the trace device
- Log PM703 and other PM700 series logs
- Logs that indicate a maintenance problem not related to the PM upgrade, such as a hardware or communications problem

How to control an automated PM update

This section lists the actions to control an automated PM update. Each action includes the required command and an example of the command.

Skip a manual step

Use the OVERRIDE command to skip a manual step in the automated PM update. The following table lists one possible use and example of the OVERRIDE command.

OVERRIDE command

Use	Example
Skip a manual step.	**OVERRIDE 2_M_RMM**

When a step is overridden, SWUPGRADE PM displays the step as `OVERRIDDEN` and continues with the automated PM update. When the PM update shift is finished, SWUPGRADE PM displays the step as `STEP NOT COMPLETE` in the Step Summary Report, since SWUPGRADE PM did not complete the step.

Run a step out of order

CAUTION
Possible service interruption
If you execute steps in a different order from the PM Upgrade Plan, follow a P-side to C-side sequence. The steps in the PM Upgrade Plan are sequenced P-side to C-side. If you execute steps in a different sequence, you can interrupt service to subtending PMs.

Use the RUNSTEP command to run a step out of the order specified in the PM Upgrade Plan. Use the RUNSTEP command to modify the PM Upgrade Plan to comply with office policy or support operating conditions unique to your office.

The following table lists one possible use of the RUNSTEP command and an example.

RUNSTEP command

Use	Example
Run a specified step	**RUNSTEP 7_A_DTC**

Stop a step in progress using SET SHIFT FINISHED

Use the SET SHIFT FINISHED command to stop a currently executing step in the automated PM update.

The SET SHIFT FINISHED command performs the following actions:

- Gracefully halts the execution of the current step after completing the full upgrade for the PM or PMs currently being upgraded.
- After the current step is halted, a second SET SHIFT FINISHED command is required to finish the SWUPGRADE PM shift.
- Allows the user to quit SWUPGRADE PM.

If the currently executing step will not complete before the end ot the maintenance shift, the SET SHIFT FINISHED command can be used to stop the step. When the automated PM update is resumed during the next shift, SWUPGRADE PM does not reload the completed PMs. The following table lists possible uses of the SET SHIFT FINISHED command and an example for each use.

Uses of SET SHIFT FINISHED command

Use	Example
Stop SWUPGRADE PM while the utility is executing an automated step.	**SET SHIFT FINISHED**
Finish the SWUPGRADE PM shift while the utility is not executing an automated step.	**SET SHIFT FINISHED**

If SWUPGRADE PM is not executing an automated step, and the SET SHIFT FINISHED command is entered, SWUPGRADE PM generates a note to the user to finish the PM update shift. Enter QUIT to exit from SWUPGRADE PM and perform the procedure “Finishing a PM update shift” in this document.

Note: The SET SHIFT FINISHED command does not undo any previous command results. The SWUPGRADE PM shift is resumed using the SET SHIFT STARTED command.

Stop a step in progress using SET SHIFT ABORTED

Use the SET SHIFT ABORTED command to stop a currently executing step in the automated PM update.

CAUTION
Possible service interruption
The SET SHIFT ABORTED command leaves the PMs being upgraded in their present service state. Additional maintenance activities may have to be performed to return these PMs to service.

The SET SHIFT ABORTED command performs the following actions:

- halts execution of the current step after the current maintenance action
- leaves the PM or PMs being upgraded in their present service state
- aborts the SWUPGRADE PM shift
- allows the user to quit SWUPGRADE PM

Additional maintenance action may be required to return the PMs to service. For example, the SET SHIFT ABORTED command can be used while the SWUPGRADE PM utility is loading a set of four LGC inactive units. SWUPGRADE PM finishes loading the units, but does not return the units to service. In this example, the user must return each unit to service and confirm each unit is patched properly. The following table lists a possible use of the SET SHIFT ABORTED command and an example.

Uses of SET SHIFT ABORTED command

Use	Example
Stop SWUPGRADE PM while the utility is executing an automated step	**SET SHIFT ABORTED**

After the SET SHIFT ABORTED command is entered, SWUPGRADE PM generates a note to the user to finish the PM update shift. Enter QUIT to exit from SWUPGRADE PM and perform the procedure “Finishing a PM update shift” in this document.

Note: The SET SHIFT ABORTED command does not undo any previous command results. The SWUPGRADE PM shift is resumed using the SET SHIFT STARTED command.

Cancel a session

Use the CANCEL command to permanently cancel the SWUPGRADE PM session. This command erases the PM upgrade step list and plan. To generate a new PM Upgrade Plan use the START PLAN command in PMUPGRADE.

The PM upgrade shift must be finished before the CANCEL command can be used. The SET SHIFT FINISHED command can be used to finish the shift.

The following table lists one possible uses of the CANCEL command and an example.

CANCEL command

Use	Example
Cancel SWUPGRADE PM session	**CANCEL**

The CANCEL command does not undo any maintenance actions performed during the session. Any automated PM updates performed by SWUPGRADE PM, or manually applied updates will remain.

Pause between automated steps

Use of the PROMPTING command forces the MSL-100 switch to pause after each automated step, to allow user selection of the next desired step. The following table lists the purpose of the PROMPTING command and an example. PROMPTING ON is the recommended method of operation.

PROMPTING command

Use	Example
Force the MSL-100 switch to pause after each automated step.	**PROMPTING ON**
The MSL-100 switch does not pause after each automated step.	**PROMPTING OFF**

Messages

The following section describes possible messages generated by the MSL-100 switch during an automated PM update. The section is divided into three subsections.

- PMUPGRADE error messages
- PMUPGRADE warning messages
- Other PMUPGRADE messages

PMUPGRADE error messages

The next table lists some of the error messages generated by the MSL-100 switch during the automated PM update process. This table provides a description and action for each message.

Error messages

Message	Description	Action
`ERROR: Could not select files`	PMUPGRADE could not select the files to be copied due to an internal error.	Contact the next level of support.
`ERROR: Destination volumes inaccessible`	PMUPGRADE could not list a destination volume. The volume may not be in service.	Use the SET command to change the destination volume.
`ERROR: Error in volume configuration`	The Volumes settings are not a permitted configuration.	Use the DISPLAY SETTINGS command to display the current volume settings and any errors in the settings. You must correct these errors before performing a FILECOPY. Refer to this section for valid volume configurations.
`ERROR: Failed to add tuple for <load_name> to table PMLOADS Reason: Did not pass validity check`	PMUPGRADE could not add the tuple for the new load to table PMLOADS.	Manually add the tuple to table PMLOADS.

—continued—

Error messages (continued)

Message	Description	Action
`ERROR: Failed to add tuple for <load_name> to table PMLOADS Reason: <text>`	PMUPGRADE could not add the tuple for the new load to table PMLOADS.	Use the displayed text to troubleshoot the problem or contact the next level of support. PMUPGRADE will continue the FILECOPY phase of the program.
`ERROR: Failed to copy file <load_name> to volume <volume_name> Reason: <text>`	PMUPGRADE detected a logical file system error.	Use the displayed text to troubleshoot the problem or contact the next level of support.
`ERROR: Files with same name on Load Distribution`	The SLM tape has load files with the same name.	Verify you are using the correct SLM tape and the correct SLM unit is specified in the PMUPGRADE settings. If the tape contains duplicate file names, contact the next level of support.
`ERROR: File System Error`	PMUPGRADE could not retrieve file system information on the SLM tape drive.	Troubleshoot the problem or contact the next level of support.
`ERROR: Insufficient MSL-100 memory`	The MSL-100 switch does not have enough memory to run PMUPGRADE.	Troubleshoot the problem or contact the next level of support.
`ERROR: in Volume Configuration, Volume <volume name> is not valid`	One of the volumes specified does not exist.	Use the SET command to set the configuration to an existing volume.
`ERROR: Load Distribution Empty`	The Load Distribution volume does not contain any files.	Verify you are using the correct SLM tape and the correct SLM unit is specified in the PMUPGRADE settings. Use the SET LOADDEST command to change the Load Distribution volume.

—continued—

Error messages (continued)

Message	Description	Action
`ERROR:  Load Distribution inaccessible`	PMUPGRADE could not access the Load Distribution volume.	The service could be busy or the tape could have an error. You may need to eject the tape using another utility. Troubleshoot the problem or contact the next level of support.
`ERROR:  Load Distribution must be an SLM tape`	The selected Load Distribution volume is not a SLM tape.	Use the SET LOADDEST command to change the Load Destination volume to a SLM disk. The Load Distribution setting automatically changes to the corresponding SLM tape unit.
`ERROR:  System error <text>`	PMUPGRADE detected an internal system error.	Troubleshoot the problem or contact your next level of support.
—end—		

PMUPGRADE warning messages

The next table lists some of the warning messages generated by the MSL-100 switch during the automated PM update process. This table provides a description and action for each message.

Warning messages

Message	Description	Action
`WARNING: Conflict between ISN Patch Destination and Load Distribution`	The same volume is specified as the ISN Patch Destination and the Load Distribution. The same volume cannot be a destination volume and a distribution volume.	Use the SET command to change one of the volumes.
`WARNING:  Conflict between ISN Patch Destination and Patch Distribution`	The same volume is specified as the ISN Patch Destination and the Patch Distribution. The same volume cannot be a destination volume and a distribution volume	Use the SET command to change one of the volumes.
`WARNING:  Conflict between Load Distribution and Load Destination`	The same volume is specified as the Load Distribution and the Load Destination. The same volume cannot be a destination volume and a distribution volume	Use the SET command to change one of the volumes.
`WARNING:  Conflict between Load Destination and Patch Distribution`	The same volume is specified as the Load Destination and the Patch Distribution. The same volume cannot be a destination volume and a distribution volume.	Use the SET command to change one of the volumes.
`WARNING:  Conflict between XPM Patch Destination and Load Distribution`	The same volume is specified as the XPM Patch Destination and the Load Distribution. The same volume cannot be a destination volume and a distribution volume.	Use the SET command to change one of the volumes.
`WARNING:  Conflict between XPM Patch Destination and Patch Distribution`	The same volume is specified as the XPM Patch Destination and the Patch Distribution. The same volume cannot be a destination volume and a distribution volume.	Use the SET command to change one of the volumes.

—continued—

Warning messages (continued)

Message	Description	Action
`WARNING: Could not copy all files`	PMUPGRADE could not copy all files to the destination volumes during the FILECOPY phase. One of the destination volumes may not have enough space to contain the selected files.	Use the SET command to change the destination volumes, or remove some of the files from the current volume.
`WARNING: File system error`	PMUPGRADE detected an unrecoverable error with the file system.	Troubleshoot the problem or contact the next level of support.
`WARNING: Files with the same name on Patch Distribution`	The Patch Distribution volume has patch files with the same name.	Review the PRSUs on the Patch Distribution volume and verify the correct PRSUs were copied during the FILECOPY phase. If necessary, remove any incorrect PRSUs and manually copy the correct PRSUs.
`WARNING: Format checking bypassed, <image or backup image> with unsupported format`	PMUPGRADE attempted to datafill table PMLOADS with a load that has a format not supported by table PMLOADS. The load maybe the new MPF load for the MS multi-port card.	Manually remove the load from table PMLOADS.
`WARNING: Invalid ISN Patch Destination`	The volume specified as the ISN Patch Destination does not exist or is not in service.	Use the SET command to change the volume, or troubleshoot the problem with the identified volume. A valid Patch Destination volume must be an SFDEV, DDU, or SLM volume.
`WARNING: Invalid Load Destination`	The volume specified as the Load Destination volume does not exist or is not in service.	Use the SET command to change the volume, or troubleshoot the problem with the identified volume.

—continued—

Warning messages (continued)

Message	Description	Action
`WARNING: Invalid XPM Patch Destination`	The volume specified as the XPM Patch Destination does not exist or is not in service.	Use the SET command to change the volume, or troubleshoot the problem with the identified volume. A valid Patch Destination volume must be an SFDEV, DDU, or SLM volume.
`WARNING: ISN Patch Destination and Patch Distribution incompatible`	If the Patch Distribution has been specified as a SLM tape, the ISN Patch Destination must be a SLM disk on the corresponding drive.	Use the SET command to change the volume, or troubleshoot the problem with the identified volume.
`WARNING: ISN Patch Destination Inaccessible`	PMUPGRADE is not able to access the volume specified as the ISN Patch Destination volume. The device could be busied	Troubleshoot the problem or contact the next level of support.
`WARNING: ISN Patch Destination is not in switch patch search path`	The volume specified for the ISN Patch Destination does not have a corresponding entry in table PADNDEV, or it is not specified as SFDEV	Check table PADNDEV and add or correct the entry.
`WARNING: Journal File Unavailable`	System journaling is not on. Table modifications will not be recorded in the system journal file, which may affect system recovery.	Turn on system journaling.
`WARNING: Load <load name> is referenced but is not defined in table PMLOADS`	Table PMLOADS does not include the specified load. However, the specified load is entered in an inventory table.	Check both tables and correct the appropriate entry
`WARNING: Load <load name> was not found`	The specified load was included or excluded from the list of selected loads, but it does not exist on the load distribution volume.	Check the load name in the PMUPGRADE settings.
`WARNING: Load Destination inaccessible`	PMUPGRADE can not access the Load Destination volume. The volume could be busied or inoperable.	Troubleshoot the problem or contact the next level of support.

—continued—

Warning messages (continued)

Message	Description	Action
`WARNING: Load Distribution inaccessible`	PMUPGRADE can not access the Load Distribution volume. The volume could be out of service or mounted by another service.	Troubleshoot the problem or contact the next level of support.
`WARNING: No Patch Control File Found`	PMUPGRADE can not find the $XREF patch cross-reference file on the Patch Distribution volume.	If the patch cross-reference file is on another volume, move it to the Patch Distribution volume. If no patch cross-reference file is available, or if the patch cross-reference file uses a different naming convention, PMUPGRADE can not copy any PRSUs from the Patch Distribution volume. Manually copy the PRSUs to the Patch Destination volumes. PMUPGRADE copies the load files.
`WARNING: Not all loads added to PMLOADS table`	PMUPGRADE cannot add tuples to table PMLOADS for all of the copied loads. The tuple may already exist, or it was invalid.	Use the displayed reason text to troubleshoot the problem, or contact the next level of support.
`WARNING: Not enough space left on volume`	A destination volume does not have enough space for the selected file.	Use the SET command to change the Destination volume or remove some files from the current Destination volume.
`WARNING: Patch Distribution empty`	The Patch Distribution does not have any files.	Check the Patch Distribution setting, and confirm the volume contains the PRSU files and patch cross-reference file for the update. Use the SET command if the Patch Distribution setting needs to be changed.
`WARNING: Patch Distribution inaccessible`	PMUPGRADE cannot access the the Patch Distribution volume. The volume could busied or out of service.	Troubleshoot the problem or contact the next level of support.

—continued—

Warning messages (continued)

Message	Description	Action
`WARNING: User confirmation mode is disabled`	The confirmation mode is turned off. PMUPGRADE will not prompt the user before an action.	Use the command SET CONFIRMATION ON.
`WARNING: XPM Patch Destination and Patch Distribution incompatible`	If the Patch Distribution has been specified as a SLM tape, the XPM Patch Destination must be a SLM disk on the corresponding drive.	Use the SET command to change the appropriate volume setting.
`WARNING: XPM Patch Destination inaccessible`	PMUPGRADE could not access the XPM Patch Destination volume. The SLM device could be busied.	Troubleshoot the problem or contact the next level of support.
`WARNING: XPM Patch Destination is not in switch patch search path`	The volume specified for the XPM Patch Destination does not have a corresponding entry in table PADNDEV, or it is not specified as SFDEV.	Check table PADNDEV and add or correct the entry.

—end—

Other PMUPGRADE messages

The following table lists other messages the MSL-100 switch may generate during the automated PM update process. This table provides a description and action for each message.

Other messages

Message	Description	Action
`Only one PMUPGRADE session can be running at a time.`	PMUPGRADE is in use. Only one copy may be running at a time, and only one user may be in PMUPGRADE at any given time	Try again later.
`This PCL does not contain table <table_name>.`	A table supported by PMUPGRADE is not available on the MSL-100 switch.	Continue with the procedure. The table is supported by PMUPGRADE but not supported by the PCL running in the office.
`You are already in the PMUPGRADE environment.`	The PMUPGRADE command was issued while in PMUPGRADE.	Quit PMUPGRADE. Type QUIT and press the Enter key.

Overview of update process

This chapter describes the peripheral module (PM) update process. This chapter provides sample checklists to assist in scheduling and recording the PM update. Information on aborting a PM update and troubleshooting update problems are also included. Refer to the “Overview of automated PM update process” chapter for information on the command interpreter (CI) level utilities PMUPGRADE and SWUPGRADE PM.

> **ATTENTION**
> The examples in this document are shown for reference purposes only.

Software delivery process

The software delivery process is the process used to update software in existing in-service (InSv) offices. The two primary activities are: the PM update process and the front-end update process. The PM update includes all software for all PMs and certain hardware types such as the digital test unit (DTU) and the enhanced network (ENET). This document focuses on the PM update process.

The front-end update includes software for the message switch (MS) and the computing module (CM). For information on the front-end update, refer to *One Night Process Software Delivery Procedures, 297-8991-303.*

Peripheral module update process

The process of updating PMs and other hardware types with new software begins with the receipt of this document and the PM load tape. The process should be completed before the image tape is shipped to Nortel Networks in preparation for the front-end update.

The process of updating PMs has the following phases:

1 preparing for a PM update

2 planning a PM update

3 performing the PM update

Preparing for a peripheral module update

ATTENTION
Maintenance technicians familiar with the office and experienced with software updating and PM loading should prepare an office for a PM update.

Preparing for a PM update involves the following activities:

- Receive the tapes and documentation.
- Verify if the PMs have any gating hardware.
- Run the PMUPGRADE utility or manually perform the following steps:
  - — Identify the loads and PMs to be updated in the office.
  - — Copy the necessary loads and post release software updates (PRSU).
  - — Audit each PPXL use the PRSM LFAUDIT command.
  - — Update table PMLOADS.
- Determine if the peripheral/remote loader (PRL) circuit card (NT7X05 or NTSX06) can be used to update any PMs.

The PM update process may be performed in an automated method using the PMUPGRADE and SWUPGRADE PM utilities or in a manual method. The following tables list the chapters and sections in this document to refer to, when performing an automated or manual PM update.

Automated PM update

For	Refer to
an automated PM update	The “Overview of update process” chapter. The “Overview of automated update process” chapter.

—continued—

Automated PM update(continued)

For	Refer to
	The “Preparing for a PM update using PMUPGRADE” section in chapter 4. The “Starting a PM update shift” section in chapter 4. The “Performing an automated PM upgrade” section in chapter 4. The “Finishing a PM update shift” section in chapter 4.
—end—	

Manual PM update

For	Refer to
a manual PM update	The “Overview of update process” chapter. The “Preparing for a manual PM update” section in chapter 4. The “Starting a PM update shift” section in chapter 4. The manual PM update procedures in chapter 4. The “Finishing a PM update shift” section in chapter 4.

Office policy may require modifications to this procedure. For example, some operating companies and offices have unique policies for copying and backing up software loads.

This document does not include steps to delete obsolete load names from table PMLOADS or obsolete load files from the disk volume. Check office policy to determine how to delete obsolete load names or files. Available memory may determine if load files are deleted during a PM update shift, after a PM update shift, or after the completion of the office’s PM update. Office alarm clearing policy may determine when obsolete load files are deleted from table PMLOADS.

To confirm completion of each activity, use a checklist similar to the next sample.

Office preparation checklist

Office:________________________________	Completed by (initials)	Date
Receive PM load tape and this document.	________	________
Receive PRSUs from tape or C-SCAN.	________	________
Review “Overview of release” and “Overview of update process” in this document.	________	________
Determine if the PMs have any gating hardware.	________	________
Run PMUPGRADE or manually perform the following steps:	________	________
Print table PMLOADS.	_____	_____
Print PM inventory tables.	_____	_____
Identify the loads and PM types in the office to be updated.	_____	_____
Identify the PMs of each type in the office to be updated.	_____	_____
Identify which PMs have XMS-based peripheral module (XPM) processor firmware to be updated.	_____	_____
Copy the new loads required by the office.	_____	_____
Audit each PPXL use the LFAUDIT command.	_____	_____
Identify the PRSUs required by the office.	_____	_____
Copy the PRSUs.	_____	_____
Update table PMLOADS.		
Determine if the PRL circuit card is to be used to update any of the PMs.	________	________

Peripheral module identification

The best way to identify the PMs in an office is to review the PM inventory tables. The following table lists the inventory tables that may be available in an office and the PMs and hardware types supported by each table. These tables are printed as part of these procedures.

Inventory table to PM cross reference

Inventory table	PMs supported by table
C7LINK	LIU7 linkset
DCHINV	DCH
DCMINV	DCM
DLMINV	DLM
ENINV	ENET
EXNDINV	OAMP
IOC	IOM
IPEINV	IPE
IRLNKINV	Dual RCC configurations
LCMINV	LCM/ELCM, LCME
LCMDRINV	ILD
LIMINV	LIM
LIUINV	EIU, FRIU, LIU7, XLIU
LMINV	LM
LTCINV	DTC, DTCI, LGC, LTC, PDTC, SMA, SMA2, SMS, SMU
LTCRINV	SMSR
MPC	MPC (NT1X89) or IOM (NTFX30)
MSFWLOAD	MS multi-port card
NIUINV	NIU
OFCVAR	DTU, EDTU, MTU
RCCINV	RCC, RCC2
RMMINV	RMM
TMINV	CTM, DTM (EDRAM), MTM, OAU, STM, TM8
XESAINV	ESA

Use the FORMAT PACK command to view tuple entries in a packed format. Following is an example of a tuple in an expanded format.

>POS DTC 0

```
DTC   0
          1001     DTE    0    18      1    E    30 6X02AA  ED707BI
                                                     (        ABTRK  DTCEX)$
 (0 10 17 0) (0 10 17 1) (0 10 17 2) (0 10 17 3) (0 10 17 4) (0 10 17 5)
 (0 10 17 6) (0 10 17 7) (0 10 17 8) (0 10 17 9) (0 10 17 10) (0 10 17 11)
 (0 10 17 12) (0 10 17 13) (0 10 17 14) (0 10 17 15) $
                    (CONTINUITY ) (     UTR16 ) (   MSG6X69 ) (   STR17IC )$
     NORTHAM     MX77AA MX77AA
                             MX77NF01
                                                        (   CCS7) (STRDTRE)$
     6X40AA                                           N
```

Following is an example of a tuple in a packed format.

>FORMAT PACK
>POS DTC 0

```
DTC 0 1001 DTE 0 18 1 E 30 6X02AA ED707BI (ABTRK DTCEX) $ (0 10 17 0)
(0 10 17 1) (0 10 17 2) (0 10 17 3) (0 10 17 4) (0 10 17 5) (0 10 17 6)
(0 10 17 7) (0 10 17 8) (0 10 17 9) (0 10 17 10) (0 10 17 11) (0 10 17 12)
(0 10 17 13) (0 10 17 14) (0 10 17 15) $ (CONTINUITY ) (UTR16 ) (MSG6X69 )
(STR17IC ) $ NORTHAM MX77AA MX77AA MX77NF01 (CCS7) (STRDTRE) $ 6X40AA N
```

Peripheral module circuit cards

Some PMs have circuit cards that contain their own software loads. These circuit cards are updated automatically with the serving PM or manually with separate update procedures. The next table lists the PM circuit cards that have their own software loads and the correct method to update the circuit card.

PM circuit cards with separate loads

PEC	Description	Update method
NTFX30	Input output module (IOM)	Update separately
NT1X80	Enhanced digital recorded announcement machine (EDRAM) card	Update separately.
NT1X81	Conference trunk module (CTM) card	Update separately.

Note: This document includes update procedures for the CLASS modem resource (CMR), NTAX74, NTMX77 and NTSX05 circuit cards. Use these procedures when the circuit cards must be updated and their serving PMs are not updated.

—continued—

PM circuit cards with separate loads (continued)

PEC	Description	Update method
NT6X54DA	Integrated services digital network line drawer (ILD) controller	Update separately.
NT6X78	CLASS modem resource (CMR) circuit card	Update with the serving PM.
NT9X17BB, CA, and DA	Message switch multi-port circuit card	Update separately.
NTAX74	XPM PLUS processor circuit card	Update with the serving PM.
NTMX45	Emergency stand-alone (ESA) with NTMX45	Update separately.
NTBX02	Enhanced ISDN D-channel handler (DCH) circuit card	Update separately.
NTMX77	XPM PLUS processor circuit card	Update with the serving PM.
NTSX05	PowerPC enhanced processor circuit card	Update with the serving PM.

Note: This document includes update procedures for the CLASS modem resource (CMR), NTAX74, NTMX77 and NTSX05 circuit cards. Use these procedures when the circuit cards must be updated and their serving PMs are not updated.

—end—

Preparing for a PM update and the PRL circuit card

The PRL circuit card is a new circuit card within an XPM unit that reduces simplex time when updating an XPM. The PRL circuit card is loaded with the new load while the XPM unit InSv. The XPM unit is then loaded from the local PRL circuit card.

Imaging is available on PRL circuit cards within XPMs that do not support ISDN. This local image is the initial load file source in the event of a recovery.

Pre-loading the PRL circuit card

CAUTION
Possible service interruption
Pre-loading the PRL can change the PM to in-service trouble (ISTb).

Since loading the PRL circuit card is a background task, offices may wish to load the circuit cards during business hours of low traffic periods. This can cause the PM to change state to ISTb, due to the load mismatch between the PRL circuit card and the PM. The same type of load mismatch occurs when the inventory table is updated with the new load and the PM is loaded with the same load.

The XPMSTOR command loads the PRL flash memory. XPMSTOR uses the same computing module (CM) resources as traditional PM loading and broadcast loading. XPM real-time must be available for background tasks. The following table lists the recommended resource levels when using the XPMSTOR command.

Recommended resource levels for XPMSTOR

Resource	Single PM unit	Set of PMs
CPOCC	50 percent or less	50 percent or less
Active XPM unit real-time	less than 60 percent	less than 50 percent

The NOWAIT parameter may be used when loading a single NT7X05 or NTSX06 circuit card.

When the NT7X05 or NTSX06 circuit card is loaded, the PM becomes ISTb until the PM is loaded with the new load.

Supported XPMs

> **ATTENTION**
> XPMs with an NTAX74 XPM processor do not support the PRL circuit card.

The PRL circuit card is optional in the following XPMs.

XPMs that support the PRL circuit card

Type	Description
DTC	Digital trunk controller (DTC)
	DTC with CCS7 (DTC7)
DTCI	DTC with ISDN (DTCI)
LGC	Line group controller (LGC)
	LGC with subtending RCC
	LGC with subtending RCC2
	LGC with ISDN (LGCI)
	LGCI with subtending RCC
	LGCI with subtending RCC2
LTC	Line trunk controller (LTC)
	LTC with subtending RCC
	LTC with subtending RCC2
	LTC with ISDN (LTCI)

—continued—

XPMs that support the PRL circuit card (continued)

Type	Description
	LTCI with subtending RCC
	LTCI with subtending RCC2
RCC	Remote cluster controller (RCC) with XPM PLUS
RCC2	Remote cluster controller 2 (RCC2) with XPM PLUS and ISDN
	RCC2 with XPM PLUS and ISDN and subtending RCC2
SMS	Subscriber carrier module-100S (SMS) with XPM PLUS
SMSR	Subscriber carrier module-100S remote (SMSR) with XPM PLUS
SMU	Subscriber carrier module-100 urban (SMU) with XPM PLUS
	SMU with XPM PLUS and ISDN

—end—

Sample datafill

The PRL circuit card is datafilled in field OPTCARD in the appropriate PM inventory table. If necessary, a review of these tables will identify the PMs that have the PRL circuit card. The next illustrations are examples of tuples in table LTCINV with PRL circuit card assignments.

Example of PRL datafill

```
LTCNAME
   FRTYPE  FRNO  SHPOS  FLOOR  ROW  FRPOS  EQPEC      LOAD
                                                        EXECTAB
                                                         CSLNKTAB
                                                          OPTCARD
TONESET      PROCPEC
                       E2LOAD

OPTATTR PEC6X40
________________________________________________________
SMS 0
      SME   0    32   0    C    1 6X02AA    NSS31BE2
                                             (POTS POTSEX)$
                            ( 0 40) ( 0 42) ( 1 40) ( 0 30)$
                           ( MSG6X69 )(UTR17)
(   CMR16 CMR33AI5) ( NT7X05AA 13)$
NORTHAA    MX77AA MX77AA

6X40AC
```

Example of NTSX06 datafill

```
LTCNAME
   FRTYPE  FRNO  SHPOS  FLOOR  ROW  FRPOS  EQPEC      LOAD
                                                        EXECTAB
                                                         CSLNKTAB
                                                          OPTCARD
TONESET      PROCPEC
                       E2LOAD

OPTATTR PEC6X40
________________________________________________________
LTC 3
      1005  LTEI  0  51  1  P  13  6X02NA    QLI12BC
(POTS POTSEX) (KEYSET KSETEX) (ABTRK DTXEX) (PRAB DTXEX)$
(0 11 2 0) (0 11 2 1) (0 11 2 2) (0 11 2 3) (0 11 2 4) (0 11 2 5)
(0 11 2 6) (0 11 2 7) (0 11 2 8) (0 11 2 9) (0 11 2 10) ( 0 11 2 11)
(0 11 2 12) (0 11 2 13) (0 11 2 14) ( 0 11 2 15)$
(UTR15)  (MSG6X69 ) (ISP16) $
NORTHAM  SX05AA (PRL)$  SX05AA  (PRL) $
                                          0
                     SXFWAE08   $
 6X40FA             N
```

Overview for non-ISDN XPMs

The PRL uses new LOADPM parameters. The PRL specific procedure in this document provides step-by-step instructions for using the PRL circuit card. The next table summarizes the PRL specific steps within the procedure “Using the PRL circuit card to update an XPM” in this document. These instructions allow the user to load a PM with the least amount of central processing unit (CPU) resources and the least simplex time.

> **CAUTION**
> **Possible service interruption**
> Do not use a load_name variable with the LOADPM LOCAL LOADFILE command. Adding the load name to the command can inhibit patching during the PM update and office PM update.

Using the PRL to load an XPM

Command	Activity	Maintenance state
>XPMSTOR PM	The NT7X05 or NTSX06 circuit cards in both units are loaded with the new datafilled load while both units are InSv.	Active unit InSv Inactive unit InSv
>BSY INACTIVE	The inactive unit is busied (Bsy).	Active unit InSv Inactive unit is manually busy (ManB)
>LOADPM INACTIVE LOCAL LOADFILE	The Bsy PM unit is loaded with the new load from the NT7X05 or NTSX06 circuit card.	Active unit InSv Inactive unit ManB
>RTS INACTIVE	The Bsy PM unit is returned to service (RTS) and an image is taken.	Active unit InSv Inactive unit InSv
>SWACT	Activity is switched between the two units.	Inactive unit InSv Active unit InSv
>BSY INACTIVE	The inactive unit is Bsy.	Inactive unit ManB Active unit InSv

—continued—

Using the PRL to load an XPM (continued)

Command	Activity	Maintenance state
>LOADPM INACTIVE LOCAL LOADFILE	The Bsy PM unit is loaded with the new load from the NT7X05 or NTSX06 circuit card.	Inactive unit ManB Active unit InSv
>RTS INACTIVE	The Bsy PM unit is RTS and an image is taken.	Active unit InSv Inactive unit InSv
—end—		

Overview for ISDN XPMs

Offices may wish to change these steps if updating an ISDN XPM. The PRL does not support imaging on ISDN XPMs. If both PRL circuit cards are loaded, problems could develop during a PM update if a load is corrupted or if the active unit fails during the update. Loading each PRL circuit card with its unit reduces the potential for a problem, but increases elapsed loading time and the impact on CPU resources for XPMSTOR.

The next table summarizes the loading steps when using a PRL circuit card to update an ISDN XPM.

Using PRL to load an ISDN XPM

Command	Activity	Maintenance state
>XPMSTOR INACTIVE	The NT7X05 or NTSX06 circuit card in the inactive unit is loaded with the new datafilled load while both units are iInSv	Active unit InSv Inactive unit InSv
>BSY INACTIVE	The inactive unit is Bsy.	Active unit InSv Inactive unit ManB
>LOADPM INACTIVE LOCAL LOADFILE	The Bsy PM unit is loaded with the new load from the NT7X05 or NTSX06 circuit card.	Active unit InSv Inactive unit ManB
>RTS INACTIVE	The Bsy PM unit is RTS.	Active unit InSv Inactive unit InSv
>SWACT	Activity is switched between the two units.	Inactive unit InSv Active unit InSv
>XPMSTOR INACTIVE	The NT7X05 or NTSX06 circuit card in the inactive unit is loaded with the new datafilled load while both units are InSv.	Inactive unit InSv Active unit InSv
>BSY INACTIVE	The inactive unit is Bsy.	Inactive unit ManB Active unit InSv
>LOADPM INACTIVE LOCAL LOADFILE	The Bsy PM unit is loaded with the new load from the NT7X05 or NTSX06 circuit card.	Inactive unit ManB Active unit InSv
>RTS INACTIVE	The Bsy PM unit is RTS.	Active unit InSv Inactive unit InSv

Planning the update

ATTENTION
Maintenance technicians familiar with the office and experienced with software updating and PM loading, should plan and schedule the PM update.

Scheduling the update involves the following activities:

- Run the PMUPGRADE utility or manually determine the update sequence by identifying subtending and serving PMs in the office.
- Determine if the PMs can be grouped in sets.
- Determine when and how to patch any loads.
- Schedule the update of each PM.

Update sequence

The sequence of PMs and hardware types to be updated vary according to the configuration of the nodes in the office. Subtending nodes must always be updated prior to any serving node. A subtending node is any node that resides on the peripheral side (P-side) of the serving node. It may be one or more of the following types:

- a hardware type, such as the Enhanced Network (ENET), acting as a subtending node to the message switch (MS)
- a PM, such as an line concentrating module (LCM), acting as a subtending node to its line group controller (LGC)

The next figures illustrate possible PM node configurations and possible PM update sequence relationships. For example, in the figure “Subtending and serving PM update sequence P-side to C-side” an emergency stand-alone (ESA) is a subtending PM to a RLCM, which is a subtending PM to a line trunk controller (LTC).

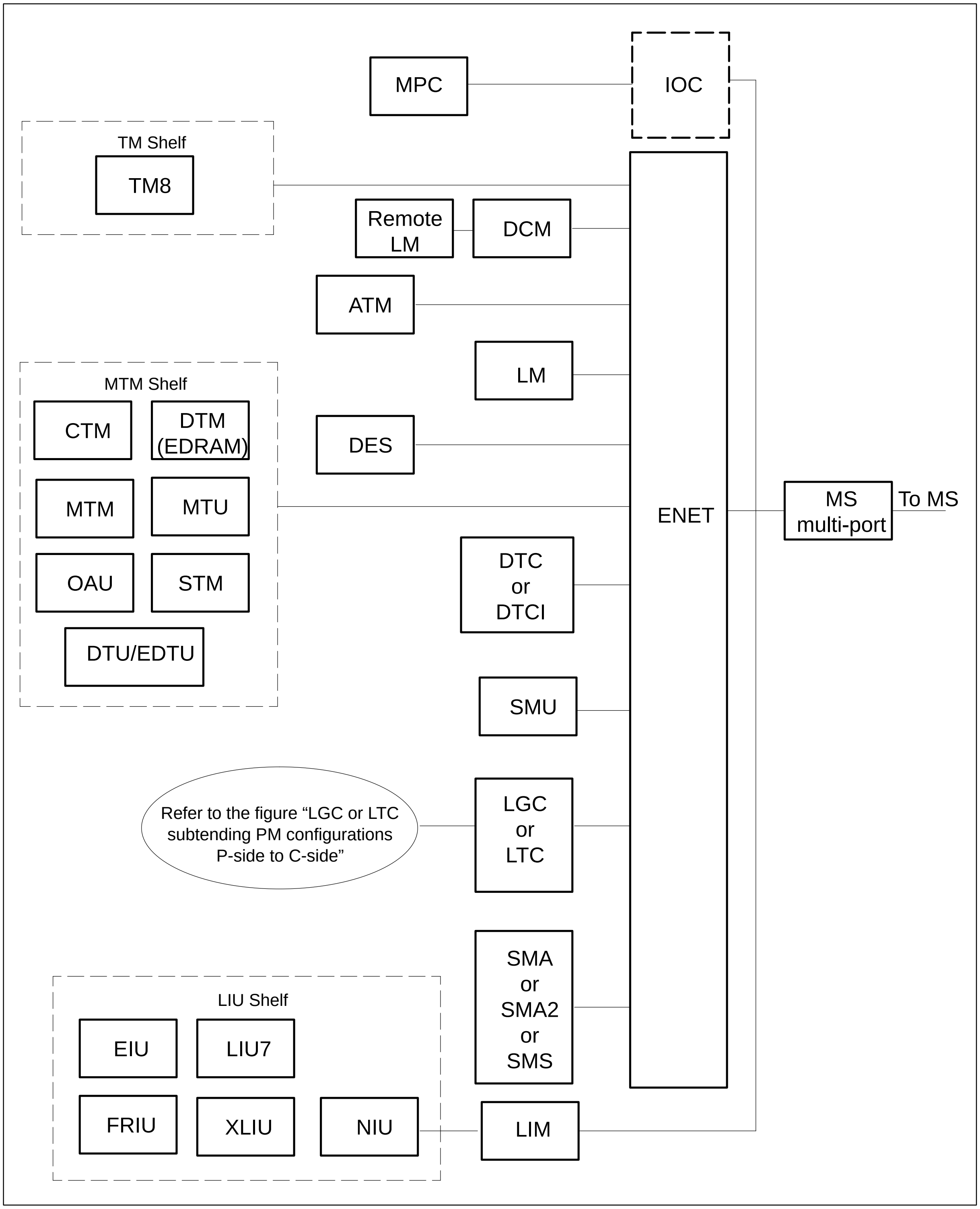
For this node, these PMs must be updated in the following sequence:

1 ESA

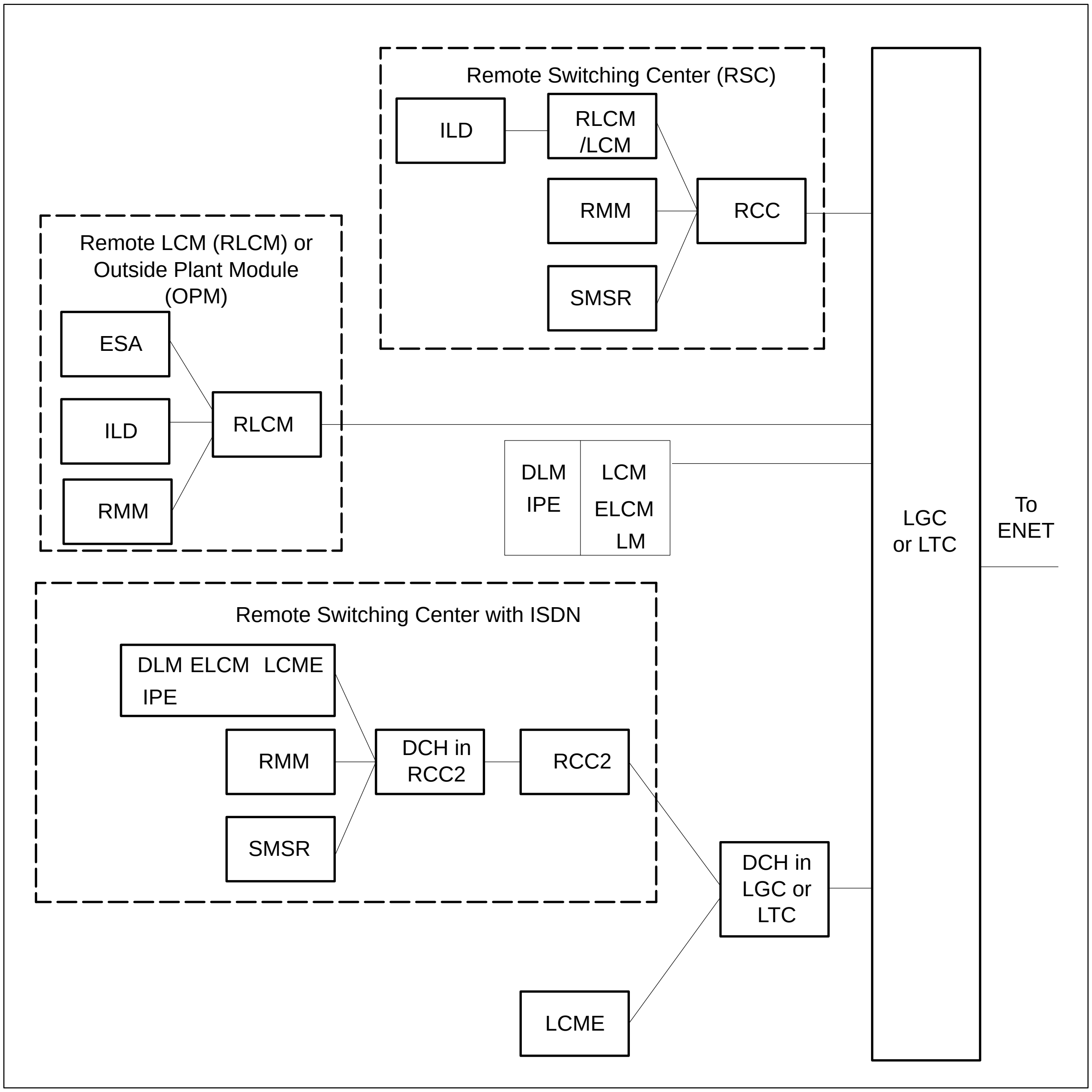
2 RLCM

3 LTC

PM configurations P-side to C-side



Subtending and serving PM update sequence (P-side to C-side)



It can be helpful to sequence the PMs in a list. On the next page is a sample update sequence list.

Sample update sequence list (P-side to C-side)

1	2	3	4	5	6	7	8	9
DCH	ESA ILD	LCM /ELCM	RCC	LGC	ENET	MS multi-port card	MS	CM
RMM	SMSR	LCME	RCC2	LTC				
		DLM		DTC				
		IPE		DTCI				
		LM		SMA				
				SMA2 SMS				
			RCU	SMU				
				DCM				
				ATM				
				TM8				
				CTM				
				DTM (EDRAM)				
				MTM				
				MTU				
				OAU				
				STM				
				EDTU				
				DTU				
			EIU	*LIM*				
			LIU7					
			FRIU					
			XLIU					
			NIU					

Note 1: A PM in *italic* type may be updated at any time in the PM update before the MS multi-port card.

Note 2: * applies to NT1X89 circuit card only.

—continued—

Sample update sequence list (P-side to C-side) (continued)

1	2	3	4	5	6	7	8	9
DTU *MPC**								
Note 1: A PM in *italic* type may be updated at any time in the PM update before the MS multi-port card. ***Note 2:*** * applies to NT1X89 circuit card only.								
—end—								

Checklists

Checklists similar to the samples on the next pages may be helpful in scheduling the PM update and confirming all PMs are included in the update.

Update sequence checklist

1	2	3	4	5	6	7
Examples						
  DCH (All)	RMM 6 RMM 4 RMM 3 RMM 5	LCM REM 01 01 LCM REM 00 00 LCME REM 01 01 LCME REM 00 00	RCC 1 RCC2 0	LGC 1	ENET 0	NT9X17DA in MS 0
		LIU7 2 LIU7 4 LIU7 6	NIU 0	LIM 1		NT9X17DA in MS1

PM update checklist

PM type	PM #	Current loads	New loads	PRSU status	Subtending PMs
Example					
LGC	LGC 01	ECL05BC MX77NB03	ECL06BH MX77 load ok	ECL PRSUs applied w/ DTC 00 update	LCM REM 01 01 LCM REM 02 01

Inventory tables provide the best information for identifying subtending PMs and serving PMs, particularly in large offices or remote offices. Inventory tables are printed during the procedure “Preparing for a manual PM update” in this document.

Inventory tables should be reviewed from P-side to central side (C-side) to identify the sequence of PMs in a node. The next table lists the PMs used in the previous example of a node and the activities to identify the PMs in the node.

Using inventory tables to identify PMs in a node

PM	Activity	Result
ESA	Review table XESAINV.	Identify serving LCME.
LCM	Review table LCMINV.	Identify serving RCC.
LTC	None, the LTC subtends directly to the ENET.	

D-channel handler updates

The previous figure illustrates a node with a RSC with ISDN and two PMs with DCH circuit cards. The DCH circuit cards can be updated prior to the other PMs in the node, or they can be updated with their serving PMs.

The ISDN DCH circuit card must be updated before its serving PM, but it can also be updated prior to other subtending PMs on the serving PM. The previous figure illustrates an LGC/LTC node with a subtending RCC2, with DCHs in both PMs. Following are two possible update sequences.

- All the DCHs in the node can be updated first, followed by the RCC2s, and the LGC/LTC.
- The RCC2 DCHs can be updated first, followed by the RCC2s and the LGC/LTC.

In either sequence, the DCH is always updated before its serving PM.

Enhanced network and message switch updating

Loads for the ENET and MS may be included in the PM load tape. Scheduling the update of these hardware types is critical to scheduling the update of PMs and the office.

Enhanced network

The ENET is updated as part of the PM update process. It should be updated after all PMs and hardware types in the office are successfully updated.

9X17 firmware

While the MS multi-port circuit card (NT9X17BB, CA or DA) is part of the MS, it is updated as part of the PM update process. The MS multi-port circuit card should be updated one to two days after the ENET is updated and at least two days before the MS is updated.

Message switch

The MS is typically updated one to two days prior to the application date (AD) or one night process (ONP) date. The MS should not be updated during the PM update process. For information on updating the MS, refer to *One Night Process Software Delivery Procedures, 297-8991-303.*

Parallel and broadcast mate loading

The following parallel and broadcast mate loading methods may be used to load sets of some PMs:

- LCM parallel loading
- XPM broadcast mate loading
- XPM parallel loading
- Parallel firmware loading

Do not use broadcast mate loading or parallel loading to update remote PMs, such as the remote cluster controller (RCC) or remote line concentrating module (RLCM). Update each PM individually.

Do not use XPM broadcast mate loading or XPM parallel loading to update DTCs with timing links. To identify the timing source, type the command MAPCI;MTC;MS;CLOCK from the CI level of the MAP display. Offices may wish to use the DTC with timing links as the first DTC in the office to be updated with the new load.

Do not use parallel or broadcast mate loading to update a PM with a PRL circuit card. Update each PM individually, using the PRL specific procedure in this document and the PRL information in this chapter.

LCM parallel loading

All manually busied units of a set of LCMs can be updated with LCM parallel loading and the RTS FORCE command. The RTS FORCE command supports sets of up to 50 LCMs, allowing the office to reduce its total LCM update time. The procedure is detailed in “Using parallel loading to update LCMs or LCMEs” in this document.

The next table describes the time difference of the two LCM update methods.

LCM parallel loading times

# LCMs	Set size	Update method	# minutes per unit	# total minutes per set
100	5	Parallel	15	600
100	50	Parallel with RTS Force	11	44

Note: Times are representative and vary for each office.

XPM broadcast mate loading

All inactive units of a set of XPMs can be updated using XPM broadcast mate loading. The CM messages the active unit of the first XPM in the set. The active unit forwards the message to its inactive unit and the active unit of the second XPM in the set. The active unit in the second XPM forwards the message to its inactive unit and the third XPM in the set. This sequence continues until all XPMs in the set have received the message.

The command line at the MAP display restricts the number of PMs that can be posted in a set. A CI level exec can be created to eliminate this restriction and post sets of up to 35 XPMs. Refer to the procedure “Using an exec to post a large set of XPMs” in this document.

XPM parallel loading

All units of the same number (0 or 1) can be updated with XPM parallel loading. Only inactive units can be updated, so activity may have to be switched in some XPMs to align all units in the set. During XPM parallel loading, the CM messages directly to each inactive unit.

Parallel firmware loading

Parallel loading may be used to update the XPM processor firmware in a set of up to four XPM units. The set can include up to 10 XPMs. A maximum of four XPM units per set is recommended for optimum performance. Office parameter MAX_FIRMWARE_LOAD_MAIN_TASK in table OFCOPT determines the maximum number of XPMs in the set. The default value is 10, the range is 1 to 128.

Optimal set size

Laboratory tests have revealed optimal set sizes for each type of method. The next table lists the optimal PM sets and the recommended method to update each set.

Optimal set size and recommended loading method

PM or PM set	Method
First PM with a base load or PPXL (see note)	Individual
One PM with a base load	Individual
One PM with PPXL	Individual
2 to 10 XPMs of the same kind	XPM parallel loading. Parallel loading more than 10 XPMs results in unacceptable simplex time for the XPMs beyond the first 10 and could double loading time.
11 to 35 XPMs of the same kind	XPM broadcast mate loading
36 or more XPMs of the same kind	Not recommended. Reduce the set to a smaller number of XPMs and follow the appropriate method.
2 to 50 LCMs of the same kind	LCM parallel loading
More than 50 LCMs of the same kind	Not recommended. Reduce the set to a smaller number of LCMs and use parallel loading.

Note: Office policy may require successful updating one PM of each type and allowing it to soak for a period of time before updating the remaining PMs.

Sets larger than the optimal set sizes may be used. However, there is no significant reduction in loading time, and depending on factors such as CPU occupancy the update may fail. Refer to “Loading times” in this document for more information. Appendix A of this document provides details on the laboratory testing and additional information on loading times and CPU occupancy. Refer to Appendix A for assistance in determining the length of time to update individual PMs and the office.

> ***Note:*** All PMs in the set must have identical CMR configurations. A set cannot contain some PMs with a CMR load and some PMs without a CMR load.

Performing the PM update

This section describes activities in performing the PM update.

Beginning the update

At the start of each update shift, verify the office and the PMs to be updated meet the following conditions:

- An office image was taken in the last 24 hours.
- All PM logs are enabled.
- Each PM has successfully completed its last REX test within the last two weeks.
- All REX testing in the office is suspended.
- The post release software manager (PRSM) automated process is not scheduled to start during the shift.

  Note: WARMSWACT should be enabled in the office as part of normal office policy. Each PM to be updated should have WARMSWACT enabled.

Meeting these conditions may be part of the standard maintenance program of the office, or it may require additional activities. Perform the procedure “Starting a PM update shift” in this document to confirm the office and PMs to be updated meet these conditions. To confirm completion of each activity, use a checklist similar to the next sample.

Update shift checklist

Office:____ **Activities for** ________________ **(date of shift)**	**Completed by (initials)**
Starting the shift	
Confirm an office image was taken in the last 24 hours.	___________
Confirm all PM logs are enabled.	___________
Confirm each PM to be updated is in service.	___________
Confirm each PM to be updated has successfully passed its last REX test within the last two weeks.	___________
Suspend all automatic REX testing in the office.	___________
Confirm the PRSM automated process is not scheduled to run during the shift.	___________
Finishing the shift	
Resume all automatic REX testing in the office.	___________
Return all PM logs to their original states.	___________
Review recent logs and verify the PMs updated during this shift have remained healthy and InSv.	___________
If required, change the start time of the PRSM automated process to its original value.	___________

Updating the peripheral modules

Update the PMs during a maintenance window or a period of low traffic. The SWUPGRADE PM utility may be used to perform an automated update on some PMs.

Finishing the update

At the completion of each update shift, operating company personnel should return the office to its original state. Verify PMs that were updated have remained InSv. Perform the procedure "Finishing a PM update shift" in this document.

Troubleshooting update problems

Occasionally problems may occur during a PM update. This section provides hints on troubleshooting update problems and aborting a PM update.

PRSUs will not apply

If PRSM fails to apply any patches, there may not be enough room in the store file device (SFDEV) to hold temporary files needed for patch application. Check table DSLIMIT to ensure the DSMAX value for STOREFS is sufficiently larger than the DSUSED value. If the DSMAX value is not sufficiently larger than the DSUSED value, increase the DSMAX value.

PRSM data missing during PMLOADS update

If table PMLOADS is manually updated for this PM update, an error may be generated similar to the following:

```
PRSM data missing
To correct, enter the PRSM command level.  Then type:
   LFAUDIT PPXL ELIO9AX  ELIO9AX_980107  S00DPMLOADS
```

This error message is received if the PRSM command LFAUDIT is not used to audit each PPXL before updating table PMLOADS. Refer to the procedure "Preparing for a manual PM update" in this document for additional information on the LFAUDIT command.

XPM RTS failure after MX77 update

If the MX77 firmware load is updated in an XPM, it must be loaded prior to the base load. If it is loaded after the base load, the unit may fail to RTS.

Solution

The procedures in this document reflect the correct sequence for updating the MX77 firmware and the base load. The following is a summary of the correct sequence of steps:

1. Busy the inactive unit.
2. Load the new firmware in the inactive unit.
3. Load the new base load in the inactive unit.
4. Return the inactive unit to service.
5. Switch activity.
6. Repeat these steps for the new inactive unit.

If one unit of an XPM fails to RTS after an update of the MX77 firmware, reload the MX77 firmware and the base load in the correct sequence.

RCC failure to RTS

A RCC fails to RTS during the update.

Solution

Check the RCC’s corresponding ESAPXLA table, there may be a mismatch between table RCCINV and table ESAPXLA.

Changes in posted set

A posted set of PMs changes during a update procedure. The set may have been posted by a maintenance state, such as ISTb, rather than by a number.

Solution

Do not post by maintenance state. A PM posted as ISTb, for example, may change state to central-side busy (CBsy) and drop from the set. If a posted set of PMs changes during the update procedure, re-post the set by number.

Data mismatch

Problem

Data mismatches may occur during XPM loading. A mismatch may occur between XPM units or between the CM and an XPM. PM logs and MAP responses will identify the type of data mismatch.

The next table identifies the types of XPM data that may be mismatched during XPM loading.

Types of XPM data

Type	Description
Static data	Configuration data, such as node data, terminal types, and port data, that is constant. The CM sends the data to the XPM or the XPM unit during a RTS.
Dynamic data	Status data, such as call states and link states, that is constantly changing. XPM applications create the data and pass it from the active unit to the inactive unit on an ongoing basis.
Derived data	Application specific data derived from configuration data.
Exec data	Office parameters

Solution

The methods in the next table may be used to recover from a data mismatch. Each method reloads the static data, but each method has risks and benefits. The methods are listed in order of severity, from least severe to most severe. Office policy and the affected XPMs will determine the type of method to use.

Data mismatch recovery

Method	Benefits	Risks
Double warm SWACT the XPM.	Automatic approach that reduces the risk of error and does not cause an outage.	Corrupted dynamic data could be passed from the active side.
1 Busy the inactive unit. 2 Load the CC data. 3 Return the unit to service. 4 Perform a warm SWACT. 5 Repeat for new inactive unit.	Does not cause an outage.	Corrupted dynamic and derived data could be passed from the active side.
1 Busy the inactive unit. 2 Load the CC data. 3 Return the unit to service with NODATASYNC parameter. 4 Perform a cold SWACT. 5 Repeat for new inactive unit.	Automated approach that reduces the risk of error and prevents corrupt dynamic data from being passed from the active unit.	Causes an outage. Warm SWACT is disabled with the NODATASYNC parameter.
1 Busy the XPM. 2 Load the CC data to the XPM. 3 Return the XPM to service.	Guarantees all data originates from the central control (CC).	Causes an outage.

Backing-out of a peripheral module update

> **ATTENTION**
> Check office policy before backing out of a PM update. A back-out may require the next level of support.
>
> When backing-out of a PM update, return the PM to service with the NODATASYNC parameter. This allows the MSL-100 switch to download new static data to the PM.

Problems during a PM update can cancel the update of a single PM or multiple PMs. If a PM update must be cancelled, back-out the new PM load from the affected PMs. Reload the PMs with the original PM loads.

Single PM

Use the appropriate PM update procedure included in this document, and reverse the old_load_name and new_load_name parameters.

> **ATTENTION**
> The MSL-100 switch may generate a warning regarding compatible software releases and improper load sequences. Follow the earlier instructions about the reload order for PMs and continue with this procedure

> **ATTENTION**
> Patches for the previous load names must be present in the MSL-100 switch for backing-out of an XPM update.

Following is an example of the command sequence and parameters.

1 Change the load name in the PM inventory table to the name of the previous load name. If a CMR load was included in the original PM update, change the name of the CMR load in the inventory table to the previous CMR load name.

2 Enter PRSM, perform an assign upgrade_ld to the previous loadname.

Following is an example of the command.

>ASSIGN UPGRADE_LD old_load_name IN DESTSET pm_type pm_no

Note: The assign upgrade_ld command is only applicable to XPM and EDCH loads. The assign upgrade_ld command is not applicable to ISN loads.

When performing a back-out procedure, be sure to include all applicable units. For example the ASSIGN UPGRADE_LD command is not used on a unit, if that unit is the first unit in the office to receive the new software load. When performing a back-out procedure, be sure to use the ASSIGN UPGRADE_LD command on that unit.

3 Post the PM.

4 Busy the PM or the inactive PM unit.

5 Load the PM or inactive unit. If the XPM processor firmware must be reloaded, follow the PM update procedure and reload it before loading the base load.

Note: Depending on the PM and the XPM processor firmware load, it may not be necessary to reload the MX77 firmware. MX77 firmware is backwards compatible to three releases.

6 Review the PRSM database. If necessary update the PRSM database.

7 Return the PM or inactive unit to service. For most PMs use the NODATASYNC parameter. This permits new static data to be downloaded to the PM.

CAUTION
Possible service interruption
The following command can cause the PM and all its subtending PMs to become system busy (SysB) and lead to service interruptions.

Following is an example of the command.

>RTS UNIT 1 NODATASYNC FORCE

8 If the unit is a dual unit PM, use the SWACT COLD command to switch activity between units. The SWACT COLD command returns the previous release's functionality to the unit.

> **CAUTION**
> **Possible service interruption**
> This command can cause the PM and all its subtending PMs to become SysB and lead to service interruptions.

Following is an example of the command.

>SWACT COLD

The outage should be less than 30 seconds.

9 Enter PRSM, perform an assign upgrade_ld to the previous loadname.

10 Busy the inactive unit.

11 Load the inactive unit.

12 Return the inactive unit to service using the NODATASYNC parameter.

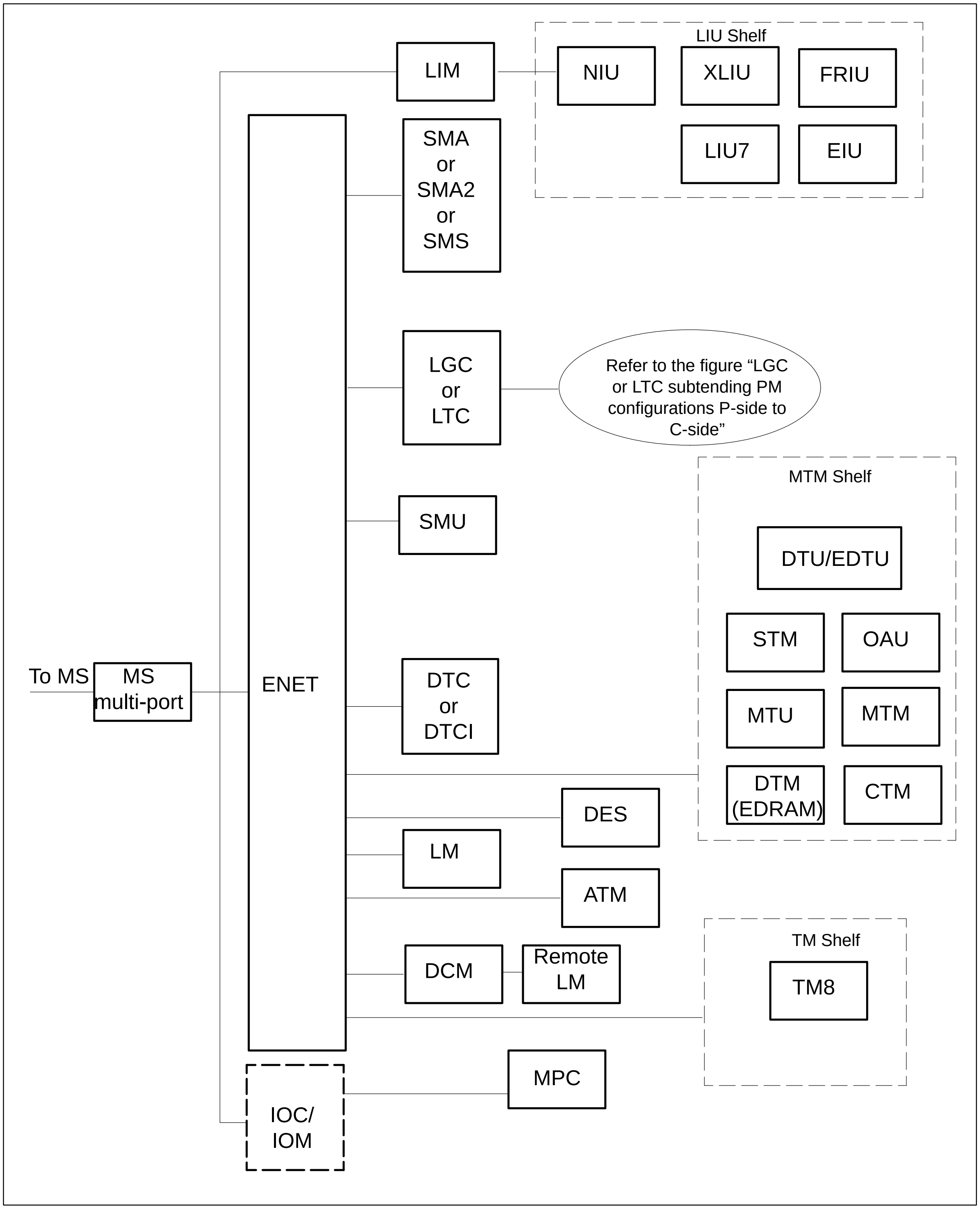
13 Switch activity using the COLD parameter to return the PM to its original operating state.

Multiple PMs

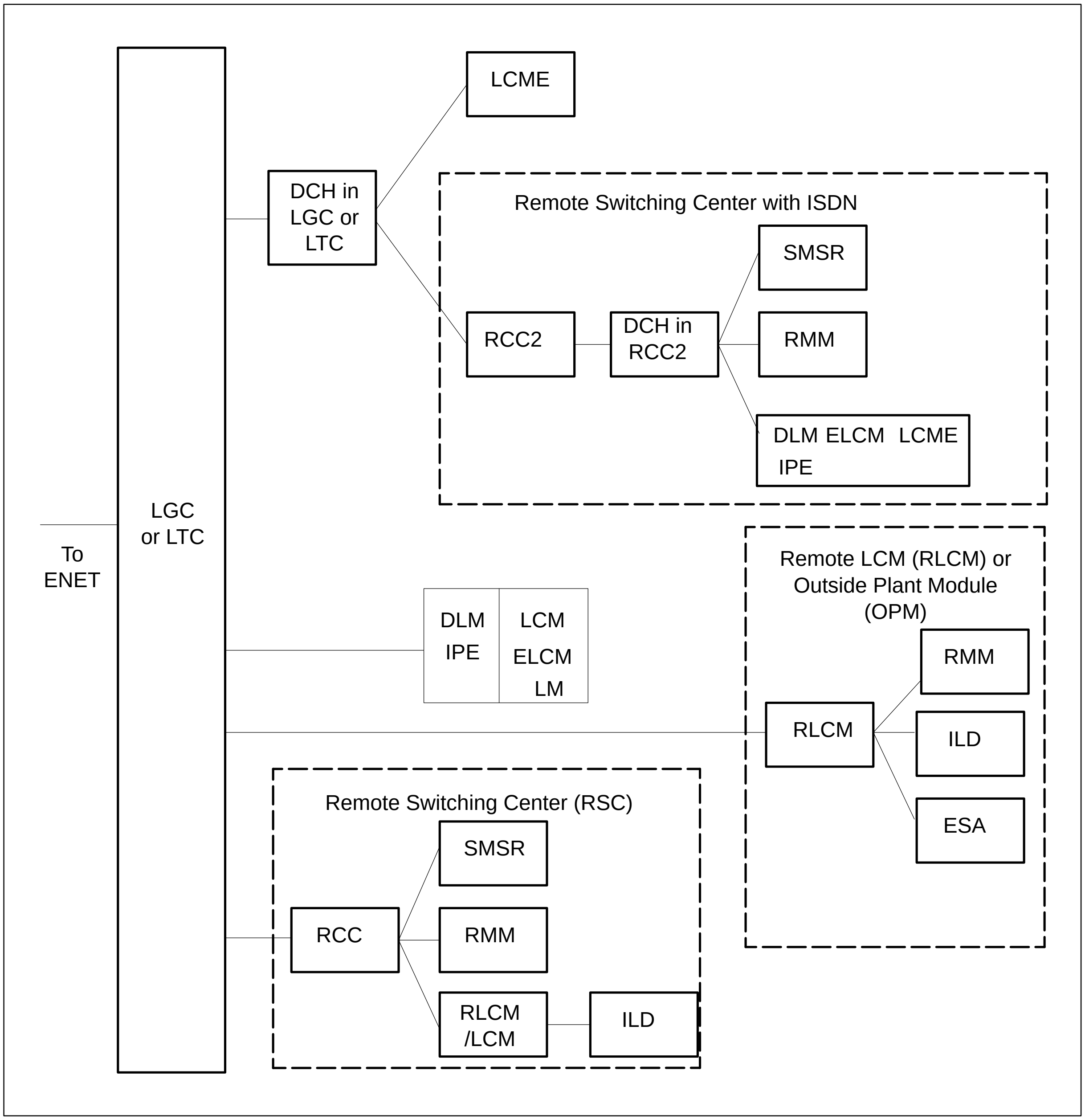
If multiple PMs must be backed out, reload the PMs in the reverse order they were updated. Reload PMs C-side to P-side, or reload the serving PM prior to its subtending PM.

The next figures illustrate possible PM node configurations and PM update sequence relationships.

PM configurations (C-side to P-side)



Subtending and serving PM update sequence (C-side to P-side)



When backing out of a PM update, it may be helpful to sequence the PMs in a list. On the following page is a sample update sequence list.

Sample update sequence list (C-side to P-side)

1	2	3	4	5	6	7	8	9
CM	MS	MS multi-port card	ENET	LGC	RCC	LCM/ ELCM	ESA ILD	DCH
				LTC	RCC2	LCME	SMSR	RMM
				DTC			IPE	
				DTCI			DLM	
				SMA				
				SMA2 SMS				
				SMU				
				DCM			LM	
				ATM				
				TM8				
				CTM				
				DTM (EDRAM)				
				MTM				
				MTU				
				OAU				
				STM				
				EDTU				
				DTU				
		LIM	EIU					
			LIU7					
			FRIU					
			XLIU					
			NIU					

Note 1: A PM in *italic* type may be backed out any time in the PM update after the MS multi-port card.

Note 2: * applies to NT1X89 circuit card only.

—continued—

Sample update sequence list (C-side to P-side) (continued)

1	2	3	4	5	6	7	8	9
								DTU *MPC**
Note 1: A PM in *italic* type may be backed out any time in the PM update after the MS multi-port card. ***Note 2:*** * applies to NT1X89 circuit card only.								
—end—								

Updating the ATM Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the Autovon trunk module (ATM).

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The ATM is in-service.
- Automatic REX testing is suspended in the office.

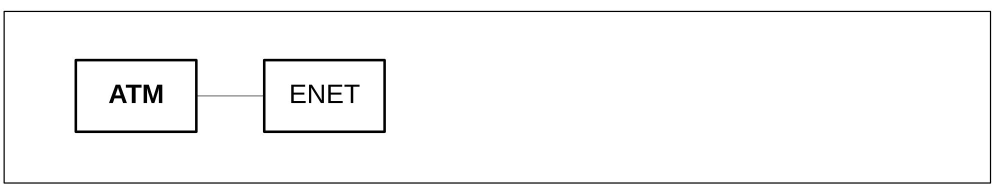
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the ATM. Serving PMs must be updated after the ATM.

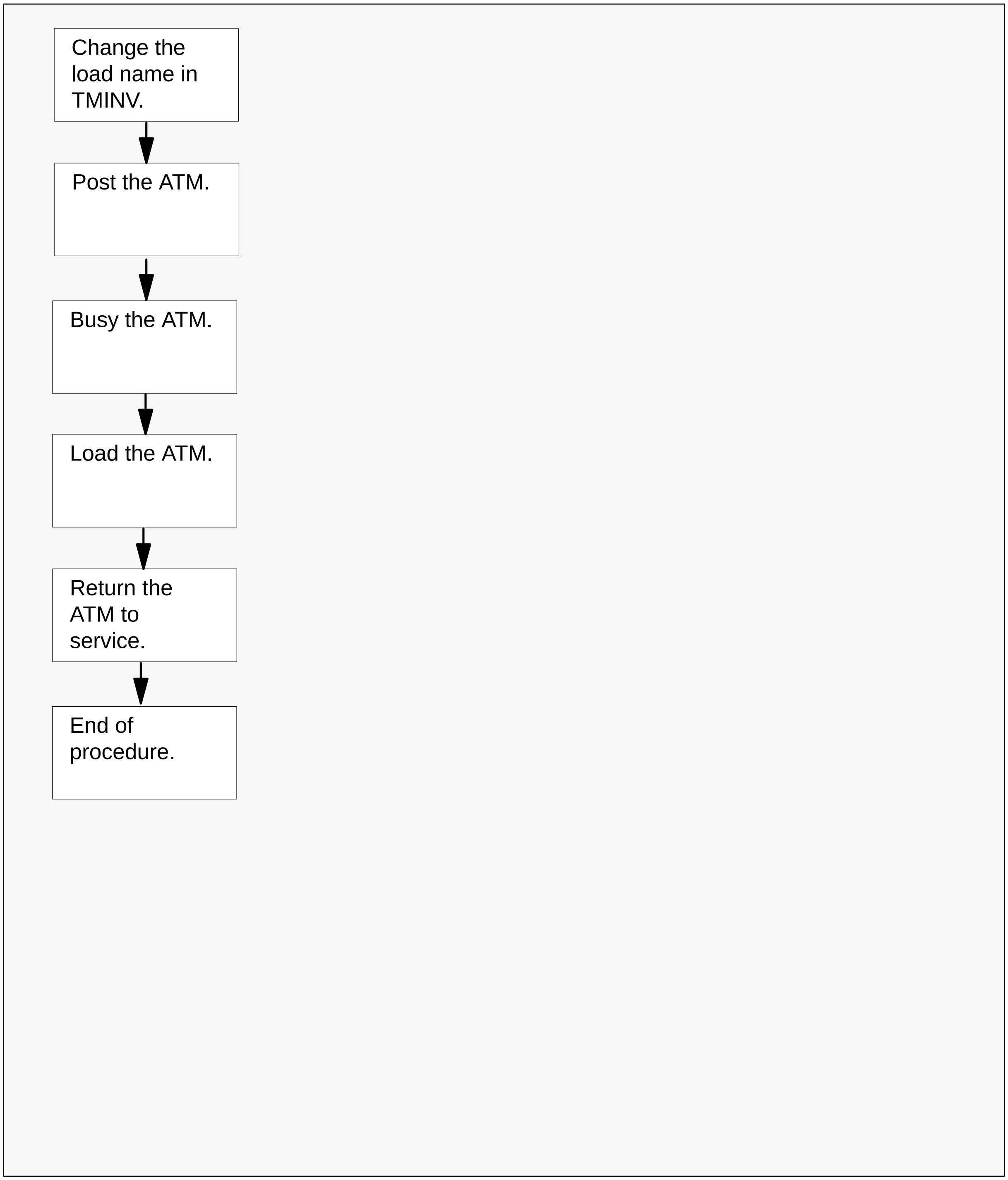
Node configuration for ATM



Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails, for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an ATM to update.

2 Confirm all prerequisites for this procedure have been met.

3 Access the PM inventory table by typing

>TABLE TMINV
and pressing the Enter key.

4 Position on the datafill tuple for the ATM to be updated by typing

>POS ATM atm_no
and pressing the Enter key.

where

atm_no   is the number of the ATM being updated

5 Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load   is the name of the new load

6 Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM state changes to in-service trouble (ISTb) due to the load mismatch with the inventory table. Continue with this procedure.

7 Exit the table by typing

>QUIT
and pressing the Enter key.

8 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

9 Post the ATM by typing

>POST ATM atm_no
and pressing the Enter key.

where

atm_no is the number of the ATM being updated

Note: The PM is ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

10 Busy the ATM by typing

>BSY
and pressing the Enter key.

11 Load the ATM by typing

>LOADPM
and pressing the Enter key.

12 Return the ATM to service by typing

>RTS
and pressing the Enter key.

13 You have successfully updated the ATM and completed this procedure. Review the update schedule.

If there are	Do
additional ATMs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Performing an automated PM upgrade

Application

> **ATTENTION**
> Some functionality in this section may require computing module (CM) patches CBB02 and CBB04.

Use this procedure to perform an automated PM upgrade on PMs entered in the following tables:

- DCHINV
- DSPMINV
- ENINV (MSL10 or higher PCL)

  Note: Do not perform an automated update for the ENET when an spectrum peripheral module (SPM) is present on the MSL-100 switch. Use the procedure "Update the ENET" in this document to perform a manual ENET update.

- DLMINV
- ICRMINV
- IPEINV
- LCMINV
- LIUINV (EIUs, FRIUs, and XLIUs only)
- LTCINV
- LTCRINV
- MSFWLOAD (MSL09 or higher PCL)
- NIUINV (MSL10 or higher PCL)
- RCCINV
- XESAINV

Repeat this procedure for each PM upgrade shift. A PM upgrade shift is the length of time it takes to perform PM upgrades each day. A PM upgrade shift can last up to 14 hours. Office policy and the maintenance window determines the length of the PM upgrade shift.

Prerequisites

Perform the procedures "Preparing for a PM update using PMUPGRADE" and "Starting a PM upgrade shift" in this document to meet the following prerequisites for this procedure.

- The new load names are entered in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- Each PM to be updated is in-service.
- Each PM to be updated successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.
- PRSM automated processes such as AUTOAPP cannot run during the PM update shift.
- A PM upgrade plan has been generated using the utility PMUPGRADE.

Required information

Not applicable

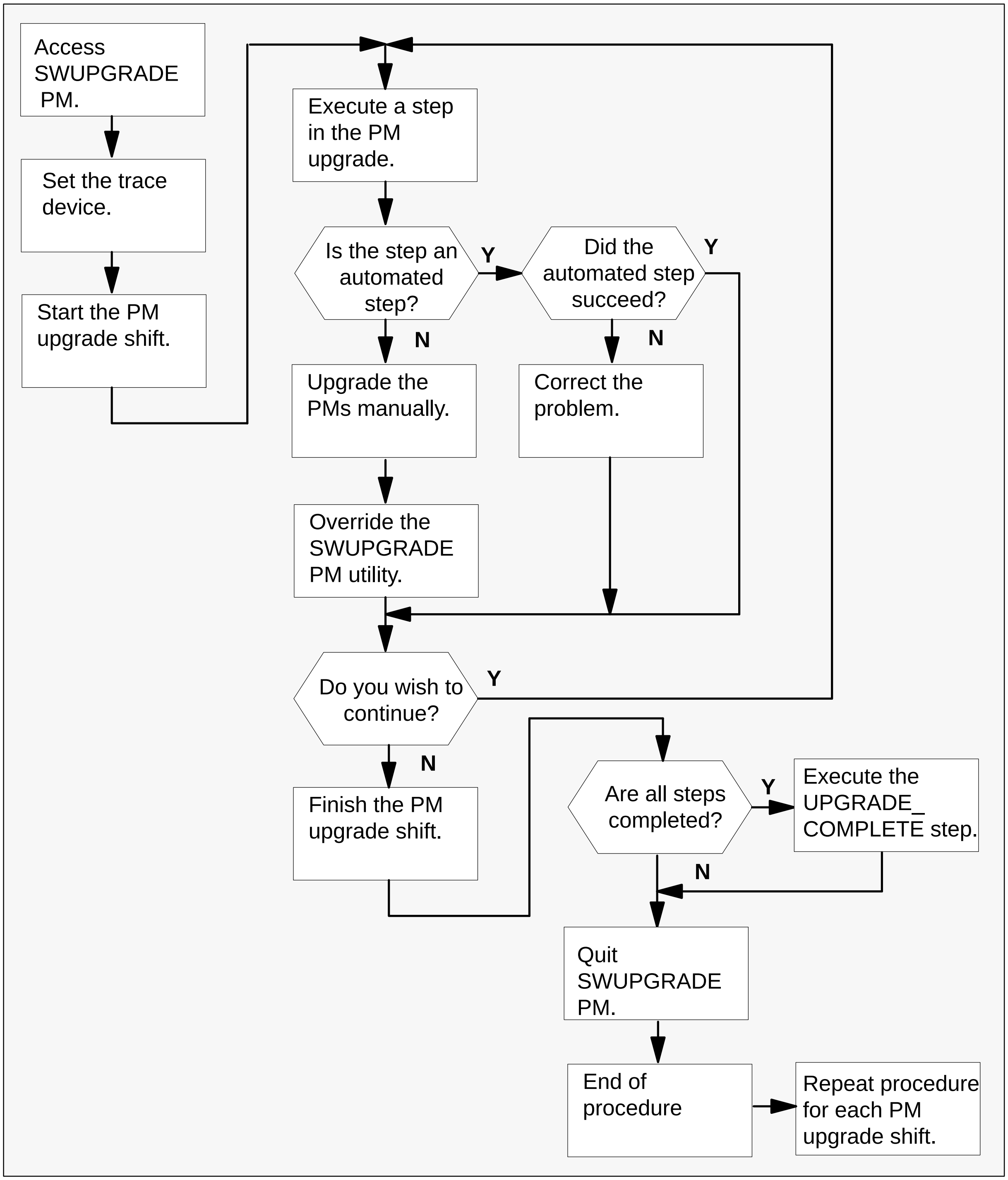
Update sequence

Not applicable

Notes

None

Summary of procedure



Steps of procedure

ATTENTION Review all bulletins and warnings related to this upgrade and the PM software release document before beginning this procedure.

At the CI level of the MAP display

1 Send the terminal responses to a printer. Type

>RECORD START ONTO prntr_name
and press the Enter key.

where

prntr_name — is the name of the printer

Example of command

```
>RECORD  START  ONTO  PRNTR1
```

2 Enter the SWUPGRADE PM increment for PM upgrades. Type

>SWUPGRADE PM
and press the Enter key.

The SWUPGRADE PM increment supports automated software upgrades on a DMS switch. The PM parameter specifies the PM platform.

Example of console response

```
Generating the SWUPGRADE step list.
Using the PM Upgrade Plan generated by PMUPGRADE on 1997/09/16 16:29:54.640 THU

Total of 20 SWUPGRADE steps were generated from the PM Upgrade plan.

SWUPGRADE:
```

Note: SWUPGRADE PM displays a message similar to the example when you first enter the SWUPGRADE PM increment. SWUPGRADE PM displays only the SWUPGRADE prompt on later entries, such as the next PM update shift.

Logs and other possible responses

Log or other response	Action
SWUPGRADE cannot generate the step list.	The PM Upgrade Plan was never generated, or PMUPGRADE has not completed the PM Upgrade Plan. Perform the procedure “Preparing for a PM update using PMUPGRADE” in this document, or wait for PMUPGRADE to complete the plan. When complete return to this step.
The PM Upgrade Plan being used by SWUPGRADE is not the correct plan.	Perform the procedure “Preparing for a PM update using PMUPGRADE” in this document and return to this step.
The MAP response is different from the example.	SWUPGRADE could be in the CM platform. It may be necessary to continue a CM upgrade or cancel SWUPGRADE. Troubleshoot the problem or contact the next level of support.
The PM Upgrade Plan is empty.	Confirm all PMs have the new load. If all PMs do not have the load, perform the procedure “Preparing for a PM update using PMUPGRADE” in this document. When complete return to this step.

3

ATTENTION

Use at least two devices with this procedure. Use one device to perform the automated PM upgrade. Use the second device as a trace device to monitor the progress of the automated PM upgrade.

Some offices use a third device during the automated PM upgrade. Use the third device as a MAP terminal. Post the PMs and monitor PM loading, patching, and service status.

Send the output of each device to a printer for record keeping.

Establish a second device as a trace device. Type

>SET TRACE_DEVICE dev_name
and press the Enter key.

where

dev_name   is the name of the device

Example of command

```
>SET  TRACE_DEVICE  TTY0
```

The second device records SWUPGRADE PM operations during the automated PM upgrade.

4 Go to the trace device and confirm the device displays the following message.

Example of trace device response

```
This device is selected for TRACEing.
```

If the device	Do
displays the previous message	step 5
does not display the previous message	Confirm you have selected the correct device as the trace device. If necessary repeat step 3.

5

CAUTION
Possible service interruption
If you have not already done so, perform the procedure “Starting a PM update shift” in this document before continuing with this procedure. If you fail to perform this procedure, SWUPGRADE PM could encounter patching and loading problems during the automated PM update.

Start the PM upgrade shift. Type

>SET SHIFT STARTED
and press the Enter key.

SWUPGRADE PM checks for the presence of a $XREF patch cross-reference file and processes patch cross-reference information.

Example of console response

```
XPM patch files (if any) will be taken from volume S01DPMLOADS.
ISN patch files (if any) will be taken from volume S01DPMLOADS.
Reading patch cross-reference file XPM81RTP$XREF from volume S01DPMLOADS

*********************************************************************
**                                NOTE                             **
**                                ----                             **
**    You are starting a shift to upgrade PMs in the office.       **
**    If you have not already done so, perform the procedure       **
**    “Starting a PM update shift” in the Peripheral Module        **
**    Software Release Document at this point.                     **
**                                                                 **
*********************************************************************
```

If the procedure “Starting a PM update shift” has	Do
been successfully performed	step 6
not been successfully performed	Issue the SET SHIFT FINISHED command, then perform the procedure “Starting a PM update shift” in this document. Return to step 5.

Logs and other possible responses

Log or other response	Action
Log PM700, indicating the start of a PM Upgrade shift.	This log is an information log that requires no action.
`ERROR: SHIFT variable must previously have been set to FINISHED or ABORTED.`	The PM UPGRADE shift could not start because an earlier shift was not finished or aborted. Wait for the earlier shift to fully finish or abort.
`ERROR: A step is currently being executed.`	A shift is in the process of aborting and a step is still executing. Wait for the shift to fully abort and reissue the SET SHIFT STARTED command.
`WARNING: Could not read patch cross-reference file. Do you wish to start this shift without patches?`	SWUPGRADE PM cannot find a $XREF patch cross-reference file. Depending on the method of patch delivery, a patch cross-reference file may not be available. If a patch cross-reference file is not available, SWUPGRADE PM will not automatically patch the PM loads.
`WARNING: The PM Upgrade shift cannot be started. The following incompatible activities are already in progress:`	An incompatible activity, such as the PRSM autoapply process is in progress. Wait for the incompatible activity to finish and reissue the SET SHIFT STARTED command.

6 Display the SWUPGRADE PM environment variables. Type

>DISPLAY VARS
and press the Enter key.

Note: MSL08 or lower PCL

or

>DISPLAY VAR ALL
and press the Enter key.

Note: MSL09 or higher PCL

Example of console response

```
SWUPGRADE variables for target PM:

Variable Name                        Value
---------------------------------------------------
TRACE_DEVICE                    =    TTY0
SHIFT                           =    STARTED
CONCURRENCY                     =    UNLIMITED
```

The displayed variables control SWUPGRADE PM for the current shift. TRACE_DEVICE is the trace device established in step 3. SHIFT is the status of the current PM upgrade shift.

7 Display HELP on the CONCURRENCY variable. Type

>HELP VAR CONCURRENCY
and press the Enter key.

8 Review the HELP information on the CONCURRENCY variable. Check office policy to determine the maximum number of PMs that can be upgraded concurrently.

If the value in CONCURRENCY	Do
needs to be changed	step 9
does not need to be changed	step 11

9 Change the concurrency value.

a. Set the concurrency value. Type

>SET CONCURRENCY max_no
and press the Enter key.

where

max_no	is UNLIMITED or the maximum number of PMs the system will upgrade concurrently

Example of command

```
>SET  CONCURRENCY  2
```

Note: "UNLIMITED" means the user is not setting a limit. Limits due to Nortel recommendations may still be applied by SWUPGRADE PM.

b. Display the environment variables and confirm the change. Type

>DISPLAY VARS
and press the Enter key.

Note: MSL08 or lower PCL

or

>DISPLAY VAR ALL
and press the Enter key.

Note: MSL09 or higher PCL

Example of console response

```
SWUPGRADE variables for target PM:

Variable Name                               Value
----------------------------------------------------
TRACE_DEVICE                           =    TTY0
SHIFT                                  =    STARTED
CONCURRENCY                            =    2
```

10 Set prompting to on. Type

>PROMPTING ON
and press the Enter key.

Example of console response

```
Prompting turned ON.
```

Setting prompting to on, forces the DMS switch to pause after each automated step to allow user intervention for the next required step. PROMPTING ON is the recommended method of operation. The remainder of this procedure assumes prompting is enabled.

11 Begin the automated PM upgrade. Type

>START

and press the Enter key.

Example of console response

```
Setup completed.
Enter GO to begin the execution of steps.
```

or

```
START has already been issued and the SETUP is completed.
```

12 Display the steps of the automated PM upgrade. Type

>DISPLAY STEPS
and press the Enter key.

Example of console response

```
SWUPGRADE steps for target PM:

   1_M_DCH                            Needed      Perm  Act Proc
   2_M_LIU7                           Needed      Perm  Act Proc
   3_M_LIU7                           Needed      Perm  Act Proc
   4_M_FRIU                           Needed      Perm  Act Proc
   5_M_EIU                            Needed      Perm  Act Proc
   6_M_EIU                            Needed      Perm  Act Proc
   7_A_DTC                            Needed      Perm  Act Proc
   8_A_DTCI                           Needed      Perm  Act Proc
   9_M_NIU                            Needed      Perm  Act Proc
   10_M_RMM                           Needed      Perm  Act Proc
   11_A_ESA                           Needed      Perm  Act Proc
   12_A_LCME                          Needed      Perm  Act Proc
   13_A_LCM                           Needed      Perm  Act Proc
   14_A_LCM                           Needed      Perm  Act Proc
   15_M_LIM                           Needed      Perm  Act Proc
   16_A_LGC                           Needed      Perm  Act Proc
   17_A_LTC                           Needed      Perm  Act Proc
   18_A_LTC                           Needed      Perm  Act Proc
   19_A_ENET                          Needed      Perm  Act Proc
   20_M_MS_FIRMWARE                   Needed      Perm  Act Proc
   UPGRADE_COMPLETE                   Needed      Perm  Act Proc
```

SWUPGRADE PM converts the tasks in the PM Upgrade Plan to steps in the automated upgrade. An `_A_` in the step name identifies the step as an automated step, and an `_M_` in the step name identifies the step as a manual step. The order of the steps reflects peripheral side (P-side) to central side (C-side) PM configurations. `NEEDED` will change to `COMPLETED` when SWUPGRADE PM successfully performs the step. UPGRADE_COMPLETE, the final step, closes SWUPGRADE PM.

> ***Note:*** SWUPGRADE PM does not use the columns with the values of `PERM`, `ACT`, and `PROC` during an automated PM update. Other SWUPGRADE platforms use the columns in this report for other automated updates.

13 Review the steps of the automated PM update and identify the next step to be performed as part of this automated PM update. SWUPGRADE PM selects the next step in the plan. You can select another step if required.

> **CAUTION**
> **Possible service interruption**
> Do not perform an automated update for the ENET when an SPM is present on the MSL-100 switch. Use the procedure “Update the ENET” in this document to perform a manual ENET update.

14 Display HELP on the step you wish to execute. Type

>HELP STEP step_name
and press the Enter key.

where

step_name is the name of the step

Example of command

```
>HELP  STEP  1_M_DCH
```

SWUPGRADE PM displays a brief description of the step. The description includes the nodes affected by the step, the loads and PRSUs required by the step, and any steps possibly required to be executed before this step. Please note the “requires” step may or may not apply and is included as a precautionary measure.

15

CAUTION
Possible service interruption
Do not perform an automated update for the ENET when an SPM is present on the MSL-100 switch. Use the procedure “Update the ENET” in this document to perform a manual ENET update.

Determine if the next step to be performed is an ENET step.

If the step is	Do
an ENET step and an SPM is present on the MSL-100 switch.	Upgrade the ENET manually. Go to step18 .
an ENET step and an SPM is not present on the MSL-100 switch.	Execute the step as usual. Go to step 16.
not an ENET step.	Execute the step as usual. Go to step 16.

16

CAUTION
Possible service interruption
If you execute steps in a different order from the PM Upgrade Plan, follow a P-side to C-side sequence. The steps in the PM Upgrade Plan are sequenced P-side to C-side. If you execute steps in a different sequence, you can interrupt service to subtending PMs.

Execute the step by typing one of the following commands.

If you wish to execute the next step type
>GO and press the Enter key.

or

If you wish to execute another step, type
>RUNSTEP step_name and press the Enter key. *Example of command* `>RUNSTEP  7_A_DTC`

The following log message can be generated.

Log or other response	Action
Log PM701, indicating the start of a PM upgrade task.	No action required. This is an information log.

If the step is a	Do
manual step (_M_ in step name)	step 17
automated step (_A_ in step name)	step 19

17 Observe the response on the trace device for the manual step.

Example of trace device response

```
Starting step 1_M_DCH
This device is selected for TRACEing

PMUPGRADE task:     1
Node type:          DCH
Automated:          NO
Concurrency:        2

          Nodes:
                    DCH 1
                    DCH 2
                    DCH 3
                    DCH 4
                    DCH 5
                    DCH 6
          Loads:
                    EDH81AZ
                                   Patches:
                                   XKI81X8A
                                   XED20X8A

Refer to the Peripheral Module Software Release Document and
complete the above task manually.

After the above task has been successfully completed manually,
enter the SWUPGRADE PM commands:

     OVERRIDE 1_M_DCH
     YES


Step 1_M_DCH is not complete.
The SWUPGRADE process has paused.
```

18 Perform the task manually.

a. Upgrade all nodes manually, using the appropriate update procedure in this document.

b. Override the SWUPGRADE PM utility. Type

>OVERRIDE step_name
and press the Enter key.

where

step_name is the name of the step

Example of command

```
>OVERRIDE  1_M_DCH
```

c. Confirm the action. Type

>YES
and press the Enter key.

If you want to	Do
continue the PM upgrade shift	step 12
finish the PM upgrade shift	step 21

19

ATTENTION

Some offices use a third device during the automated PM upgrade. Use the third device as a MAP terminal. Post the PMs and monitor PM loading, patching, and service status.

If necessary use the SET SHIFT FINISHED or SET SHIFT ABORTED commands, to stop an automated step that is currently executing.

The SET SHIFT FINISHED command stops the step after completing the full upgrade for the PM or PMs currently being upgraded.

The SET SHIFT ABORTED command stops the step after completing the current maintenance action, for the PM or PMs currently being upgraded. The term maintenance action refers to for example, a BSY or LOADPM maintenance action.

Refer to the section “How to control an automated PM update” in in the “Overview of automated update process” chapter in this document.

Observe the response on the trace device for the automated step. For automated upgrades, SWUPGRADE PM confirms that each PM is ready to be upgraded.

Confirmation can include checking the

- CM central processing unit (CPU) occupancy is less than some threshold
- PM is in-service
- PM’s last REX test occurred within the last two weeks and passed
- PM’s central-side (C-side) node is not in overload
- PM can perform a switch of activity (SWACT)
- PM’s peripheral-side (P-side) nodes are upgraded (applicable to MSL10 and higher PCL).

Example of trace device response

```
Starting step 7_A_DTC.
This device is selected for TRACEing

PMUPGRADE task:  7
Node type:       DTC
Automated:       YES
Concurrency:     2

          Nodes:  DTC  0
                  DTC  1
                  DTC  3
                  DTC  7
                  DTC  9
                  DTC  10
                  DTC  11
                  DTC  14
          Loads:
                  ED781AZ
                            Patches:
                            XKB32X8A
                            XKI59X8A
                            XEC00X8A
                  MX77NI05

Overall upgrade readiness result:  PASSED
```

After this initial response, the trace device displays the status of each node in the step during the automated PM upgrade.

Example of trace device response

```
06:55:42 PRSM request: Assigning upgrade_ld DTC 0 unit 0
06:55:42 Busying DTC 0 unit 0
06:55:44 Loading Firmware DTC 0 unit 0
06:55:44 Loading Software DTC 0 unit 0
06:55:44 PRSM request: DBAudit DTC 0 unit 0
06:55:44 PRSM request: Applying prsus DTC 0 unit 0
06:55:44 RTSing DTC 0 unit 0
06:55:44 PRSM request: Assigning upgrade_ld DTC 1 unit 0
06:55:45 Busying DTC 1 unit 0
06:55:48 Loading Firmware DTC 1 unit 0
06:55:48 Loading Software DTC 1 unit 0
06:55:49 PRSM request: DBAudit DTC 7 unit 0
06:55:49 RTSing DTC 7 unit 0
06:55:49 SwActing DTC 0
06:55:49 SwActing DTC 1
06:55:50 PRSM request: Assigning upgrade_ld DTC 0 unit 1
06:55:50 PRSM request: Assigning upgrade_ld DTC 7 unit 1
06:55:50 Busying DTC 0 unit 1
06:55:50 Busying DTC 1 unit 1
06:55:50 Loading Firmware DTC 0 unit 1
06:55:50 Loading Firmware DTC 1 unit 1
06:55:50 Loading Software DTC 0 unit 1
06:55:50 Loading Software DTC 1 unit 1
06:55:50 PRSM request: DBAudit DTC 0 unit 1
06:55:50 PRSM request: DBAudit DTC 1 unit 1
06:55:50 RTSing DTC 0 unit 1
06:55:50 RTSing DTC 1 unit 1
06:55:50 SwActing DTC 0
06:55:50 SwActing DTC 1
06:55:50 PRSM request: Assigning upgrade_ld DTC 3 unit 0
06:55:50 PRSM request: Assigning upgrade_ld DTC 7 unit 0
06:55:50 Busying DTC 3 unit 0
06:55:50 Busying DTC 7 unit 0
06:55:56 Loading Firmware DTC 3 unit 0
06:55:56 Loading Firmware DTC 7 unit 0
06:55:56 Loading Software DTC 3 unit 0
06:55:56 Loading Software DTC 7 unit 0
06:55:56 PRSM request: DBAudit DTC 3 unit 0
06:55:56 PRSM request: DBAudit DTC 7 unit 0
06:55:56 RTSing DTC 3 unit 0
06:55:56 RTSing DTC 7 unit 0
06:55:56 RTSing DTC 14 unit 0
06:55:56 SwActing DTC 3
06:55:56 SwActing DTC 7
```

The following logs can be generated.

Log or other response	Action
Log PM702, indicating the successful completion of an automated PM upgrade task.	This log is an information log that requires no action.
Log PM 703, indicating the unsuccessful completion of an automated PM upgrade task.	A node in the step failed to upgrade. Determine why the node failed.

A SWUPGRADE PM step stops executing when

- there are nodes in the step that are not ready to be upgraded.
- every node in the step is successfully upgraded.
- the SET SHIFT FINISHED or SET SHIFT ABORTED command is issued.
- a PM upgrade failure occurs. The first failure stops the step after the current unit of the PM or PMs currently being upgraded is completed. The next failure stops the step immediately.
- the SWUPGRADE PM shift exceeds the 14 hour time limit.

After SWUPGRADE PM completes a step, it displays a report on the upgrade status of each node on the trace device.

Example of trace device response

```
Overall upgrade result: PASSED

Node DTC  0 : PASSED
Node DTC  1 : PASSED
Node DTC  3 : PASSED
Node DTC  7 : PASSED
Node DTC  9 : PASSED
Node DTC  10 : PASSED
Node DTC  11 : PASSED
Node DTC  14 : PASSED

Finished step 7_A_DTC.

The SWUPGRADE process has been paused due to PROMPTING ON. Enter Go.
```

If	Do
every node in the step passed, and you want to continue the PM upgrade shift	step 12
every node in the step passed, and you want to finish the PM upgrade shift	step 21
a node in the step failed	step 20

Note: You can use the QUERYPM command from a MAP display to confirm each node is correctly loaded, patched, and in-service. Office policy can require you to confirm the SWUPGRADE PM utility upgraded each node.

20

ATTENTION
Office policy will determine the level of possible troubleshooting for this step.

Determine why the node failed. Following are possible reasons why a node can fail an automated upgrade.

- The PM has not sucessfully passed its last REX test within the last two weeks.
- The PM has a P-side node which is not upgraded. (applicable to MSL10 or higher PCL).
- The state of the PM or one of its units changed due to a maintenance problem not related to the automated upgrade.
- The load file or required PRSU files are missing from a Destination Volume.
- The node encountered a communications problem with its serving PM.
- The node encountered a hardware problem.

Review log PM703, related logs, and the output on the trace device to determine why the node failed the automated upgrade.

If you can	Do
determine why the node failed	Correct the problem and return to step 16.
determine why the node failed, and the failed reason is because the PM did not pass its last REX test	The shift must be terminated using the SET SHIFT FINISHED command. A manual REX test must be performed on the PM. The shift must be started again. Failure to execute the SET SHIFT FINISHED command prior to performing a manual REX on the PM results in the following error. `SREX controller permission denied: Rex test conflicts with one running.`
not determine why the node failed	Contact the next level of support. You may have to correct this problem before you continuing the PM upgrade shift. Skip this problem and continue with the PM upgrade shift or finish the PM upgrade shift.

21

CAUTION
Possible service interruption
If you have not already done so, perform the procedure “Finishing a PM update shift” in this document before finishing this procedure. If you fail to perform this procedure, office operations after the PM upgrade shift could be affected.

Finish the automated PM upgrade shift. Type

>SET SHIFT FINISHED
and press the Enter key.

Example of MAP response

```
               SUMMARY REPORT FOR PM SOFTWARE UPGRADE
               ======================================

    Description of the report columns:

    Step name:   The name of the step.
    Since Last:  Elapsed time between the previous step and this step.
    Start:       Start time of this step.
    Elapsed:     The time it took to execute this step.
    Result:      The final status of this step after completion.

Step name             Since Last Start      Elapsed      Result
--------------------  ---------- ---------- ------------ ----------------
1_M_DCH                          16:43:03   00:00:16.475 STEP NOT COMPLETE
2_M_LIU7              00:02:40   16:46:01   00:00:11.864 STEP NOT COMPLETE
3_M_LIU7              00:01:57   16:48:10   00:00:11.350 STEP NOT COMPLETE
4_M_FRIU              00:02:16   16:50:38   00:00:11.586 STEP NOT COMPLETE
5_M_EIU               00:00:39   16:51:29   00:00:12.077 STEP NOT COMPLETE
6_M_EIU               00:01:55   16:53:37   00:00:10.667 STEP NOT COMPLETE
7_A_DTC               00:01:07   16:54:55   00:01:02.183 STEP PASSED
8_A_DTCI              00:02:06   16:58:04   00:00:42.820 STEP PASSED
9_M_NIU               00:00:27   16:59:14   00:00:13.644 STEP NOT COMPLETE
10_M_RMM              00:00:46   17:00:14   00:00:10.423 STEP NOT COMPLETE

***************************************************************
**                           NOTE                            **
**                           ----                            **
**  You are finishing a shift to upgrade PMs in the office.  **
**  If you have not already done so, perform the procedure   **
**  ”Finishing a PM update shift” in the Peripheral Module   **
**  Software Release Document at this point.                 **
**                                                           **
***************************************************************
```

Note: A result `STEP NOT COMPLETE` indicates SWUPGRADE PM did not perform the step. The step could have been performed manually and overriden.

The following logs can be generated.

Log or other response	Action
Log PM700, indicating the finish of a PM Upgrade shift.	This log is an information log that requires no action

If the procedure "Finishing a PM update shift" in this document	Do
has been successfully performed	step 22
has not been successfully performed	Perform the procedure before you go to step 22.

22 Display the steps of the automated PM upgrade. Type

>DISPLAY STEPS

and press the Enter key.

Example of console response

```
SWUPGRADE steps for target PM:

   1_M_DCH                             Overridden      Perm  Act Proc
   2_M_LIU7                            Overridden      Perm  Act Proc
   3_M_LIU7                            Overridden      Perm  Act Proc
   4_M_FRIU                            Overridden      Perm  Act Proc
   5_M_EIU                             Overridden      Perm  Act Proc
   6_M_EIU                             Overridden      Perm  Act Proc
   7_A_DTC                             Completed       Perm  Act Proc
   8_A_DTCI                            Completed       Perm  Act Proc
   9_M_NIU                             Overridden      Perm  Act Proc
   10_M_RMM                            Overridden      Perm  Act Proc
   11_A_ESA                            Completed       Perm  Act Proc
   12_A_LCME                           Completed       Perm  Act Proc
   13_A_LCM                            Completed       Perm  Act Proc
   14_A_LCM                            Completed       Perm  Act Proc
   15_M_LIM                            Overridden      Perm  Act Proc
   16_A_LGC                            Completed       Perm  Act Proc
   17_A_LTC                            Completed       Perm  Act Proc
   18_A_LTC                            Completed       Perm  Act Proc
   19_A_ENET                           Completed       Perm  Act Proc
   20_M_MS_FIRMWARE                    Overridden      Perm  Act Proc
   UPGRADE_COMPLETE                    Needed          Perm  Act Proc
```

23 Review the steps in the automated PM upgrade, as generated in step 22.

If all steps	Do
except UPGRADE_COMPLETE are complete or overridden	step 24
are not complete or overridden	step 25

24 Execute the UPGRADE_COMPLETE step.

CAUTION
Possible service interruption
The UPGRADE_COMPLETE step must be executed to complete the PM upgrade.
If the UPGRADE_COMPLETE step is not executed the SWUPGRADE CM tool does not function.

a. Type

>GO
and press the Enter key.

Example of console response

```
Starting step UPGRADE_COMPLETE.
This device is selected for TRACEing
    PM upgrade complete – all steps have been executed.
    NOTE: Upon issuing the next GO, SWUPGRADE PM will be reset.
 Step UPGRADE_COMPLETE is not complete.
 The SWUPGRADE process has paused.
```

b. Obtain the final record of all completed steps. Type

>DISPLAY STEPS
and press the Enter key.

c. Complete the UPGRADE_COMPLETE step. Type

>GO
and press the Enter key.

Example of console response

```
Starting step UPGRADE_COMPLETE.
This device is selected for TRACEing
   PM upgrade complete.  You may now QUIT out of the SWUPGRADE increment
 Finished step UPGRADE_COMPLETE.

SWUPGRADE Process complete – all steps have been executed.
```

25 Quit the SWUPGRADE PM utility. Type

>QUIT

and press the Enter key.

Example of MAP response if all steps in the PM Upgrade Plan are completed

```
The S/W upgrade is complete or CANCEL has been issued.
Exiting the SWUPGRADE increment...
```

Example of MAP response if all steps in the PM Upgrade Plan are not completed

```
CI:
>
```

26 Stop the terminal responses from printing. Type

>RECORD STOP ONTO prntr_name

and press the Enter key.

where

prntr_name is the name of the printer

Example of command

```
>RECORD  STOP  ONTO  PRNTR1
```

27 You have completed this procedure.

If all steps in the PM upgrade	**Do**
are not completed	At the beginning of the next PM upgrade shift repeat this procedure. Start again at step 1 until all steps are completed and all PMs in the office are upgraded.
are completed	You have successfully updated all PMs in the office.

Updating the CMR card (NT6X78)

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the CLASS modem resource (CMR) card (NT6X78) only when the serving PM is not updated. Do not use this procedure when the serving PM is updated. The CMR card will be updated during the procedure to update the serving PM.

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The serving PM is in-service.
- The serving PM successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Required information

None

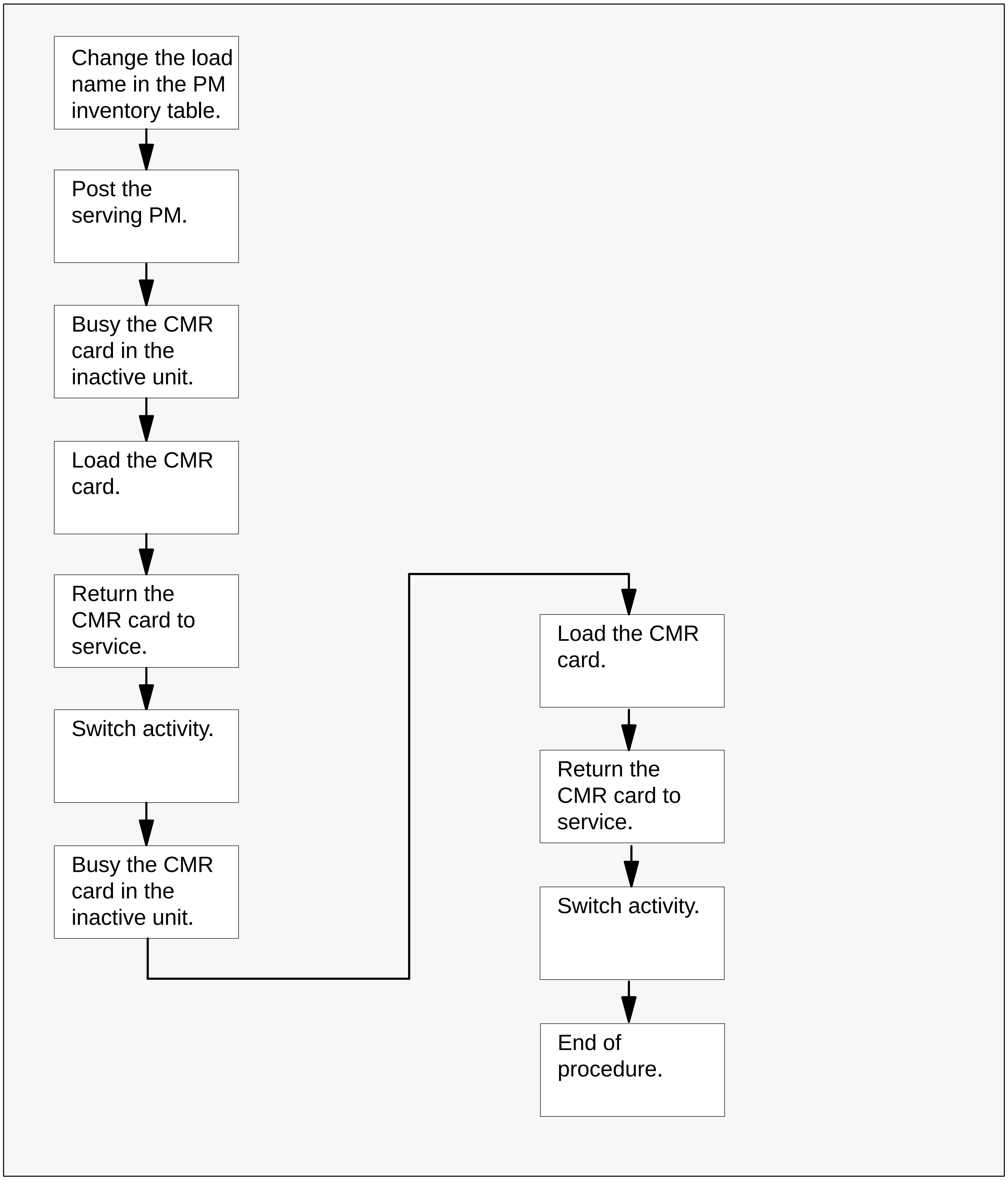
Update sequence

Not applicable with this procedure

Notes

It is not necessary to update the CMR circuit card when updating the serving PM. The CMR circuit card will be automatically updated when the serving PM is updated if it is properly datafilled in table PMLOADS, and the appropriate PM inventory table.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails, for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select a CMR to update.

2 Confirm all prerequisites for this procedure have been met.

3 Access the inventory table of the CMR's serving PM by typing

>TABLE pm_inv
and pressing the Enter key.

where

pm_inv	is LTCINV for DTC, DTCI, LGC, LTC, SMA, SMA2, or SMS is LTCRINV for SMSR is RCCINV for RCC or RCC2

4 Position on the datafill tuple for the PM to be updated by typing

>POS site_name pm_type pm_no
and pressing the Enter key.

where

site_name	is the name of the site
pm_type	is the type of PM
pm_no	is the number of the PM

Note: The example shown is for use in a remote configuration. For host configurations omit the site_name parameter.

5 Update the CMR load name by performing the following steps.

a. Access the OPTCARD field by typing

>CHA OPTCARD
and pressing the Enter key.

b. Press the Enter key to scroll through the fields until prompted for the CMR load name.

c. Enter the CMR load name by typing

>cmr_load
and pressing the Enter key.

where

cmr_load is the name of the new CMR load

d. Press the Enter key to scroll through the fields until you receive the blank OPTCARD prompt.

e. Exit the OPTCARD field by typing

>$
and pressing the Enter key.

f. Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM will change state to in-service trouble (ISTb) due to the load mismatch with the inventory table. Continue with this procedure.

6 Exit the table by typing

>QUIT
and pressing the Enter key.

7 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

8 Post the PM that contains the CMR card by typing

>POST pm_type pm_no
and pressing the Enter key.

where

pm_type is the type of PM
pm_no is the number of the PM

Note: The PM is ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

9 Busy the CMR card in the inactive unit by typing

>BSY UNIT unit_no CMR
and pressing the Enter key.

where

unit_no is the number of the inactive unit

10 Load the CMR card by typing

>LOADPM UNIT unit_no CC CMR
and pressing the Enter key.

where

unit_no is the number of the inactive unit

11 Return the CMR card to service by typing

>RTS UNIT unit_no CMR
and pressing the Enter key.

where

unit_no is the number of the inactive unit

12 Wait for the MAP display to show the inactive unit as in-service (InSv).

13 Switch activity between the units by typing

>SWACT
and pressing the Enter key.

Note 1: This switch of activity can cause a major alarm in the serving PM. If so, silence the alarm.

Note 2: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

14 Confirm the switch of activity by typing

>Y
and pressing the Enter key.

15 Busy the CMR card in the inactive unit by typing

>BSY UNIT unit_no CMR
and pressing the Enter key.

where

unit_no is the number of the inactive unit

16 Load the CMR card by typing

>LOADPM UNIT unit_no CC CMR
and pressing the Enter key.

where

unit_no is the number of the inactive unit

17 Return the CMR card to service by typing

>RTS UNIT unit_no CMR
and pressing the Enter key.

where

18 Wait for the MAP display to show the unit as in-service (InSv). It may take two to three minutes for the MAP display to show the unit as in-service.

19 Switch activity between the units and return them to their original service states by typing

>SWACT

and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

20 Confirm the switch of activity by typing

>Y

and pressing the Enter key.

21 You have successfully updated the CMR card and completed this procedure. Review the update schedule.

If there are	Do
additional CMR cards to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the CTM Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update one of the following types of peripheral modules (PM).

PM	Description
CTM	Conference trunk module (CTM)
	CTM on integrated services module (ISM) shelf

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The CTM is in service.
- All automatic routine exercise (REX) tests are suspended.

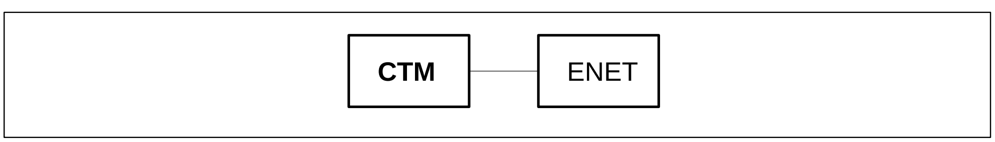
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the CTM. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

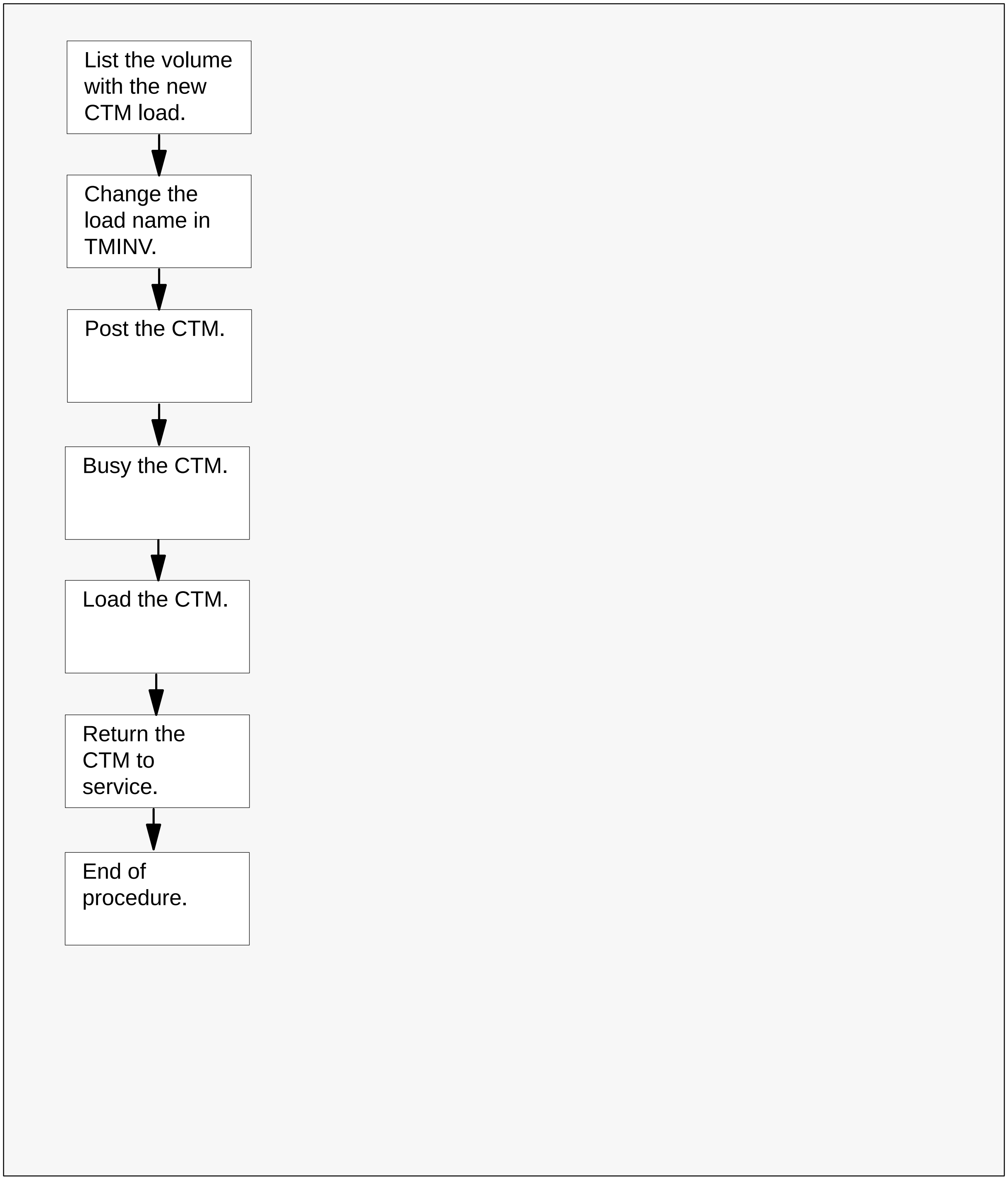
Node configuration for CTM



Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. For example, if an RTS command fails office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select a CTM to update.

2 Review the prerequisites at the start of this procedure. Confirm that you meet these prerequisites.

If the load files are stored on a	Do
DDU device	step 3
SLM device	step 4

3 List the volume with the new load.

a. Enter the disk utility. Type

>DSKUT
and press the Enter key.

b. List the disk volume. Type

>LISTVOL vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LISTVOL  D000DPMLOADS
```

c. Skip step 4 and go to step 5.

4 List the volume with the new load.

a. Enter the disk utility. Type

>DISKUT
and press the Enter key.

b. List the disk volume. Type

>LF vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LF  S01DPMLOADS
```

5 Exit the disk utility. Type

>QUIT
and press the Enter key.

6 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE TMINV
and press the Enter key.

b. Position on the tuple for the CTM. Type

>POS CTM ctm_no
and press the Enter key.

where

ctm_no is the number of the CTM

Example of command

```
>POS  CTM  11
```

c. Change the load name in the tuple to the new load name. Type

>CHA LOAD new_load
and press the Enter key.

where

new_load is the name of the new load

Example of command

```
>CHA  LOAD  MTMKA02
```

d. Confirm the change. Type

>Y
and press the Enter key.

e. Close the PM inventory table. Type

>QUIT
and press the Enter key.

7 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM
and press the Enter key.

8 Post the CTM. Type

>POST CTM ctm_no
and press the Enter key.

where

ctm_no	is the number of the CTM

Example of command

```
>POST  CTM  11
```

9 Busy the CTM. Type

>BSY
and press the Enter key.

10 Load the CTM. Type

>LOADPM
and press the Enter key.

11 Return the CTM to service. Type

>RTS
and press the Enter key.

12 You have updated the CTM and completed this procedure. Review the update schedule.

If you have	Do
other CTMs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the enhanced DCH card (NTBX02)

Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the enhanced ISDN D-channel handler (DCH) card (NTBX02).

Prerequisites

Perform the procedures “Preparing for a PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The DCH is in-service.
- Automatic REX testing is suspended in the office.
- If PRSM is enabled in the office, the PRSM automated processes such as DBAUDIT and AUTOAPP must not run during the PM update shift.

  Note: The day of week fields set the start time for the PRSM automated processes.

- The DCH must be updated before the serving PM.

Required information

Review the update checklists and schedules to answer the following questions. This information is required to successfully complete this procedure.

- What is the patch status of the new load?
  - Does it have patches or PRSUs?
  - Is it a pre-patched load?
  - Do the patches or PRSUs have to be applied during this procedure, or were they applied as part of a previous update procedure?

For assistance, refer to “Overview of release” and “Overview of update process” in this document.

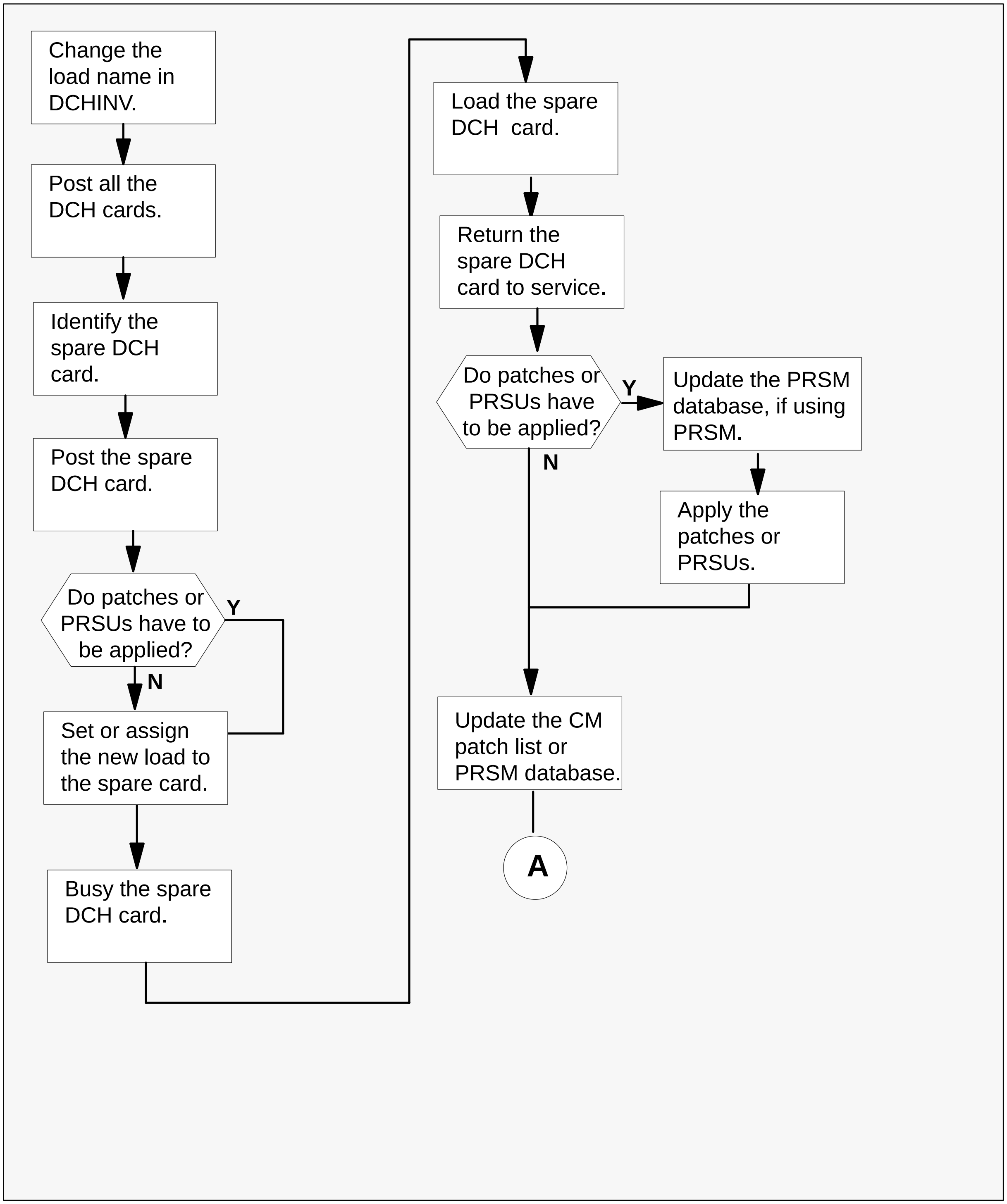
Update sequence

The DCH card may be updated independently of other PMs in the node.

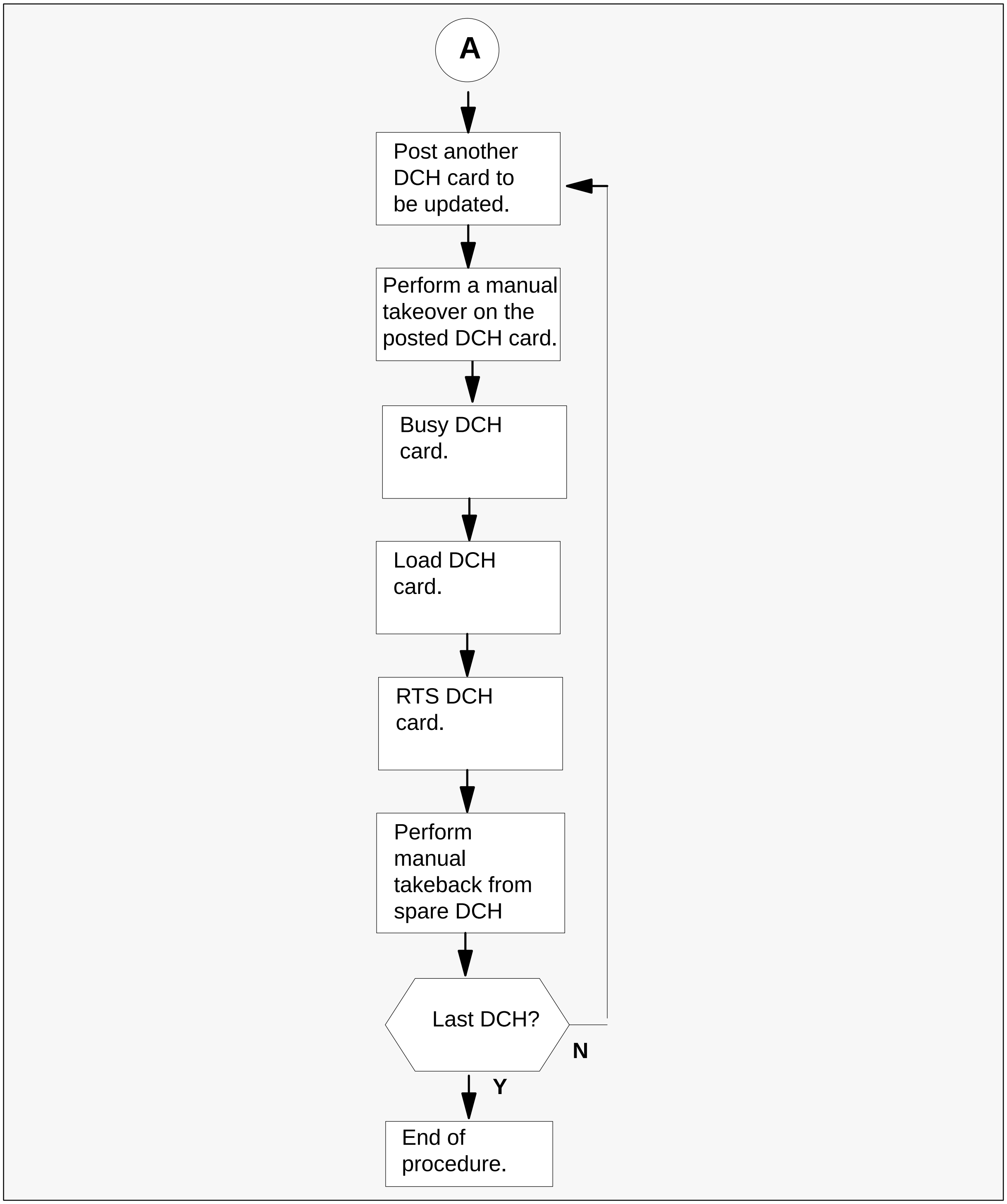
Notes

The steps in this procedure update the spare DCH card and switch the spare DCH cards until all the DCH cards in the PM have been updated. Only update spare DCH cards. Updating an ISG DCH card may result in a loss of service.

Summary of procedure



Summary of procedure (continued)



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails, for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select a DCH to update.

2 Confirm that all prerequisites for this procedure have been met.

3 Update the DCH inventory table by performing the following steps.

a. Access the DCH inventory table by typing

>TABLE DCHINV
and pressing the Enter key.

b. Position on the datafill tuple for the DCH to be updated by typing

>POS dch_no
and pressing the Enter key.

where

dch_no is the number of the DCH

c. Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load is the name of the new load

d. Confirm the change by typing

>Y
and pressing the Enter key.

e. Repeat as necessary for each DCH being updated in the PM.

f. Exit the table by typing

>QUIT
and pressing the Enter key.

4 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

5 Post the PM type that contains the DCH cards by typing

>POST pm_type pm_no
and pressing the Enter key.

where

pm_type	is the type of PM
pm_no	is the number of the PM

6 Access the DCH level by typing

>DCH
and pressing the Enter key.

7 Post all the DCH cards by typing

>POST ALL
and pressing the Enter key.

8 Display all the posted DCH cards by typing

>DISP ALL
and pressing the Enter key.

Example of MAP display

```
DCH 1   ISG     0   InSv    LTC 2   port 13
DCH 2   spare       InSv    LTC 2   port 15
DCH 3   ISG     2   InSv    LTC 2   port 17
DCH 4   ISG     1   InSv    LTC 2   port 19
```

9 Record the numbers of the displayed DCH cards, and identify the spare DCH card.

10

ATTENTION
Update only spare DCH cards. Updating ISG DCH cards may result in a loss of service.

Post the spare DCH card by typing

>POST dch_no
and pressing the Enter key.

where

dch_no	is the number of the spare DCH card identified in step 9

Example

>POST 2

11 Review the update schedules for the office and determine if the DCH card being updated is the first DCH card in the office to use the new load.

If the DCH card being updated is	Do
the first DCH card in the office to use the new load	step 13
not the first DCH card in the office to use the new load	step 12

12 Use PRSM to assign the new load to the spare DCH card by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b.

ATTENTION

After performing this step, do not use the DBAUDIT command unless the command is specified in this procedure. The use of the DBAUDIT command prior to the LOADPM command will link PRSUs from the previous load to the new PM load.

Assign the new patched load to the spare DCH card by typing the following command

>ASSIGN UPGRADE_LD new_load IN DESTSET DCH dch_no
and pressing the Enter key.

where

new_load	is the name of the new load
dch_no	is the number of the spare DCH card

Example

>ASSIGN UPGRADE_LD EDH12BC IN DESTSET DCH 0

c. Exit the utility by typing

>QUIT
and pressing the Enter key.

13 Busy the DCH card by typing

>BSY
and pressing the Enter key.

14 Load the DCH card by typing

>LOADPM
and pressing the Enter key.

15 Return the DCH card to service by typing

>RTS
and pressing the Enter key.

16 Review the PM update checklist and determine the patch status for the new load.

If the new load	Do
has patches or PRSUs to be manually applied	step 17
does not have patches or PRSUs to be manually applied	step 18

17 Apply the PRSUs by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database with the name of the new load by typing

>DBAUDIT DCH dch_no
and pressing the Enter key.

where

dch_no   is the number of the DCH

Example

>DBAUDIT DCH 0

c. Apply a PRSU by typing

>APPLY ’prsu_name IN DCH dch_no
and pressing the Enter key.

where

prsu_name   is the name of the PRSU (repeat variable as required)
dch_no   is the number of the DCH

Example of single-line command

>APPLY ’XBC00X11 l XWS00X11 l XMS00X11 IN DCH 0

Example of double-line command

>APPLY ’XBC00X11 l XWS00X11 l XMS00X11 l XDF00X11 l +
>’XEF00X11 l XKL00X11 IN DCH 0

Note: It is not necessary to apply the PRSUs in a particular order. PRSM will automatically sort the PRSUs if they are applied as a set.

18 Quit the utility by typing

>QUIT
and pressing the Enter key.

19 Post one of the DCH cards that has not been updated by typing

>POST dch_no
and pressing the Enter key.

where

dch_no is the number of the DCH

Example

>POST 1

Note: Use the numbers recorded in step 9.

20 Perform a manual takeover from the DCH card previously updated to the posted DCH card by typing

>SWTCH dch_no
and pressing the Enter key.

where

dch_no is the number of the DCH

Example

>SWTCH 2

Note: The posted DCH card will become the spare DCH card.

ATTENTION

Before continuing, confirm the ISG links have remained in service. If any links are C-side busy (CBsy), return them to service.

21 Repeat steps 10 to 20 for each DCH card until all the DCH cards in the PM are updated.

22 You have successfully updated the DCH cards in a PM and completed this procedure. Review the update schedule.

If there are	Do
additional DCH cards to update in other PMs during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no more PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the DCM Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update one of the following types of peripheral modules (PM).

PM	Description
DCM	Digital carrier module (DCM) Remote DCM

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The DCM is in service.
- All automatic routine exercise (REX) tests are suspended.

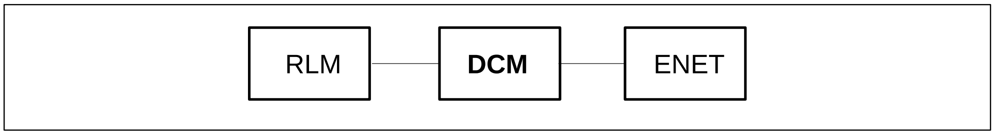
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the DCM. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

Node configuration for DCM

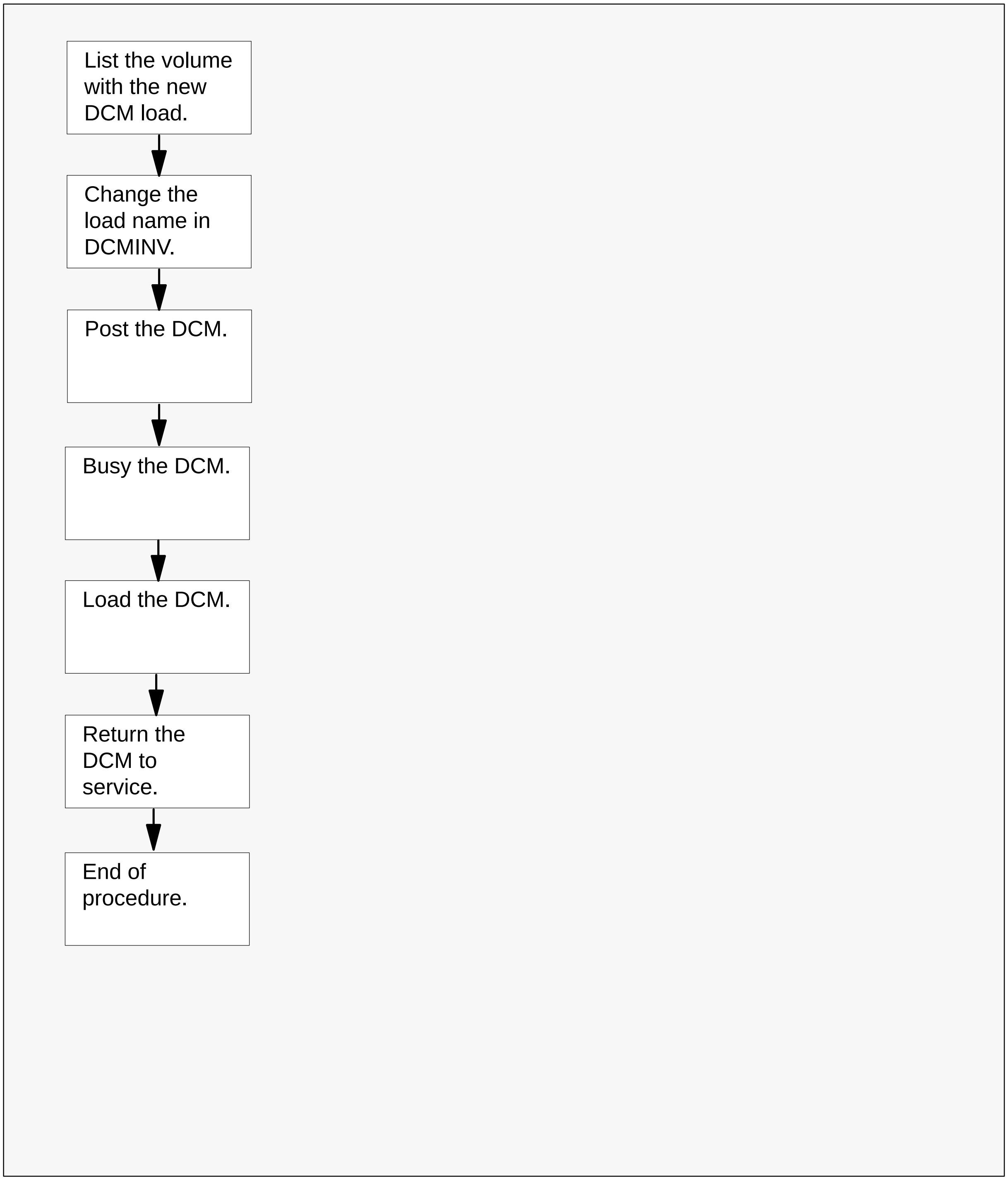


Note: Only a remote DCM can have a remote line module (RLM) as a subtending PM.

Notes

If the DCM is a remote DCM, manually busy the associated RLM before you update the remote DCM. Return the RLM to service after you update the remote DCM.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. For example, if an RTS command fails office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select a DCM to update.

2 Review the prerequisites at the start of this procedure. Confirm that you meet these prerequisites.

If the load files are stored on a	Do
DDU device	step 3
SLM device	step 4

3 List the volume with the new load.

a. Enter the disk utility. Type

>DSKUT
and press the Enter key.

b. List the disk volume. Type

>LISTVOL vol_name
and press the Enter key.

where

vol_name   is the name of the disk volume

Example of command

```
>LISTVOL  D000DPMLOADS
```

c. Skip step 4 and go to step 5.

4 List the volume with the new load.

a. Enter the disk utility. Type

>DISKUT
and press the Enter key.

b. List the disk volume. Type

>LF vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LF  S01DPMLOADS
```

5 Exit the disk utility. Type

>QUIT
and press the Enter key.

6 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE DCMINV
and press the Enter key.

b. Position on the tuple for the DCM. Type

>POS DCM dcm_no
and press the Enter key.

where

dcm_no is the number of the DCM

Example of command

```
>POS  DCM  11
```

c. Change the load name in the tuple to the new load name. Type

>CHA LOAD new_load
and press the Enter key.

where

new_load is the name of the new load

Example of command

```
>CHA  LOAD  ADCMQA01
```

d. Confirm the change. Type

>Y
and press the Enter key.

e. Close the PM inventory table. Type

>QUIT
and press the Enter key.

7 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM
and press the Enter key.

8 Post the DCM. Type

>POST DCM dcm_no
and press the Enter key.

where

dcm_no   is the number of the DCM

Example of command

```
>POST  DCM  11
```

9 Busy the DCM. Type

>BSY
and press the Enter key.

10 Load the DCM. Type

>LOADPM
and press the Enter key.

11 Return the DCM to service. Type

>RTS
and press the Enter key.

12 You have updated the DCM and completed this procedure. Review the update schedule.

If you have	Do
other DCMs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the DLM

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the digital line module (DLM).

Prerequisites

Perform the procedures “Preparing for a PM update” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The DLM is in-service.
- The DLM successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

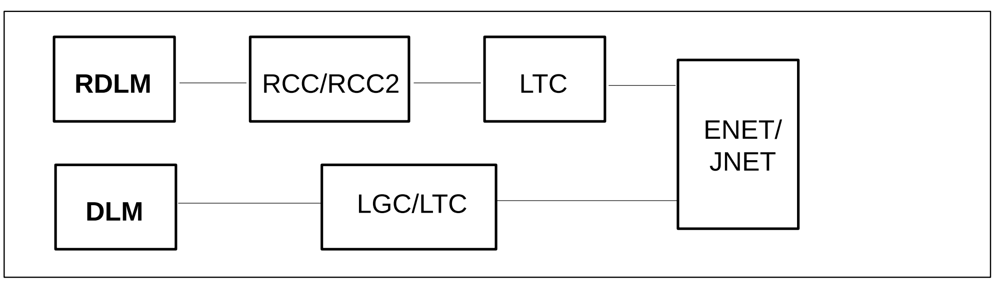
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the DLM. Serving PMs must be updated after the DCM or DES.

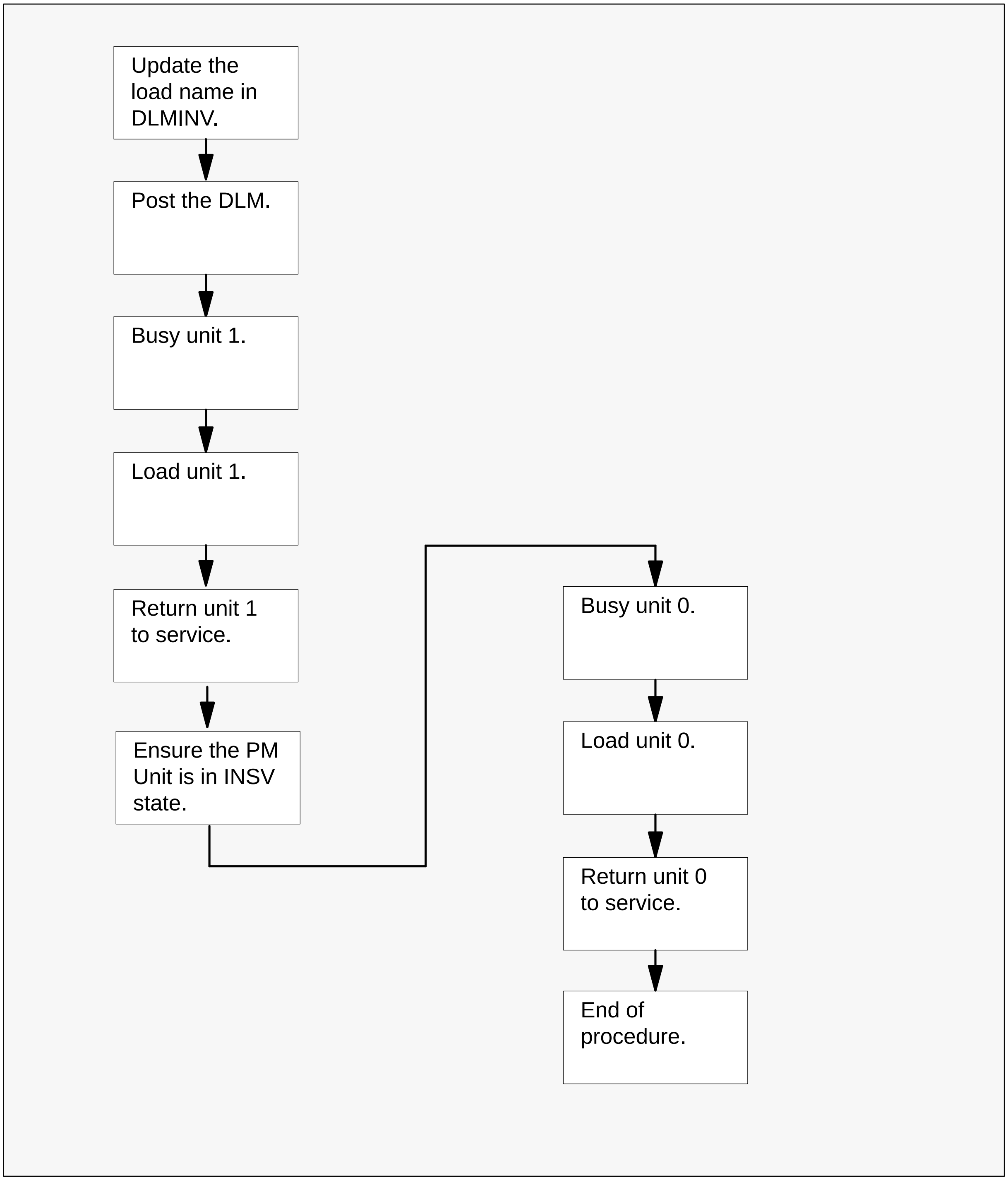
Node configuration for DLM



Notes

None

Summary of procedure



Steps of procedure

At the CI level of the MAP display

1 Select a DLM to update.

2 Review the introduction to this procedure. All prerequisites must be met before beginning this procedure.

3 Update the DLM inventory table by performing the following steps.

a. Access the DLM inventory table by typing

>TABLE DLMINV
and pressing the Enter key.

b. Position on the datafill tuple for the PM to be updated by typing

>POS site_name frame_no dlm_no
and pressing the Enter key.

where

site_name	is the name of the site
frame_no	is the number of the frame
dlm_no	is the number of the PM

c. Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load	is the name of the new load

d. Confirm the change by typing

>Y
and pressing the Enter key.

e. Exit the table by typing

>QUIT
and pressing the Enter key.

4 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

5 Post the PM by typing

>POST DLM site_name frame_no shelf_no
and pressing the Enter key.

where

site_name	is the site of the DLM
frame_no	is the number of the frame (0–511)
shelf_no	is the number of the shelf (0 or 1)

Note: The field site_name is optional with host-based DLMs.

6 Busy unit 1 by typing

>BSY UNIT 1
and pressing the Enter key.

7 Load unit 1 by typing

>LOADPM UNIT 1 CC
and pressing the Enter key.

8 Return unit 1 to service by typing

>RTS UNIT 1
and pressing the Enter key.

9 Ensure unit 1 is in service (INSV).

10 Busy unit 0 by typing

>BSY UNIT 0
and pressing the Enter key.

11 Load unit 0 by typing

>LOADPM UNIT 0 CC
and pressing the Enter key.

12 Return unit 0 to service by typing

>RTS UNIT 0
and pressing the Enter key.

13 You have successfully updated the DLM and completed this procedure. If there are other PMs or hardware types to update during this shift, go to the appropriate procedure in this document. If this is the last PM or hardware type to be updated during this shift, go to “Finishing a PM update shift” in this document.

Updating the DTC or DTCI

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

ATTENTION
If the PM being updated is equipped with a peripheral/remote loader (PRL) circuit card, use this procedure to update the first PM in the office that uses the new load. Refer to the procedure “Using a PRL circuit card to update an XPM” in this document to update remaining PMs.

Use this procedure to update one of the following types of PMs.

PM	Description	Processor
DTC	Digital trunk controller (DTC)	NTMX77
	DTC with CCS7 (DTC7)	NTMX77
DTCI	DTC with ISDN (DTCI)	NTMX77

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The names of all new loads for the PM are datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The DTC or DTCI is in-service.
- The DTC or DTCI successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.
- The PRSM automated processes such as DBAUDIT and AUTOAPP must not run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. This information is required to successfully complete this procedure.

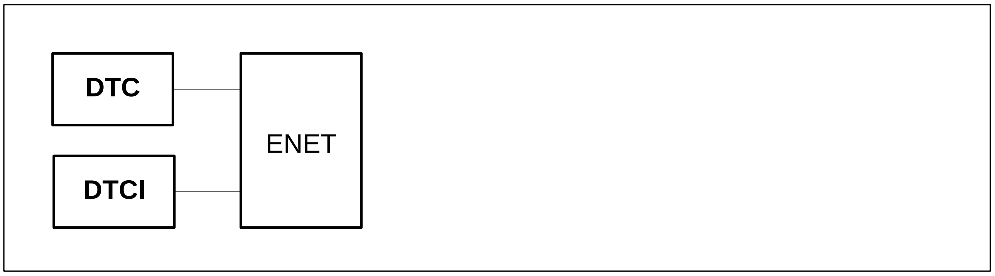
- Does the XPM processor firmware require updating?
- What is the patch status of the new PM load?
  - — Does it have PRSUs?
  - — Is it a pre-patched load?
  - — Do PRSUs have to be applied during this procedure, or were they applied as part of a previous update procedure?

For assistance, refer to “Overview of release” and “Overview of update process” in this document.

Update sequence

The following figure illustrates a possible node configuration for the DTC or DTCI. Serving PMs must be updated after the DTC or DTCI.

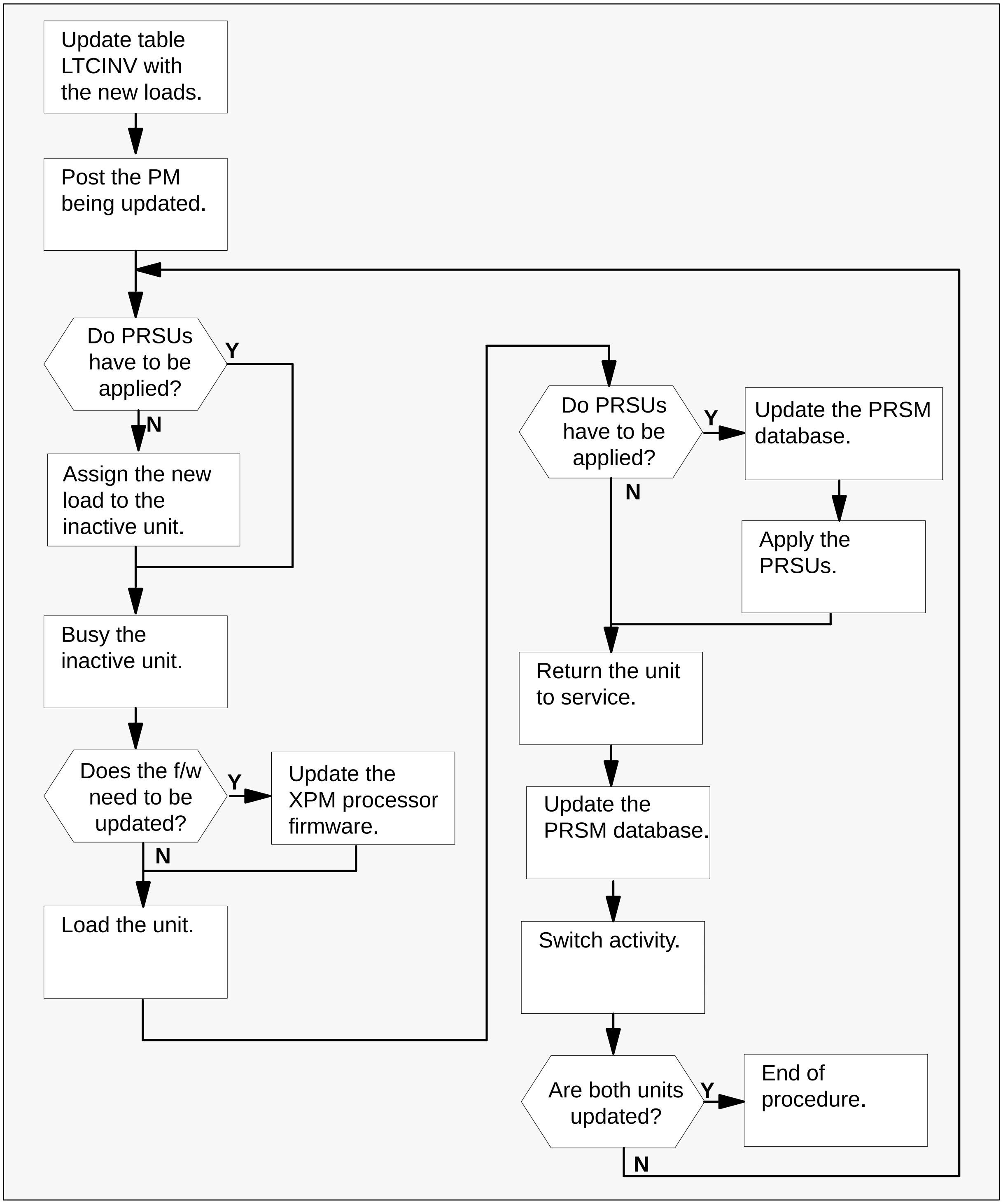
Node configuration for DTC or DTCI



Notes

None.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select a DTC or DTCI to update.

2 Confirm all prerequisites for this procedure have been met.

3 Change the PM load in the inventory table by performing the following steps.

a. Access the PM inventory table by typing

>TABLE LTCINV
and pressing the Enter key.

If you wish to view the tuples in	Do
a packed format	step 3b.
a regular or expanded format	step 3c.

b. Change the format of the display to a packed format by typing

>FORMAT PACK
and pressing the Enter key.

c. Position on the datafill tuple for the PM to be updated by typing

>POS pm_type pm_no
and pressing the Enter key.

where

pm_type is DTC or DTCI
pm_no is the number of the PM being updated

Example

>POS DTC 0

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched load. Do not datafill the date extension. Refer to “Overview of release” in this document for more information on date extensions and pre-patched loads.

Change the load name to the new load name by typing

>CHA LOAD new_load

and pressing the Enter key.

where

new_load is the name of the new load

Example

>CHA LOAD ECL08BC

e. Confirm the change by typing

>Y

and pressing the Enter key.

Note: The PM will change state to in-service trouble (ISTb) due to the load mismatch with the inventory table. Continue with this procedure.

If the PM’s XPM processor firmware	Do
must be updated	step 4
does not need to be updated	step 5

Note: Review the update schedules and checklists to determine if XPM processor firmware must be updated. The procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” determine the need for an update of XPM processor firmware.

4 Change the XPM firmware load in the inventory table by performing the following steps.

a. Change the firmware load name to the new firmware load name by typing

>CHA E2LOAD fw_load
and pressing the Enter key.

where

fw_load is the name of the new XPM processor firmware load

Example

>CHA E2LOAD UPFWNJ03

b. Confirm the change by typing

>Y
and pressing the Enter key.

5 Exit the table by typing

>QUIT
and pressing the Enter key.

6 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

7 Post the PM by typing

>POST pm_type pm_no
and pressing the Enter key.

where

pm_type is DTC or DTCI
pm_no is the number of the PM being updated

Example

>POST DTC 0

Note: The PM is ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

8 Identify the inactive unit, this is the unit to be updated.

9 Review the update schedules for the office and determine if the inactive unit is the first unit in the office to use the new load.

If the inactive unit is	Do
the first unit in the office to use the new load	step 11
not the first unit in the office to use the new load	step 10

10 Use PRSM to assign the new load to the inactive unit by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b.

ATTENTION
After performing this step, do not use the DBAUDIT command unless the command is specified in this procedure. The use of the DBAUDIT command prior to the LOADPM command can link PRSUs from the previous load to the new PM load.

Assign the new load to the inactive unit by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no unit_no
and pressing the Enter key.

where

new_load	is the name of the new load
pm_type	is DTC or DTCI
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Examples

>ASSIGN UPGRADE_LD ECL08BC IN DESTSET DTC 0 1

c. Exit the utility by typing

>QUIT
and pressing the Enter key.

11 Determine which software release the office is currently at.

If	**Do**
the office is at MSL08 or lower	steps 12 through14
the office is at MSL09 or higher	steps 15 through 18

12 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	**Do**
must be updated	step 13
does not need to be updated	step 14

13 Load the firmware into the inactive unit by typing

LOADPM INACTIVE CC FIRMWARE
and pressing the Enter key.

Go to step 14.

14

CAUTION
Possible service interruption
Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load the inactive unit by typing

>LOADPM INACTIVE
and pressing the Enter key.

If the inactive unit is	Do
the first unit in the office to use the new load	step 19
not the first unit in the office to use the new load	step 21

15

ATTENTION

To ensure the new firmware is loaded, steps 15 through 17 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 15 through 17. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 15 and 17 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the inactive unit by typing

>LOADFW INACTIVE
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

16 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 17
does not need to be updated	step 18

17 Activate the firmware in the inactive unit by typing

>LOADFW INACTIVE UPGRADE
and pressing the Enter key.

18 Load the inactive unit by typing

>LOADPM INACTIVE
and pressing the Enter key.

If the inactive unit is	**Do**
the first unit in the office to use the new load	step 19
not the first unit in the office to use the new load	step 21

19 Review the PM update checklist for the office and determine the PRSU status for the new load.

If the new load	**Do**
has PRSUs to be manually applied	step 20
does not have PRSUs to be manually applied	step 21

20

CAUTION
Possible service interruption
Apply PRSUs immediately after updating the load. Failure to do so can increase administrative time and interrupt service.

Apply the PRSUs by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database with the new load name by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is DTC or DTCI
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>DBAUDIT DTC 0 1

c. Apply the PRSUs that require manual input by typing

>APPLY ’prsu_id IN pm_type pm_no unit_no
and pressing the Enter key.

where

prsu_id	is the name of the PRSU (repeat variable as required)
pm_type	is DTC or DTCI
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example of single-line command

>APPLY ’XAJ13X08 I XRP29X08 I XBA45X08 IN DTC 0 1

Example of double-line command

>APPLY ’XAJ13X08 I XRP29X08 I XBA45X08 I XDJ02X08 I +
>’XD02908 I XJL87X08 I XAH13X08 IN DTC 0 1

Note: It is not necessary to apply the PRSUs in a particular order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility by typing

>QUIT
and pressing the Enter key.

21 Return the inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

22 Wait for the MAP display to show the unit as in-service. This ensures superframe sync and data sync are achieved.

23 Confirm the inactive unit is properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according the PM’s current PRSU list by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is DTC or DTCI
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>DBAUDIT DTC 0 1

c. Display the PRSU list for the inactive unit by typing

>REPORT DEST pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is DTC or DTCI
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>REPORT DEST DTC 0 1

d. Confirm all PRSUs for the new load are applied to the inactive unit.

If	Do
all PRSUs for the new load are applied to the inactive unit	step 24
all PRSUs for the new load are not applied to the inactive unit	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 23b. If a DBAUDIT has been performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 24. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

24 Exit the utility by typing

>QUIT

and pressing the Enter key.

25 Switch activity between the units by typing

>SWACT

and pressing the Enter key.

Note: If the DMS switch is unable to perform a warm SWACT, do not continue with this procedure. The DMS switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

26 Confirm the switch of activity by typing

>Y

27 Wait for the MAP display to show the newly loaded unit as in-service. This ensures superframe sync and data sync are achieved. It may take two to three minutes for the MAP display to show the unit as in-service.

If	Do
one unit is updated	step 8
both units are updated	step 28

Note: If one unit is updated, the inactive unit will be in-service trouble due to the load mismatch between the unit and the PM inventory table. The node will remain ISTb until both units are updated with the new load.

28 You have successfully updated the DTC or DTCI and completed this procedure. Review the update schedule for the office.

If there are	Do
additional DTCs or DTCIs to update during this shift	Repeat this procedure or follow the recommendations in “Overview of update process” and use broadcast mate loading or parallel loading on the remaining DTC or DTCIs.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the DTM (EDRAM)

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the digital test module (DTM) enhanced digital recording announcement machine (EDRAM).

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All peripheral module (PM) logs are enabled.
- The EDRAM is in service.
- The EDRAM successfully passed its last routine exercise (REX) test within the last two weeks.
- All REX tests are suspended.

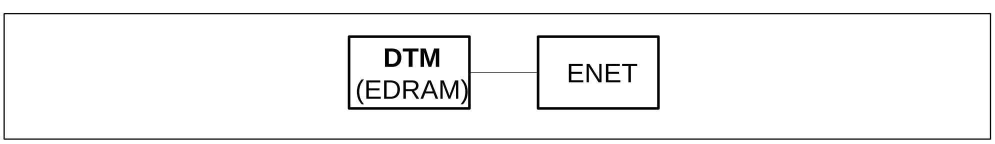
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the DTM (EDRAM). Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

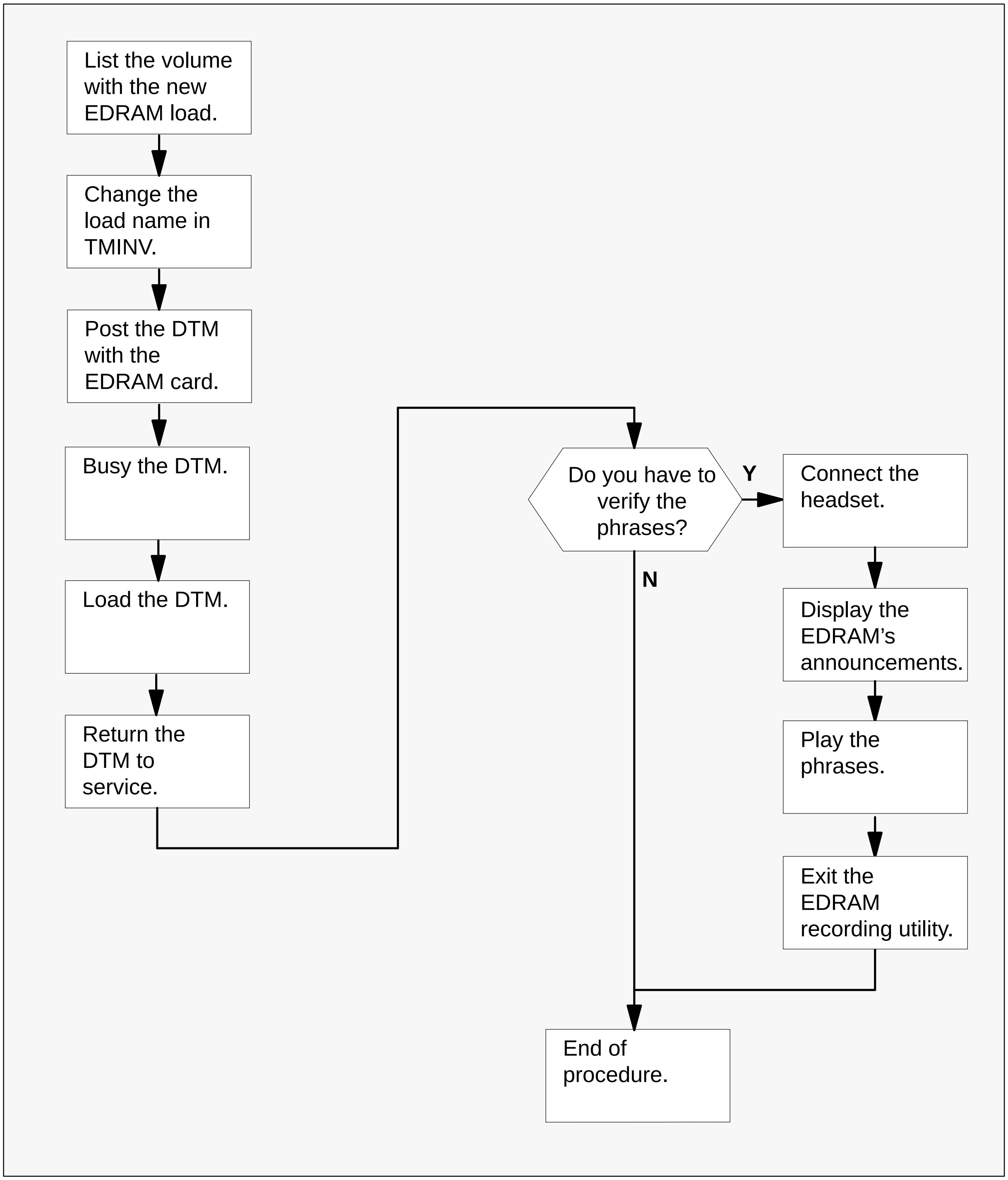
Node configuration for DTM (EDRAM)



Notes

Each announcement in table EDRAMINV must have a corresponding PROM in table DRAMS.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. For example, if an RTS command fails office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select a DTM with an EDRAM to update.

2 Review the prerequisites at the start of this procedure. Confirm that you meet these prerequisites.

If the load files are stored on a	Do
DDU device	step 3
SLM device	step 4

3 List the volume with the new load.

a. Enter the disk utility. Type

>DSKUT
and press the Enter key.

b. List the disk volume. Type

>LISTVOL vol_name
and press the Enter key.

where

vol_name   is the name of the disk volume

Example of command

```
>LISTVOL  D000DPMLOADS
```

c. Skip step 4 and go to step 5.

4 List the volume with the new load.

a. Enter the disk utility. Type

>DISKUT
and press the Enter key.

b. List the disk volume. Type

>LF vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LF  S01DPMLOADS
```

5 Exit the disk utility. Type

>QUIT
and press the Enter key.

6 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE TMINV
and press the Enter key.

b. Position on the tuple for the DTM. Type

>POS DTM dtm_no
and press the Enter key.

where

dtm_no is the number of the DTM

Example of command

```
>POS  DTM  11
```

c. Change the load name in the tuple to the new load name. Type

>CHA LOAD new_load
and press the Enter key.

where

new_load is the name of the new load

Example of command

```
>CHA  LOAD  EDRMAE05
```

d. Confirm the change. Type

>Y
and press the Enter key.

e. Close the PM inventory table. Type

>QUIT
and press the Enter key.

7 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM
and press the Enter key.

8 Post the DTM. Type

>POST DTM dtm_no
and press the Enter key.

where

dtm_no is the number of the DTM

Example of command

```
>POST  DTM  11
```

9 Busy the DTM. Type

>BSY
and press the Enter key.

10 Load the DTM. Type

>LOADPM
and press the Enter key.

Note: The LOADPM command will load the DTM with the new EDRAM load and the voice files resident on the switch.

11 Return the DTM to service. Type

>RTS
and press the Enter key.

If you	Do
must verify the phrases	step 12
do not have to verify the phrases	step 13

Note: Office policy can require you to verify the phrases on the EDRAM circuit card after you update the DTM.

12 Verify the phrases by performing the following steps.

a. Enter the EDRAM recording utility. Type

>DRAMREC
and press the Enter key.

b. Connect the headset to the EDRAM controller circuit. Type

>CONNECT edram_no clli_name
and press the Enter key.

where

edram_no	is the number of the EDRAM controller circuit
clli_name	is the name of the headset CLLI

Example of command

```
>CONNECT  4  HSET  22
```

c. Display the EDRAM’s announcements. Type

>DISPLAY edram_no
and press the Enter key.

where

edram_no	is the number of the EDRAM controller circuit

Example of command

```
>DISPLAY  4
```

d. Play the phrase. Type

>PLAYBACK edram_no phrase_ext
and press the Enter key.

where

edram_no	is the number of the EDRAM controller circuit
phrase_ext	is the name of the phrase to be played

e. Repeat these steps for each phrase to be verified.

f. Exit the EDRAM recording utility. Type

>QUIT
and press the Enter key.

13 You have updated the DTM and completed this procedure. Review the update schedule.

If you have	Do
other DTMs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the DTU or MTU Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update a digital test unit (DTU) or a metallic test unit (MTU).

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM and TRK logs are enabled.
- The DTU or MTU is in-service.
- Automatic REX testing is suspended in the office.

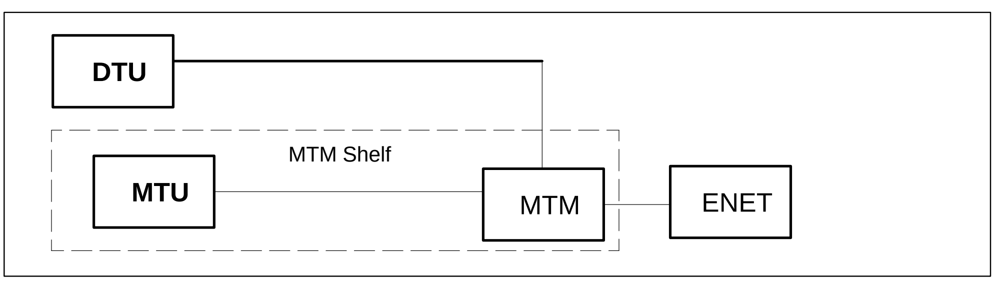
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the DTU or MTU. Serving PMs must be updated after the DTU or MTU.

Node configuration for DTU or MTU

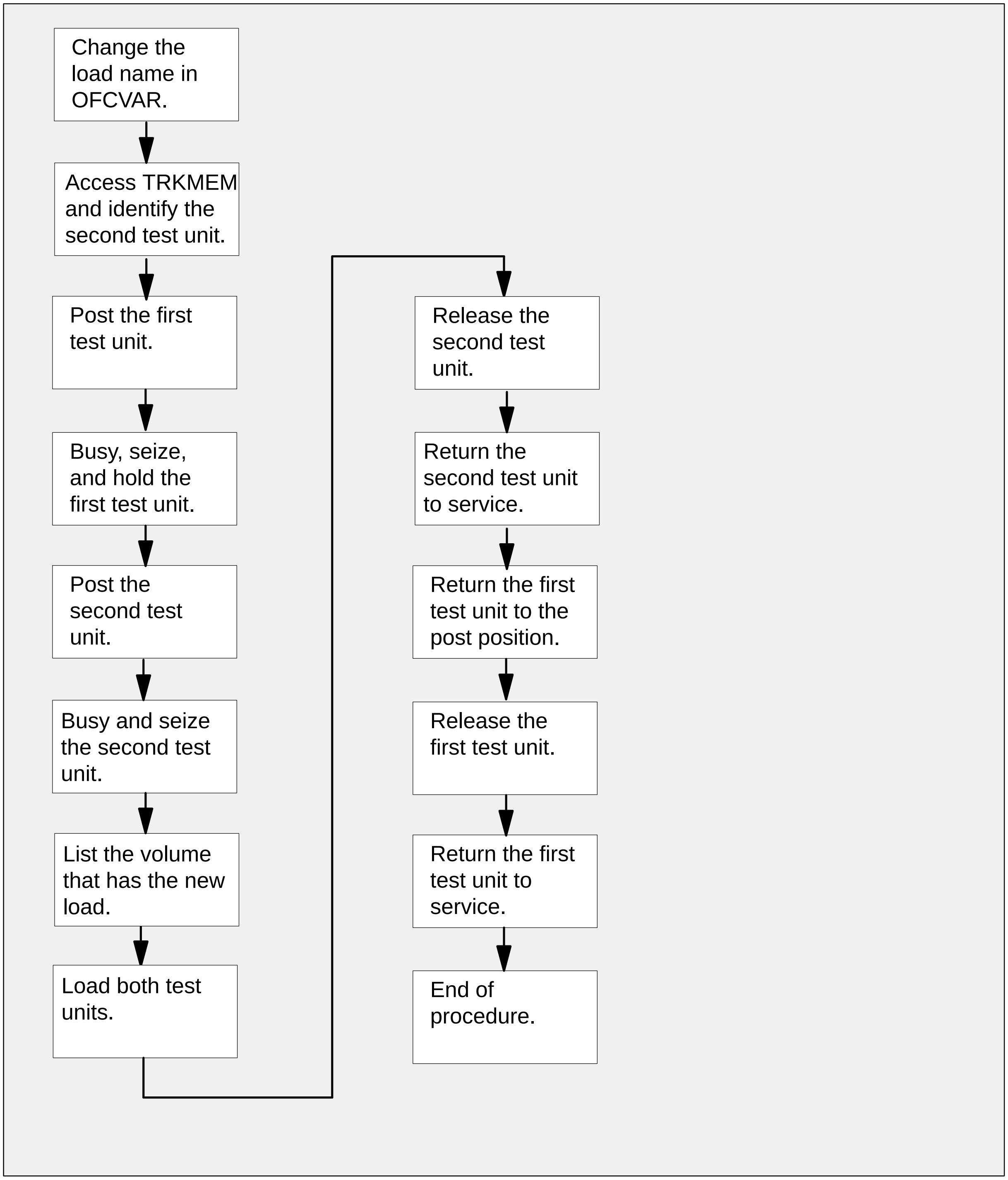


The DTU or MTU may be provisioned as a pair off a serving maintenance trunk module (MTM). The paired DTUs or MTUs should be updated together and prior to the serving MTM.

Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another test unit to update.

At the CI level of the MAP display

1 Select a DTU or MTU to update.

2 Confirm all prerequisites for this procedure have been met.

3 Access table OFCVAR by typing

>TABLE OFCVAR
and pressing the Enter key.

4 Position on the load information tuple for the DTU or MTU by typing

>POS tuple_name
and pressing the Enter key.

where

tuple_name is DTULDINFO for a DTU
is MTULDINFO for a MTU

5 Change the load name to the new load name by typing

>CHA PARMVAL new_load
and pressing the Enter key.

where
new_load is the name of the new load

6 Confirm the change by typing

>Y
and pressing the Enter key.

7 Exit the table by typing

>QUIT
and pressing the Enter key.

8 Access table TRKMEM by typing

>TABLE TRKMEM
and pressing the Enter key.

9 Position on the tuple for the DTU or MTU by typing

>POS test_unit tu_no
and pressing the Enter key.

where

test_unit	is the DTU or MTU
tu_no	is the number of the DTU or MTU

Example

>POS MTU 2

Example of MAP display

```
MTU     2   0           MTM     20  6
```

10 Record the number of the MTM listed in the tuple. This is the serving MTM to the test unit.

11 Use the LIS command to scroll through the tuples in table TRKMEM and identify the second DTU or MTU served by the MTM.

Example of MAP display

```
MTU     2   0           MTM     20  6
MTU     3   0           MTM     10  2
MTU     9   0           MTM     10  3
MTU     5   0           MTM     16  9
MTU     7   0           MTM     27  8
MTU     4   0           MTM     20  7
```

12 Record the number of the second DTU or MTU.

Note: In the preceding example, MTU 4 is the second MTU because it shares the same MTM as MTU 2.

13 Exit the table by typing

>QUIT
and pressing the Enter key.

14 Access the TTP level of the MAP display by typing

>MAPCI; MTC; TRKS; TTP
and pressing the Enter key.

15 Post one test unit and all its circuits by typing

>POST G clli_name tu_no
and pressing the Enter key.

where

clli_name	is DTU or MTU
tu_no	is the number of the DTU or MTU

16 Busy the posted test unit and all its circuits by typing

>BSY
and pressing the Enter key.

17 Seize the busied test unit and all its circuits by typing

>SEIZE
and pressing the Enter key.

18 Hold the busied test unit and all its circuits by typing

>HOLD
and pressing the Enter key.

19 Post the second test unit and all its circuits by typing

>POST G clli_name tu_no
and pressing the Enter key.

where

clli_name	is DTU or MTU
tu_no	is the number of the DTU or MTU

20 Busy the posted test unit and all its circuits by typing

>BSY
and pressing the Enter key.

21 Seize the posted test unit and all its circuits by typing

>SEIZE
and pressing the Enter key.

If the load files are stored	Do
on a DDU device	step 22
on a SLM device	step 23

22 List the volume by performing the following steps.

a. Access the utility by typing

>DSKUT
and pressing the Enter key.

b. List the disk volume by typing

>LISTVOL vol_name
and pressing the Enter key.

where

vol_name   is the name of the disk volume

c. Skip step 23 and go to step 24.

23 List the volume by performing the following steps.

a. Access the utility by typing

>DISKUT
and pressing the Enter key.

b. List the disk volume by typing

>LF vol_name
and pressing the Enter key.

where
vol_name   is the name of the disk volume

24 Exit the utility by typing

>QUIT
and pressing the Enter key.

25

CAUTION
Possible service interruption
Downloading the load from the SLM to the test unit takes up to 20 minutes. Confirm the recording device is not required for higher priority service before loading the test unit.

Load both test units by typing

>LOADFW CC load_name
and pressing the Enter key.

where

load_name   is the name of the load

26 Force the release of the posted test unit, which is the second test unit that was posted, and all its circuits by typing

>FRLS
and pressing the Enter key.

27 Return the test unit and circuits to service by typing

>RTS
and pressing the Enter key.

28 Return the first test unit to the posted position by typing

>NEXT 1
and pressing the Enter key.

29 Force the release of the test unit and its circuits by typing

>FRLS
and pressing the Enter key.

30 Return the posted test unit and circuits to service by typing

>RTS
and pressing the Enter key.

31 You have successfully updated the DTU or MTU and completed this procedure. Review the update schedule.

If there are	Do
additional DTUs or MTUs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the EDTU

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update an enhanced DTU (EDTU).

Prerequisites

Perform the procedures “Preparing for a PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM and TRK logs are enabled.
- The EDTU is in-service.
- Automatic REX testing is suspended in the office.

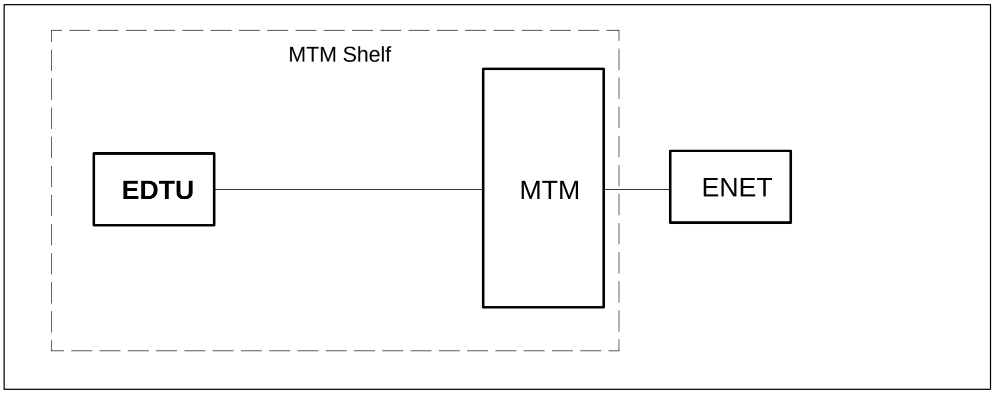
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the EDTU. Serving PMs must be updated after the EDTU.

Node configuration for EDTU

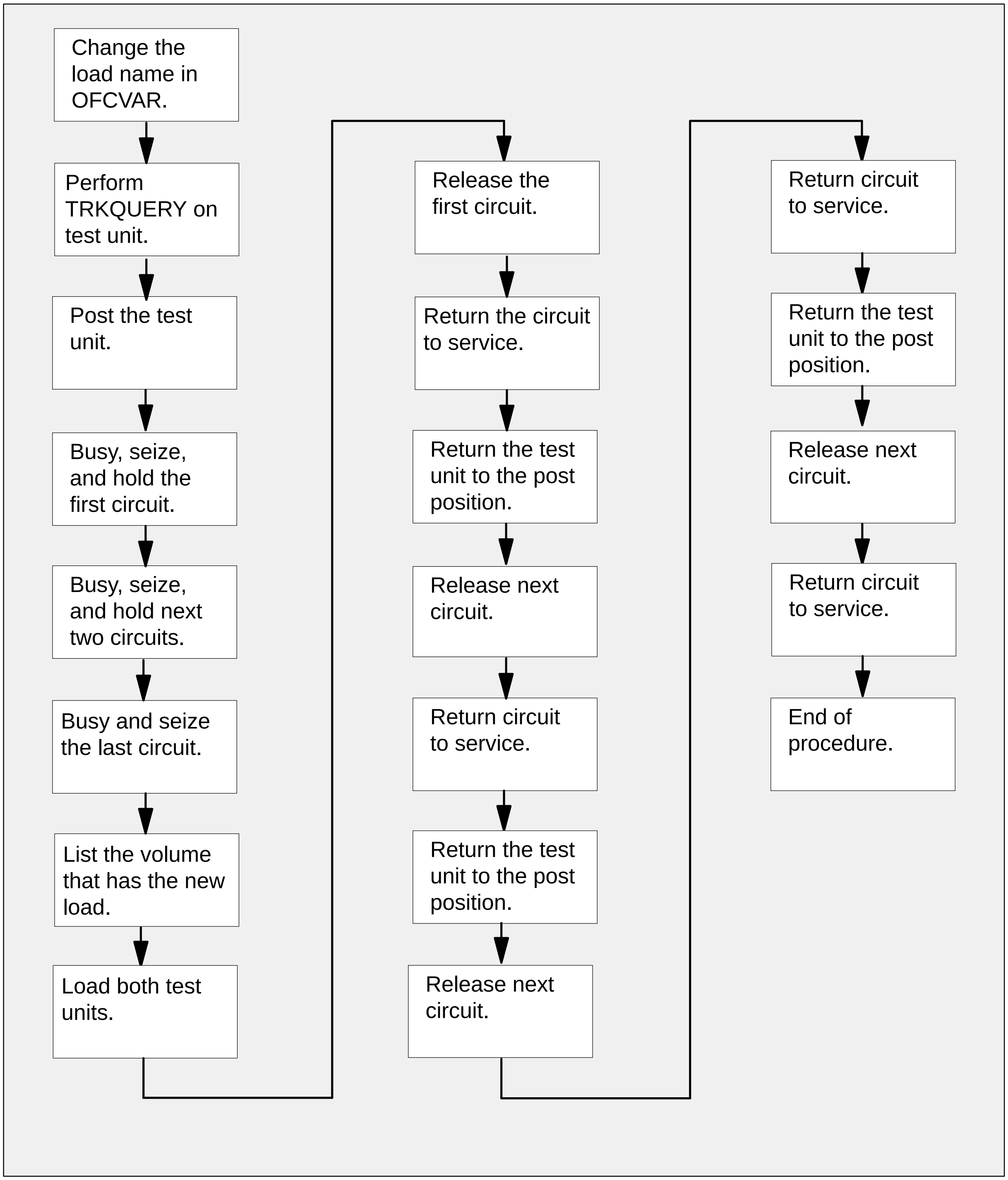


The EDTU may be provisioned as a pair off a serving maintenance trunk module (MTM). The paired EDTUs should be updated together and prior to the serving MTM.

Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails, for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another test unit to update.

At the CI level of the MAP display

1 Select an EDTU to update.

2 Confirm that all prerequisites for this procedure have been met.

3 Access table OFCVAR by typing

>TABLE OFCVAR
and pressing the Enter key.

4 Position on the load information tuple for the EDTU by typing

>POS tuple_name
and pressing the Enter key.

where

tuple_name is EDTULDFILE for an EDTU

5 Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where
new_load is the name of the new load

6 Confirm the change by typing

>Y
and pressing the Enter key.

7 Exit the table by typing

>QUIT
and pressing the Enter key.

8 Locate the NT4X45AA cards, and note the PM and circuit number.

Note: The NT4X45AA card is a 1-slot card with four circuits.

Example

```
MTM  10  2
     10  3
     10  4
     10  5
```

9 Perform a TRKQUERY on the EDTU by typing

>TRKQUERY TM pm_type pm_no
and pressing the Enter key.

where

pm_type	is MTM
pm_no	is the number of the PM

Example

>TRKQUERY TM MTM 2

Example of MAP display

```
Location     CLLI    Card    State
MTM  2  0    TTU     4X45AA  IDL
MTM  2  1    TTT     4X45AA  IDL
MTM  2  2    TTU     4x45AA  IDL
MTM  2  3    TTT     4X45AA  IDL
```

Note: The CLLI code for an EDTU may be identified as TTU, TTT, or DTU.

10 Record the CLLI code and the circuit numbers of the MTM listed in the tuple. This is the serving MTM to the test unit.

11 Exit the table by typing

>QUIT
and pressing the Enter key.

12 Access the TTP level of the MAP display by typing

>MAPCI; MTC; TRKS; TTP
and pressing the Enter key.

13 Post one test unit and all its circuits by typing

>POST TM pm_type pm_no ckt_no
and pressing the Enter key.

where

pm_type	is MTM
pm_no	is the number of the PM
ckt_no	is the circuit number of the PM

Example

>POST TM MTM 2 0

14 Busy the first circuit on the posted test unit by typing

>BSY
and pressing the Enter key.

15 Seize the first circuit on the busied test unit by typing

>SEIZE
and pressing the Enter key.

16 Hold the first circuit on the busied test unit by typing

>HOLD
and pressing the Enter key.

17 Repeat steps 13 through 16 twice for the next two circuits on the NT4X45AA.

18 Busy the last circuit on the posted test unit by typing

>BSY
and pressing the Enter key.

19 Seize the last circuit on the posted test unit by typing

>SEIZE
and pressing the Enter key.

If files are stored	Do
on an SLM device	step 21
on a DDU device	step 22

20 List the volume by performing the following steps.

a. Access the utility by typing

>DSKUT
and pressing the Enter key.

b. List the disk volume by typing

>LISTVOL vol_name ALL
and pressing the Enter key.

where

vol_name is the name of the disk volume

c. Skip step 21 and go to step 22.

21 List the volume by performing the following steps.

a. Access the utility by typing

>DISKUT
and pressing the Enter key.

b. List the disk volume by typing

>LF vol_name
and pressing the Enter key.

where
vol_name is the name of the disk volume

22 Exit the utility by typing

>QUIT
and pressing the Enter key.

23

> **CAUTION**
> **Possible service interruption**
> Downloading the load from the SLM to the test unit takes up to 20 minutes. Confirm the recording device is not required for higher priority service before loading the test unit.

Load all test units by typing

>LOADFW CC
and pressing the Enter key.

Note: This single command will load both test units in the pair.

24 Release the posted circuit in the test unit, which is the last circuit in the test unit that was posted, by typing

>RLS R
and pressing the Enter key.

25 Return the circuit to service by typing

>RTS
and pressing the Enter key.

26 Return the first circuit in the test unit to the posted position by typing

>NEXT 1
and pressing the Enter key.

27 Release the circuit in the posted test unit by typing

>RLS R
and pressing the Enter key.

28 Return the circuit to service by typing

>RTS
and pressing the Enter key.

29 Return the second circuit in the test unit to the posted position by typing

>NEXT 1
and pressing the Enter key.

30 Release the circuit in the posted test unit by typing

>RLS R
and pressing the Enter key.

31 Return the circuit to service by typing

>RTS
and pressing the Enter key.

32 Return the third circuit in the test unit to the posted position by typing

>NEXT 1
and pressing the Enter key.

33 Release the circuit in the posted test unit by typing

>RLS R
and pressing the Enter key.

34 Return the circuit to service by typing

>RTS
and pressing the Enter key.

35 You have successfully updated the EDTU and completed this procedure. Review the update schedule.

If there are	Do
additional EDTUs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no more PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the EIU, FRIU, or XLIU Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update one of the following types of PMs.

PM	Description
EIU	Ethernet interface unit (EIU)
FRIU	Frame relay interface unit (FRIU)
XLIU	X.25/X.75 link interface unit (XLIU)

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The PM is in-service.
- Automatic REX testing is suspended in the office.
- The PRSM automated process does not run during this shift.

Required information

Review the update checklists and schedules to answer the following questions. This information is required to successfully complete this procedure.

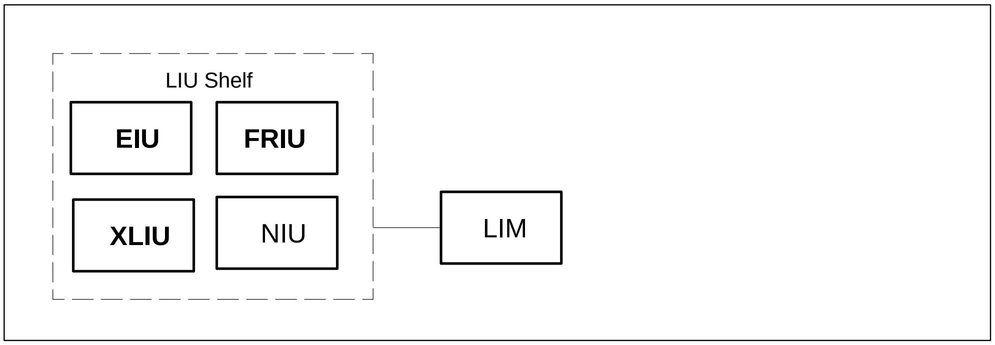
- Is PRSM enabled in the office?
- What is the patch status of the new PM load?
  - — Does the new load have PRSUs?
  - — Do the PRSUs have to be applied during this procedure, or were they applied to the load during a previous update procedure?
- Does an image need to be taken of this PM?

For assistance, refer to “Overview of release” and “Overview of update process” in this document.

Update sequence

The following figure illustrates a possible node configuration for the EIU, FRIU, or XLIU. Update the LIM as soon as possible after all its subtending PMs are successfully updated.

Node configuration for EIU, FRIU, or XLIU



If a network interface unit (NIU) is providing channelized access to an XLIU, the NIU is a serving PM. It must be updated after its serving XLIUs and before the serving LIM.

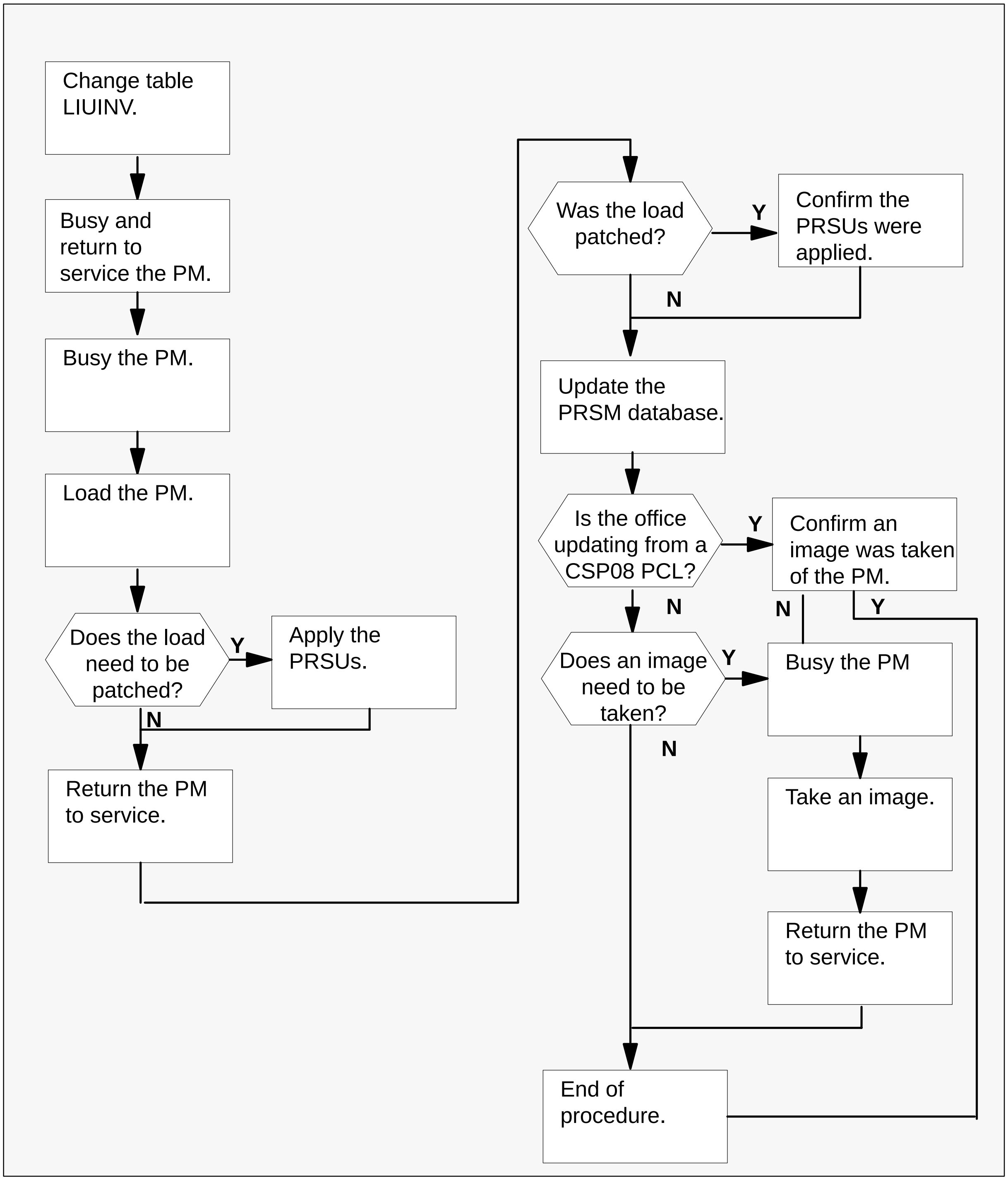
Notes

The EIU, FRIU, and XLIU loads can be be patched using sets if PRSM is enabled. Refer to the the procedure “Using a set to patch the EIU, FRIU, LIU7, or XLIU loads” in this document.

For integrated services node (ISN) auto imaging (IAI) to take an image during the PM update, offices must meet the following requirements:

- Enter the appropriate datafill in table IMGSCHED.
- Enter the appropriate datafill in table IMAGEDEV.
- Ensure AUTODUMP is on.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an EIU, FRIU, or XLIU to update.

2 Confirm all prerequisites for this procedure have been met.

3 Update the PM inventory table by performing the following steps.

a. Access the inventory table by typing

>TABLE LIUINV
and pressing the Enter key.

b. Position on the datafill tuple for the PM to be updated by typing

>POS pm_type pm_no
and pressing the Enter key.

where

pm_type	is EIU, FRIU, or XLIU
pm_no	is the number of the PM

Example

>POS EIU 1

c. **ATTENTION**

If the load name has a date extension, it is a pre-patched load. Do not datafill the date extension. Refer to “Overview of release” in this document for more information on date extensions and pre-patched loads.

Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load is the name of the new load

Example

>CHA LOAD ETC07BM

d. Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM state changes to ISTb due to the load mismatch with the inventory table. Continue with this procedure.

e. Exit the table by typing

>QUIT
and pressing the Enter key.

4 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

5 Post the PM by typing

>POST pm_type pm_no
and pressing the Enter key.

where

pm_type is EIU, FRIU, or XLIU
pm_no is the number of the PM

Example

>POST EIU 1

Note: The PM state changes to ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

6 Ensure the EIU, FRIU, or XLIU will successfully pass an out-of-service test and return to service by performing the following steps.

a. Busy the EIU, FRIU, or XLIU by typing

>BSY
and pressing the Enter key.

b. Return the EIU, FRIU, or XLIU to service by typing

>RTS
and pressing the Enter key.

7 Busy the EIU, FRIU, or XLIU by typing

>BSY
and pressing the Enter key.

If the PM being updated	Do
is an XLIU and a spare XLIU is available	step 8
is an XLIU and no spare XLIU is available	step 10
is not an XLIU	step 10

8 Switch the XLIU with the spare XLIU by typing

>SWTCH xliu_no
and pressing the Enter key.

where

xliu_no is the number of the spare XLIU

Example

>SWTCH 11

9 Confirm the action by typing

>Y
and pressing the Enter key.

10 Load the EIU, FRIU, or XLIU by typing

>LOADPM
and pressing the Enter key.

If the EIU, FRIU, or XLIU being updated	Do
is the first EIU, FRIU, or XLIU in the office to use the new load	step 11
not the first EIU, FRIU, or XLIU in the office to use the new load	step 13

11

CAUTION
Possible service interruption
Apply PRSUs immediately after updating the load. Failure to do so can increase administrative time and lead to service interruption.

ATTENTION
The EIU, FRIU, or XLIU load may be patched using sets. Check policy and refer to the procedure "Using a set to patch the EIU, FRIU, LIU7, or XLIU loads" in this document.

Apply the PRSUs by performing the following steps.

a. Access the PRSM utility by typing

   >PRSM
   and pressing the Enter key.

b. Update the PRSM database according to the PM's current database by typing

   >DBAUDIT pm_type pm_no
   and pressing the Enter key.

   where

pm_type	is EIU, FRIU, or XLIU
pm_no	is the number of the EIU, FRIU, or XLIU

   Example

   >DBAUDIT EIU 0

Note: PRSUs from the previous release may remain at NV status, they are removed during the daily FILEAUDIT.

c. Apply the PRSUs by typing

>APPLY 'prsu_name IN pm_type pm_no
and pressing the Enter key.

where

prsu_name	is the name of the PRSU (repeat variable as required)
pm_type	is EIU, FRIU, or XLIU
pm_no	is the number of the PM you are updating

Example

>APPLY 'XAJ13X08 I XRP29X08 I XBA45X08 I XDJ02X08 IN EIU 0

Note: It is not necessary to apply the PRSUs in a particular order. PRSM automatically sorts the PRSUs if they are applied as a set.

12 Exit the utility by typing

>QUIT
and pressing the Enter key.

13 Return the EIU, FRIU, or XLIU to service by typing

>RTS
and pressing the Enter key.

14 Confirm the PRSUs are correctly applied and all databases are updated by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according to the PM's current database by typing

>DBAUDIT pm_type pm_no
and pressing the Enter key.

where

pm_type	is EIU, FRIU, or XLIU
pm_no	is the number of the EIU, FRIU, or XLIU

Example

>DBAUDIT EIU 0

Note: PRSUs from the previous release may remain at NV status, they are removed during the daily FILEAUDIT.

c. Display the PRSU list by typing

>REPORT DEST pm_type pm_no
and pressing the Enter key.

where

pm_type is EIU, FRIU, or XLIU
pm_no is the number of the EIU, FRIU, or XLIU

Example

>REPORT DEST EIU 0

d. Confirm all PRSUs for the new load are applied to the PM.

If	Do
all PRSUs for the new load are applied to the PM	step 15
all PRSUs for the new load are not applied to the PM	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step14b. If a DBAUDIT has been performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 15. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

15 Quit the utility by typing

>QUIT
and pressing the Enter key.

If an image	Do
needs to be taken of this PM and the office is at a Base09 or higher PCL.	step 16
needs to be taken of this PM and the office is at a Base08 or lower PCL.	step 17
does not need to be taken of this PM.	step 26
Note: Take an image of the first PM of a type being updated. Office policy and the update schedule will determine the need for additional images.	

16 Confirm an image was automatically taken of the PM by performing the following steps.

a. Open the AUTODUMP history file for ISN PMs by typing

AUTODUMP HISTORY ISN
and pressing the Enter key.

b. Review the contents of the file, confirm an image was automatically taken of the PM.

If an image of the PM	Do
was automatically taken	step 25
was not automatically taken	step 17

Note: If an image of the PM was not automatically taken, confirm AUTODUMP is ON, check the datafill in tables IMGSCHED and IMAGEDEV. Take a manual image if auto imaging failed to execute.

17

> **ATTENTION**
>
> Take an image of the load immediately after patching. Use this image to reload any remaining EIUs, FRIUs, or XLIUs with the patched load. If an image is not taken, PRSUs have to be applied manually each time an EIU, FRIU, or XLIU is reloaded.
>
> This procedure takes an image of a busied EIU, FRIU, or XLIU. However, an image can be taken on an in-service EIU, FRIU, or XLIU. Check office policy.

Busy the PM by typing

>BSY
and pressing the Enter key.

18 Access the disk utility by typing

>DISKUT
and pressing the Enter key.

19 Take an image of the newly loaded EIU, FRIU, or XLIU node by typing

>DUMP file_name dev_name ACTIVE RETAIN NODE pm_type pm_no
and pressing the Enter key.

where

file_name	is the name of the image file
dev_name	is the name of the device that will store the image
pm_type	is EIU, FRIU, or XLIU
pm_no	is the number of the PM

Example

>DUMP ETC07BM S00DPMLOADS ACTIVE RETAIN NODE EIU 0

20 List the SLM volume by typing

>LF vol_name
and pressing the Enter key.

where

vol_name	is the name of the volume

Example

>LF S00DPMLOADS

Note: "_EIU","_FRIU", or "_XLIU" will be appended to the file name.

21 Delete the previous load file by typing

>DELETEFL old_file
and pressing the Enter key.

where

old_file	is the name of the previous load file

Example

>DELETEFL ETC07BM

22 Eliminate the extension on the new load file name by typing

>RNF cur_name new_name
and pressing the Enter key.

where

cur_name	is the name of the current load file
new_name	is the name of the current load file without the extension

Example

>RNF ETC07BM_EIU ETC07BM

23 Exit the disk utility by typing

>QUIT
and pressing the Enter key.

24 Perform a NIL change to the load name in table PMLOADS by performing the following steps.

a. Access table PMLOADS by typing

>TABLE PMLOADS
and pressing the Enter key.

b. Position on the datafill tuple for the load by typing

>POS load_name
and pressing the Enter key.

where

load_name	is the name of the load

Example

>POS ETC07BM

c. Begin the process of a NIL change by typing

>CHA
and pressing the Enter key.

d. Press the Enter key to scroll through the fields until a confirmation prompt is received.

e. Confirm the unchanged tuple by typing

   >Y
   and pressing the Enter key.

f. Exit table PMLOADS by typing

   >QUIT
   and pressing the Enter key.

25 Return the EIU, FRIU, or XLIU to service by typing

>RTS
and pressing the Enter key.

26 You have successfully updated the EIU, FRIU, or XLIU and completed this procedure. Review the update schedule.

If there are	Do
additional EIUs, FRIUs, or XLIUs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Update the ENET

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Only operating company personnel familiar with the update of the ENET should perform this procedure.

Do not perform other ENET expansions while performing ENET load updates.

Use this procedure to update the enhanced network (ENET).

Prerequisites

Perform the procedures “Prepare for a manual PM update” or “Prepare for an automated PM update using PMUPGRADE” and “Start a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is entered in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- The ENET is in-service (InSv).
- The ENET passed its last REX test within the last two weeks.
- All ENET logs are enabled.
- All REX tests are suspended in the office.
- Post-release software manager (PRSM) automated processes do not start during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. This information is required to complete this procedure.

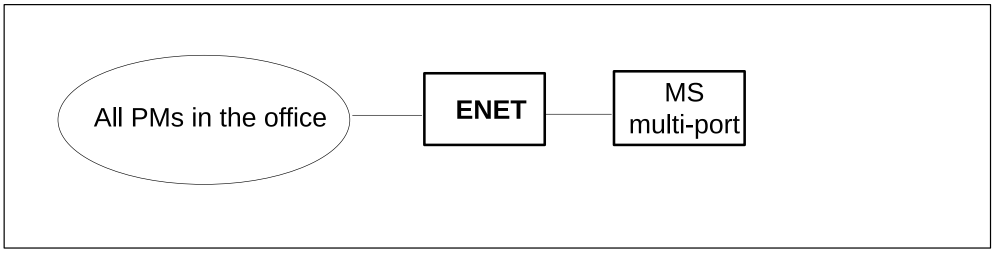
- Do any post-release software updates (PRSUs) need to be applied manually to the new load?
- Does an image need to be taken of this ENET?

For assistance, refer to “Overview of release” and “Overview of manual update process” in this document.

Update sequence

The following figure illustrates a possible node configuration for the ENET. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

Node configuration for ENET



Note: Update the MS multi-port circuit card (NT9X17) one to two days after the ENET updates successfully. Office policy can require an immediate update.

Notes

The following notes apply to the ENET update procedure.

Old load names in table PMLOADS

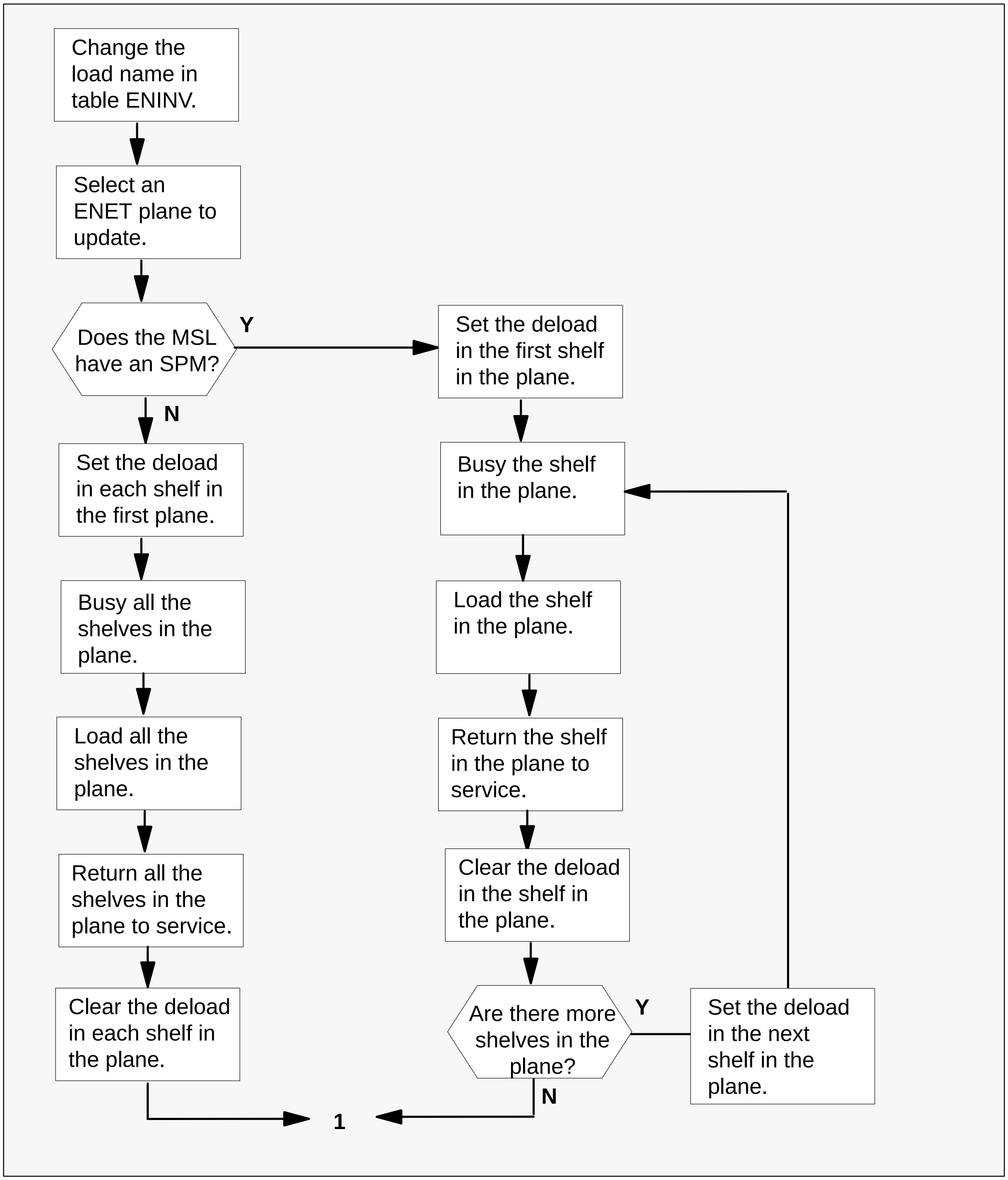
Office policy determines when old load names are deleted from table PMLOADS. Confirm the old ENET load name is deleted or will be deleted from table PMLOADS. The ENET successfully updates if table PMLOADS contains the old load name and the new load name. NET LOAD alarms and PM PMLOAD alarms occur during the one night process (ONP) if table PMLOADS contains both load names.

Integrated services node auto imaging

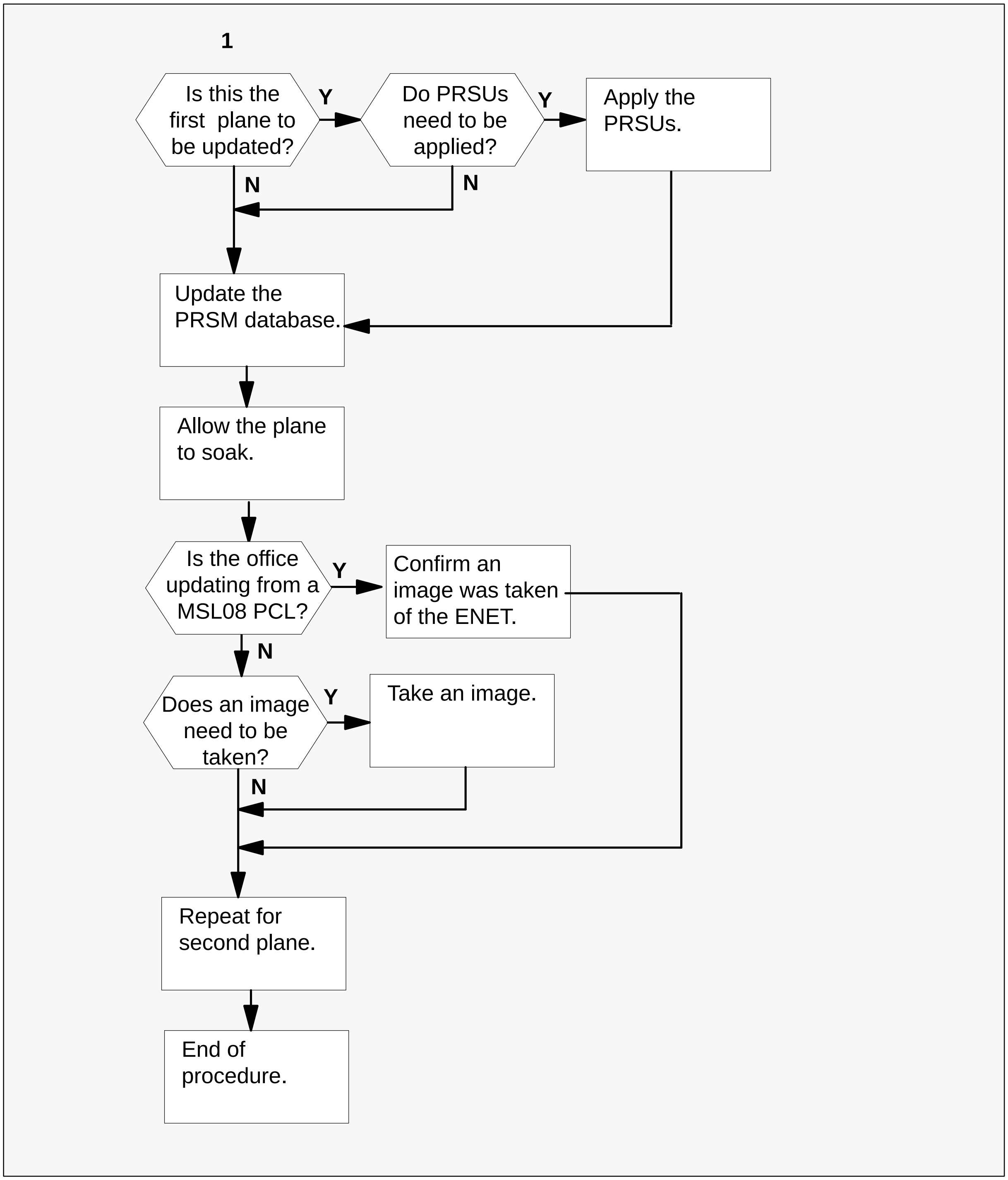
For integrated services node (ISN) auto imaging (IAI) to take an image during the ENET update for offices at MSL08 or a higher PCL, perform the following requirements:

- Enter appropriate datafill in table IMGSCHED.
- Enter appropriate datafill in table IMAGEDEV.
- Ensure AUTODUMP is ON.

Summary of procedure



Summary of procedure (continued)



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another ENET to update.

At the CI level of the MAP display

1 Select an ENET to update.

2 Review and confirm the completion of all prerequisites for this procedure.

3 Update the PM inventory table. Perform the following steps.

a. Open the PM inventory table. Type

   >TABLE ENINV
   and press the Enter key.

b. Position on the datafill tuple for the first ENET shelf to be updated. Type

   >POS shelf_no
   and press the Enter key.

   where

   shelf_no   is the number of the shelf

   Example of command

   ```
   >POS 0
   ```

c. Change the load name in plane 0 to the new load name. Type

   >CHA LOAD0 new_load
   and press the Enter key.

   where

   new_load   is the name of the new load

   Example of command

   ```
   >CHA LOAD0 ENC11BA
   ```

d.

> **ATTENTION**
>
> The MAP displays a warning that the ENET load does not match the current system file. This warning is for information only. No action is required. Continue this procedure.

Confirm the change. Type

>Y
and press the Enter key.

e. Change the load name in plane 1 to the new load name. Type

>CHA LOAD1 new_load
and press the Enter key.

where

new_load   is the name of the new load

Example of command

```
>CHA LOAD1 ENC11BA
```

f.

> **ATTENTION**
>
> The MAP displays a warning that the ENET load does not match the current system file. This warning is for information only, no action is required. Continue this procedure.

Confirm the change. Type

>Y
and press the Enter key.

g. Repeat steps NO TAGNO TAG through NO TAGNO TAG for each shelf in the ENET.

h. Close the table. Type

>QUIT
and press the Enter key.

4 Access the SYSTEM level of the MAP display. Type

>MAPCI;MTC;NET;SYSTEM
and press the Enter key.

5 Select an ENET plane to update.

> **CAUTION**
> **Possible service interruption**
> If the MSL-100 switch has a Spectrum Peripheral Module (SPM), update the shelf of each plane individually to prevent service interruption and outage.

If the MSL-100 switch	Do
has an SPM	step 6
does not have an SPM	step 15

6 Starting from shelf 0, set the deload in the shelf. Type

>DELOAD plane_no shelf_no SET
and press the Enter key.

where

plane_no	is the number of the plane
shelf_no	is the number of the shelf

Example of command

```
>DELOAD 0 0 SET
```

7 Wait 30 minutes to avoid network integrity problems.

8

> **ATTENTION**
> When the shelf in the ENET plane is busied, the SPM can go into a critical alarm and the MAP displays a warning. No action is required. Check office policy and contact the next level of support, if required, or continue this procedure.

Busy the shelf. Type

>BSY plane_no shelf_no
and press the Enter key.

where

plane_no is the number of the plane
shelf_no is the number of the shelf

Example of command

```
>BSY 0 0
```

9 Load the shelf. Type

>LOADEN plane_no shelf_no
and press the Enter key.

where

plane_no is the number of the plane
shelf_no is the number of the shelf

Example of command

```
>LOADEN 0 0
```

Note: The MAP display responds with a message that indicates a mismatch with a batch change supplement (BCS). Continue this procedure.

10 Confirm the action. Type

>Y
and press the Enter key.

11 Return the shelf to service. Type

>RTS plane_no shelf_no
and press the Enter key.

where

plane_no is the number of the plane
shelf_no is the number of the shelf

Example of command

```
>RTS 0 0
```

12 Clear the deload in the shelf. Type

>DELOAD plane_no shelf_no CLEAR
and press the Enter key.

where

plane_no is the number of the plane
shelf_no is the number of the shelf

Example of command

```
>DELOAD 0 0 CLEAR
```

13 Repeat step 6 through step 12 for each shelf in the plane.

14 Go to step 25.

15

> **ATTENTION**
> No shelf to be deloaded and busied, should be SysB, OffL, or CBsy.

Set the deload in the first shelf in the plane. Type

>DELOAD plane_no shelf_no SET
and press the Enter key.

where

plane_no	is the number of the plane
shelf_no	is the number of the first shelf

Example of command

```
>DELOAD 0 0 SET
```

16 Repeat step 15 for each shelf in the plane.

17 Wait 30 minutes to avoid network integrity problems.

18 Busy all the shelves in the plane. Type

>BSY plane_no ALL
and press the Enter key.

where

plane_no	is the number of the plane

Example of command

```
>BSY 0 ALL
```

19 Confirm the action. Type

>Y
and press the Enter key.

20 Load all the shelves in the plane. Type

>LOADEN plane_no ALL
and press the Enter key.

where

plane_no	is the number of the plane

Example of command

```
>LOADEN 0 ALL
```

Note: The MAP display responds with a message that indicates a mismatch with a batch change supplement (BCS). Continue this procedure.

21 Confirm the action. Type

>Y
and press the Enter key.

22

> **ATTENTION**
> When the plane's shelves return to service, the plane's PM links become out-of-service. Allow the switch to recover the links before continuing this procedure. If necessary, troubleshoot any links that do not return to service.

Return all the shelves in the plane to service. Type

>RTS plane_no ALL
and press the Enter key.

where

plane_no is the number of the plane

Example of command

```
>RTS 0 ALL
```

23 Clear the deload in the first shelf in the plane. Type

>DELOAD plane_no shelf_no CLEAR
and press the Enter key.

where

plane_no is the number of the plane
shelf_no is the number of the first shelf

Example of command

```
>DELOAD 0 0 CLEAR
```

24 Repeat step 23 for each shelf in the plane.

25 Confirm the PRSU status of the ENET. Perform the following steps.

> **CAUTION**
> **Possible service interruption**
> Failure to apply PRSUs immediately after the PM load update can increase administrative time and lead to service interruption.

a. Enter the PRSM utility. Type

>PRSM
and press the Enter key.

b. Update the PRSM database. Type

>DBAUDIT ENET plane_no shelf_no
and press the Enter key.

where

plane_no — is the number of the ENET plane
shelf_no — is the number of the first shelf

Example of command

```
>DBAUDIT ENET 0 0
```

c. Display the PRSU list. Type

>REPORT DEST ENET plane_no shelf_no
and press the Enter key.

where

plane_no — is the number of the ENET plane
shelf_no — is the number of the first shelf

d. Repeat steps 25b and 25c for each shelf in the plane.

e. Confirm all PRSUs for the new load are applied to the ENET plane.

If	Do
all PRSUs for the new load are applied to the plane	step 25l.
all PRSUs for the new load are not applied to the plane	step 25f.
PRSUs from the previous load are listed in VA status	step25b. If a DBAUDIT was performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	step 25L. The PRSM daily FILEAUDIT removes these PRSUs.

f. Apply the PRSUs. Type

>APPLY ’prsu_name IN ENET plane_no shelf_no
and press the Enter key.

where

prsu_name — is the name of the PRSU (repeat variable as required)

plane_no	is the number of the ENET plane
shelf_no	is the number of the first shelf

Example of command

```
>APPLY ’AMP00IB9 | AMP90IT8 | RMS39IB9 IN ENET 0 0
```

Note: It is not necessary to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs when applied as a set.

g. Repeat steps 25f for each shelf in the plane.

h. Update the PRSM database. Type

>DBAUDIT ENET plane_no shelf_no
and press the Enter key.

where

plane_no	is the number of the ENET plane
shelf_no	is the number of the first shelf

Example of command

```
>DBAUDIT ENET 0 0
```

i. Apply the PRSUs. Type

>APPLY ’prsu_name IN ENET plane_no shelf_no
and press the Enter key.

where

prsu_name	is the name of the PRSU (repeat variable as required)
plane_no	is the number of the ENET plane
shelf_no	is the number of the first shelf

Example of command

```
>APPLY ’AMP00IB9 | AMP90IT8 | RMS39IB9 IN ENET 0 0
```

Note: It is not necessary to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs when applied as a set.

j. Repeat steps 25h and 25i for each shelf in the plane.

k. Compare the displayed PRSM database with the list of PRSUs for the new load.

If the PRSU list	Do
matches the PRSM database	step 25l.
does not match the PRSM database	step 25f.

l. Exit the utility. Type

>QUIT

26 Allow the plane to soak at least four hours.

Note: Check local office policy. Some offices require a longer soak period.

If an image of the ENET	Do
needs to be taken	step 27
does not need to be taken	step 28

Note: Take an image of the first ENET plane to be updated. Office policy and the update schedule determine the need for additional images.

27 Confirm an image was automatically taken of the ENET. Perform the following steps.

a. Open the AUTODUMP history file for ISN PMs. Type

>AUTODUMP HISTORY ISN
and press the Enter key.

b. Review the contents of the file. Confirm an image was automatically taken of the ENET.

If an image	Do
was automatically taken	step 36
was not automatically taken	step 28

Note: If an image of the ENET was not automatically taken, confirm AUTODUMP is ON and check the datafill in tables IMGSCHED and IMAGEDEV. Take a manual image if auto imaging failed to execute.

28

ATTENTION

Take an image immediately after PRSU application. Use this image to load any remaining ENETs. If an image is not taken, PRSUs must be applied manually each time an ENET is loaded.

Enter the disk utility. Type

>DISKUT
and press the Enter key.

29 Take an image of the ENET load with PRSUs applied. Type

>DUMP file_name dev_name ACTIVE RETAIN NODE ENET plane_no shelf_no
and press the Enter key.

where

file_name	is the name of the image file
dev_name	is the name of the device where the image is stored
plane_no	is the number of the plane
shelf_no	is the number of the shelf

Example of command

`>DUMP ENC09BE S00DPMLOADS ACTIVE RETAIN NODE ENET 0 0`

30 List the SLM volume. Type

>LF vol_name
and press the Enter key.

where

vol_name	is the name of the volume

Example of command

`>LF S00DPMLOADS`

Note: "_ENET" appends to the file name, for example, `ENC11BA_ENET`.

31 Delete the original ENET load file entered in PMLOADS. Type

>DDF original_file
and press the Enter key.

where

original_file	is the name of the original ENET load file

Example of command

`>DDF ENC09BE`

32 Confirm the action. Type

>Y
and press the Enter key.

33 Eliminate the "_ENET" extension on the new ENET load file. Type

>RNF cur_name new_name
and press the Enter key.

where

cur_name	is the name of the current ENET load file
new_name	is the name of the current ENET load file without the "_ENET" extension

Example of command

```
>RNF ENC09BE_ENET ENC09BE
```

34 Exit the disk utility. Type

>QUIT
and press the Enter key.

35 Perform a NIL change to the ENET load name in table PMLOADS. Perform the following steps.

a. Open table PMLOADS. Type

>TABLE PMLOADS
and press the Enter key.

b. Position on the datafill tuple for the ENET load. Type

>POS load_name
and press the Enter key.

where

load_name is the name of the ENET load

Example of command

```
>POS ENC09BE
```

c. Begin the process of a NIL change. Type

>CHA
and press the Enter key.

d. Press the Enter key to scroll through the fields until the MAP display shows the confirmation prompt.

e. Confirm the unchanged tuple. Type

>Y
and press the Enter key.

f. Close table PMLOADS. Type

>QUIT
and press the Enter key.

36 Determine if both ENET planes are updated.

If	Do
one ENET plane is updated and the switch has an SPM	Return to step 6 and update the second plane.
one ENET plane is updated and the switch does not have an SPM	Return to step 15 and update the second plane.
both ENET planes are updated	step 37

37 You have updated the ENET and completed this procedure. Review the update schedule.

If there are	Do
additional ENETs to update during this shift	Return to step 4 and continue to the end of this procedure.
no other PMs or hardware types to update during this shift	Go to the procedure “Finish a PM update shift” in this document.

Updating the ESA

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the emergency stand-alone (ESA).

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All ESA and PM logs are enabled.
- The ESA and its serving PM are in-service.
- The serving PM successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.
- The PRSM automated processes such as DBAUDIT and AUTOAPP must not run during the PM update shift.

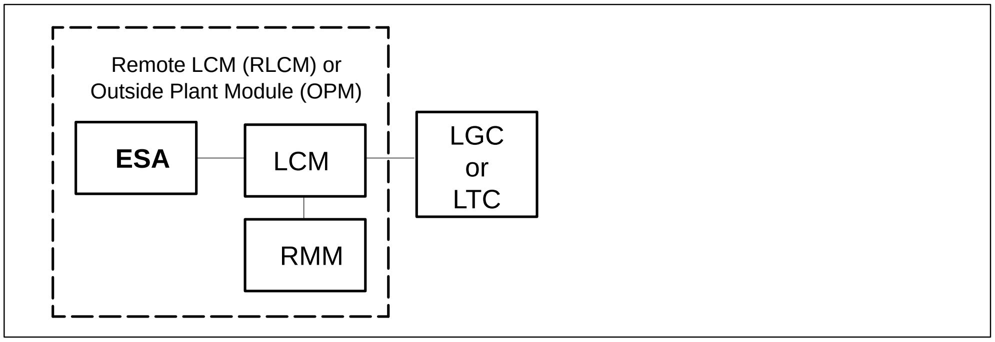
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the ESA. Serving PMs must be updated after the ESA.

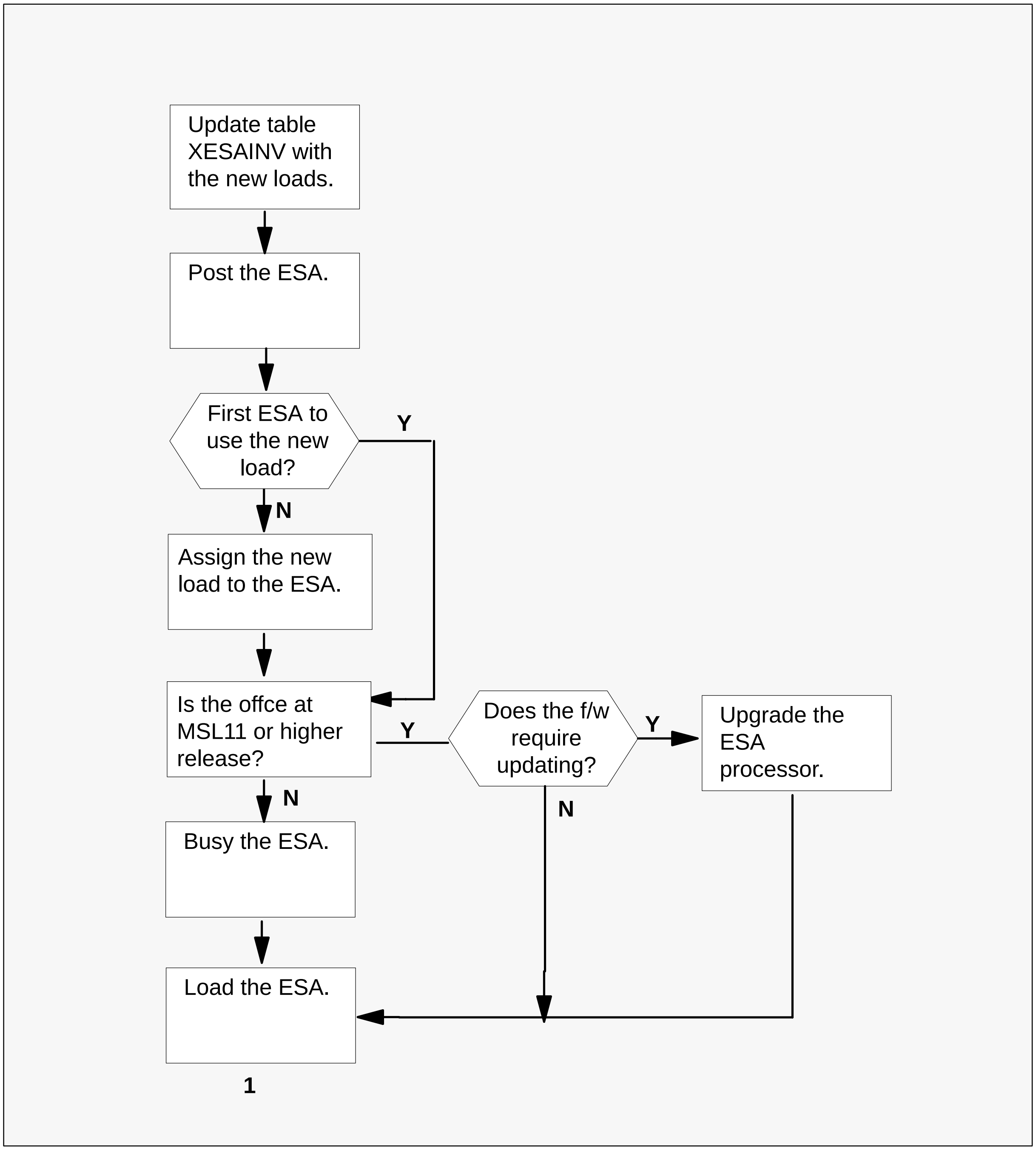
Node configuration for ESA



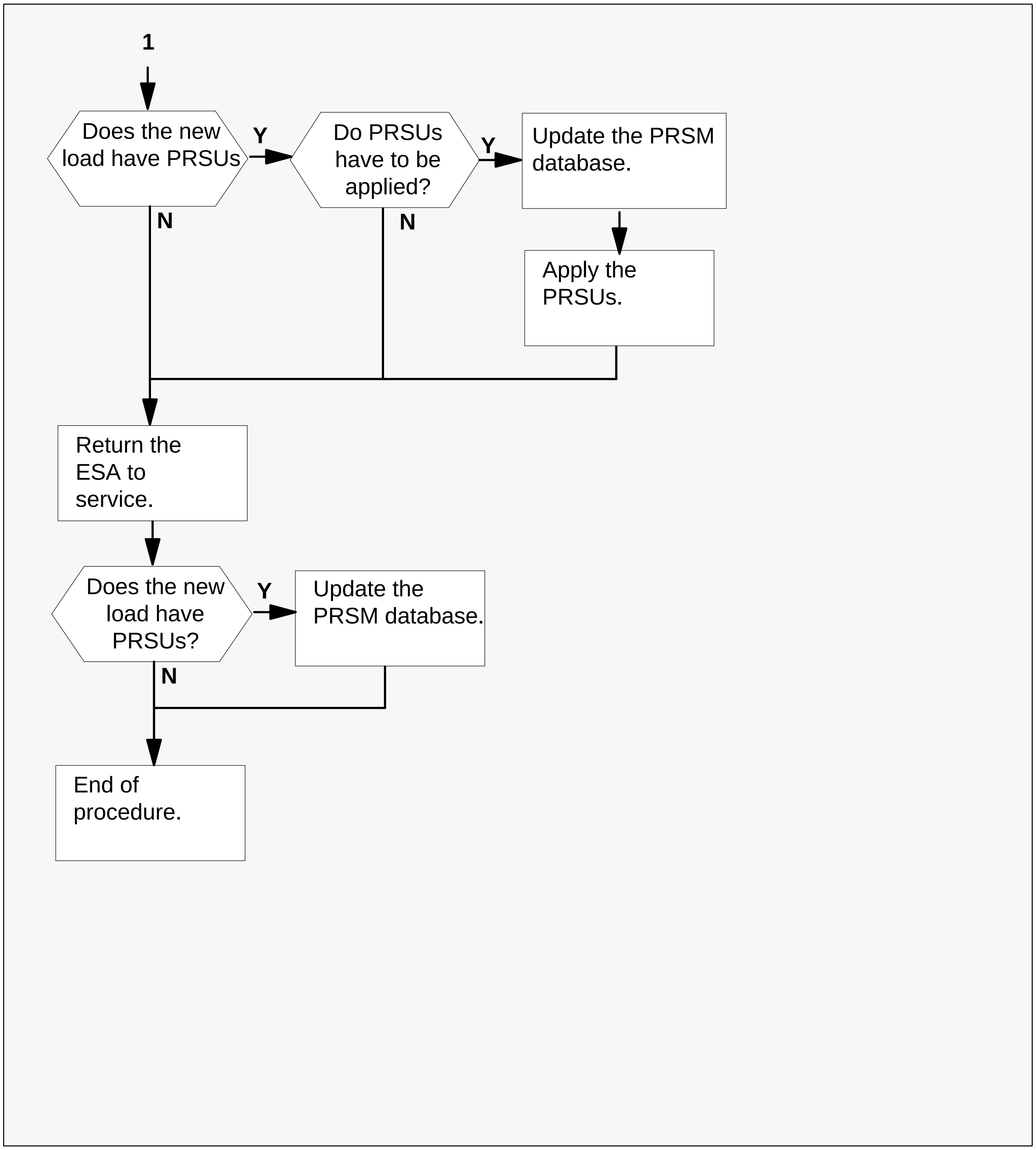
Notes

None

Summary of procedure



Summary of procedure (continued)



Steps of procedure

> **ATTENTION**
>
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an ESA to update.

2 Confirm all prerequisites for this procedure have been met.

3 Update the ESA inventory table by performing the following steps.

a. Access the ESA inventory table by typing

>TABLE XESAINV
and pressing the Enter key.

b. Position on the datafill tuple for the ESA to be updated by typing

>POS site_name ESA esa_no
and pressing the Enter key.

where

site_name	is the name of the site
esa_no	is the number of the ESA

c. Change the load name in the inventory table to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load	is the name of the new load

d. Confirm the change by typing

>Y
and pressing the Enter key.

Go to step 3e. if the office is at MSL11, otherwise proceed to step 3g.

e. If the office is at MSL11 or higher release, change the ESA firmware load name in the inventory table by typing

>CHA E2LOAD fw_load
where

fw_load	is the name of the new ESA processor firmware load

f. Confirm the change by typing

g. Exit the table by typing

>QUIT
and pressing the Enter key.

4 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

5 Post the ESA by typing

>POST ESA esa_no
and pressing the Enter key.

where

esa_no is the number of the ESA

Note: The ESA is ISTb due to the load mismatch with its inventory table. If necessary, wait for the ESA to change to ISTb before continuing with this procedure. If the ESA does not change to ISTb, confirm the XESAINV inventory table is correctly updated and the correct ESA is posted.

6 Review the update schedules for the office and determine if the ESA being updated is the first ESA to use the new load.

If the ESA being updated is	Do
the first ESA in the office to use the new load	step 8
not the first ESA in the office to use the new load	step 7

7 Assign the new load to the ESA by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b.

ATTENTION

After performing this step, do not use the DBAUDIT command unless the command is specified in this procedure. The use of the DBAUDIT command prior to the LOADPM command can link PRSUs from the previous load to the new PM load.

Assign the new load to the ESA by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET ESA esa_no
and pressing the Enter key.

where

new_load	is the name of the new load
esa_no	is the number of the ESA

Example

>ASSIGN UPGRADE_LD MSA12BC IN DESTSET ESA 0

c. Exit the utility by typing

>QUIT
and pressing the Enter key.

8 Determine which software release the office is currently at.

If	Do
the office is at MSL10 or lower	steps 9 through 10
the office is at MSL11 or higher and ESA processor is NTMX45AA	steps 11 through 13

9 Busy the ESA by typing

>BSY
and pressing the Enter key.

10 Load the ESA by typing

>LOADPM
and pressing the Enter key.

If the new load	Do
has PRSUs	step 15
does not have PRSUs	step 18

11

ATTENTION

To ensure the new firmware is loaded, steps 11 through 13 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 11 through 13. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 11 and 13 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the ESA by typing

>LOADFW
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

12 Busy the ESA by typing

>BSY
and pressing the Enter key.

If the ESA processor firmware load	Do
must be updated	step 13
does not need to be updated	step 14

13 Activate the firmware in the ESA by typing

>LOADFW UPGRADE
and pressing the Enter key.

14 Load the ESA by typing

>LOADPM
and pressing the Enter key.

If the new load	Do
has PRSUs	step 15
does not have PRSUs	step 18

15 Review the PM update checklist and determine if the ESA is the first ESA being updated in the office.

If the ESA being updated is	Do
the first ESA in the office to use the new load	step 16
not the first ESA in the office to use the new load	step 18

16 Apply the PRSUs by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database with the name of the new load by typing

>DBAUDIT ESA esa_no
and pressing the Enter key.

where

esa_no   is the number of the ESA

Example

>DBAUDIT ESA 0

c. Apply a PRSU by typing

>APPLY ’prsu_name IN ESA esa_no
and pressing the Enter key.

where

prsu_name   is the name of the PRSU (repeat variable as required)
esa_no   is the number of the ESA

Example of single-line command

>APPLY ’XOA01X11 I XOR93X11 I XRP49X11 IN PM ESA 0

Example of double-line command

>APPLY ’XOA01X11 I XOR93X11 I XRP49X11 I XRP50X11 I +
>’XUT10X11 I XUT13X11 I XUT14X11 IN ESA 0

Note: It is not necessary to apply the PRSUs in a particular order. PRSM automatically sorts the PRSUs if they are applied as a set.

17 Exit the utility by typing

>QUIT
and pressing the Enter key.

18 Return the ESA to service by typing

>RTS
and pressing the Enter key.

If the new load	Do
has PRSUs	step 19
does not have PRSUs	step 22

19 Use PRSM to confirm the ESA being updated has the correct PRSUs.

20 Use PRSM to confirm the ESA is properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according to the PM's current PRSU list by typing

>DBAUDIT ESA esa_no
and pressing the Enter key.

where

esa_no is the number of the ESA

Example

>DBAUDIT ESA 0

c. Display the list of PRSUs for the ESA by typing

>REPORT DEST ESA esa_no
and pressing the Enter key.

where

esa_no   is the number of the ESA

Example

>REPORT DEST ESA 0

d. Confirm all PRSUs for the new load are applied to the ESA being updated.

If	Do
all PRSUs for the new load are applied to the ESA	step 21
all PRSUs for the new load are not applied to the ESA	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 20b. If a DBAUDIT has been performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 21. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

21 Quit the utility by typing

>QUIT
and pressing the Enter key.

22 You have successfully updated the ESA and completed this procedure. Review the update schedule.

If there are	Do
additional ESAs to update in other PMs during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Finishing a PM update shift

Application

Use this procedure when completing a shift to update PMs in an office.

Prerequisites

The procedure “Starting a PM update shift” in this document should have been performed before performing this procedure.

Required information

Determine if the time of PRSM automated processes was changed when the procedure “Starting a PM update shift” was performed.

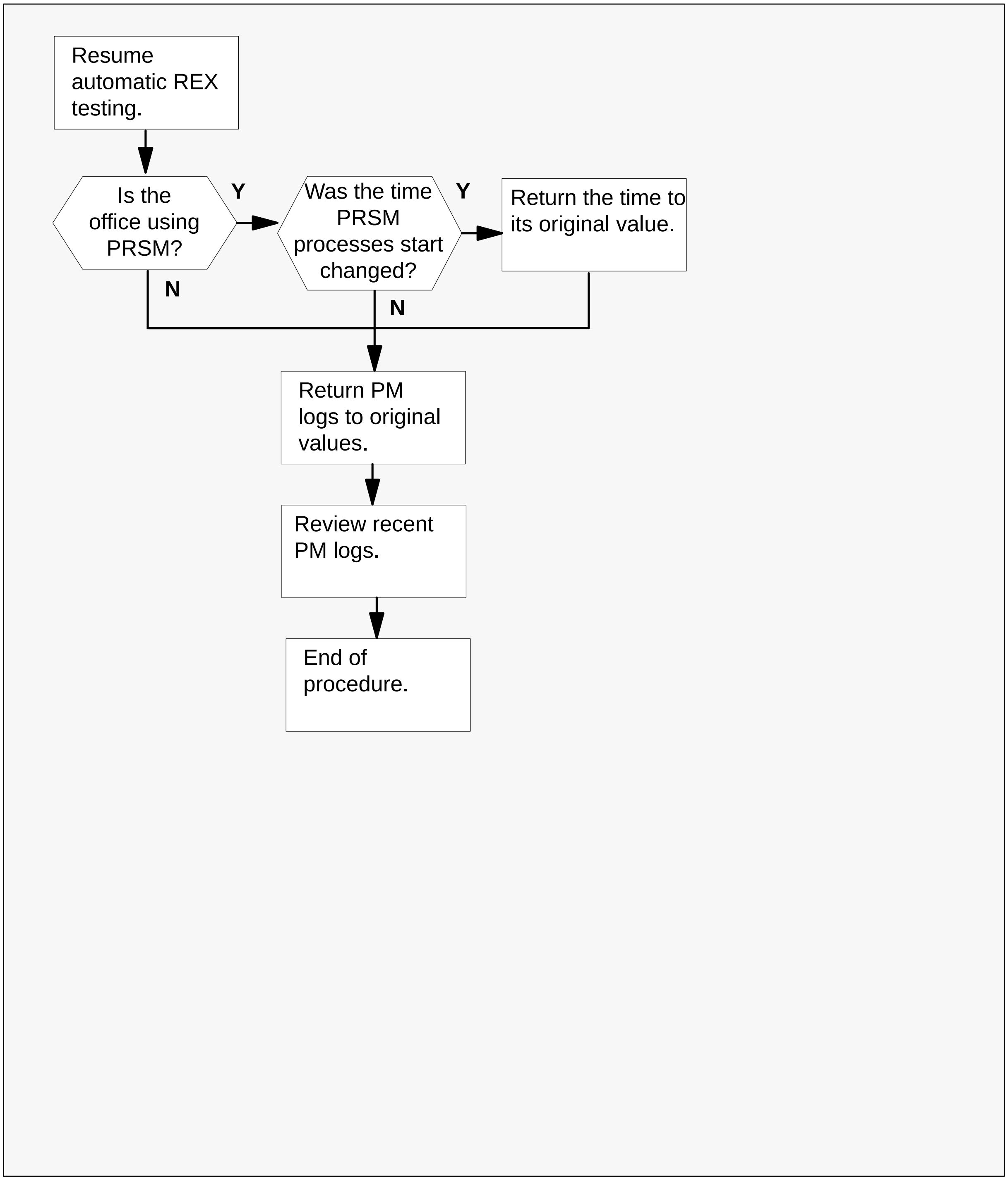
Update sequence

Not applicable

Notes

This procedure does not include steps to delete old load names from table PMLOADS or load files from the disk volume. Check office policy. Available memory may determine if load files are deleted during a PM update shift, after a PM update shift, or after completion of the office’s PM update. Office alarm clearing policy may determine when old load files are deleted from table PMLOADS.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Resume automatic REX testing. Type

>REXTEST RESUME ALL
and press the Enter key.

2 Review the activity for this shift to determine if the start time for PRSM automated processes was changed.

If the start time for PRSM automated processes	Do
was changed at the start of this shift	step 3
was not changed at the start of this shift	step 4

3 Change the time to the original time.

a. Access table AUTOOPTS. Type

>TABLE AUTOOPTS
and press the Enter key.

b. Change the time to the original time. Type

>CHA week_day old_time
and press the Enter key.

where

week_day	is the day of the week of the PM update shift
old_time	is the original time that PRSM automated processes start

c. Confirm the change. Type

>Y
and press the Enter key.

d. Display the table and confirm the change was made. Type

>LIS
and press the Enter key.

e. Exit the table. Type

>QUIT
and press the Enter key.

4 Return PM logs to their original states.

Note: This step may need to be modified and repeated, depending on the hardware types updated this shift. If an ESA was updated, return all ESA logs to their original states. If an MPC was updated, return all MPC logs to their original states. If an ENET was updated, return all ENET logs their original states. If an MS bus port circuit card (NT9X17) was updated, return all MS logs to their original states.

a. Access LOGUTIL. Type

>LOGUTIL
and press the Enter key.

b. Suspend any PM logs that were resumed at the beginning of this shift. Type

>SUPPRESS PM log_no
and press the Enter key.

where

log_no is the number of the log to be suspended

Note: Multiple logs can be suspended by telescoping their log number on the single SUPPRESS command. All PM logs can be suspended with the command SUPPRESS PM and no log numbers.

Example

```
>SUPPRESS  PM  129  181
```

c. Change the threshold values of any PM logs that were changed to 0 at the start of this shift. Type

>THRESHOLD th_value PM log_no
and press the Enter key.

where

th_value is the original threshold value, recorded during the procedure “Starting a PM update shift”
log_no is the number of the log

Note: Multiple logs can be thresholded by telescoping their log number on the single THRESHOLD command. All PM logs can be thresholded with the command THRESHOLD PM and no log numbers.

Example

```
>THRESHOLD  10   PM  129  181
```

d. Exit LOGUTIL. Type

>QUIT

and press the Enter key.

5 Review any recent logs. Verify the PMs and hardware types that were updated during this shift have remained in-service.

6 You have completed this procedure and successfully finished a PM update shift.

Updating the ILD

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the firmware in the ISDN line drawer (ILD) for remotes (ILDR).

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The ILD is in-service.

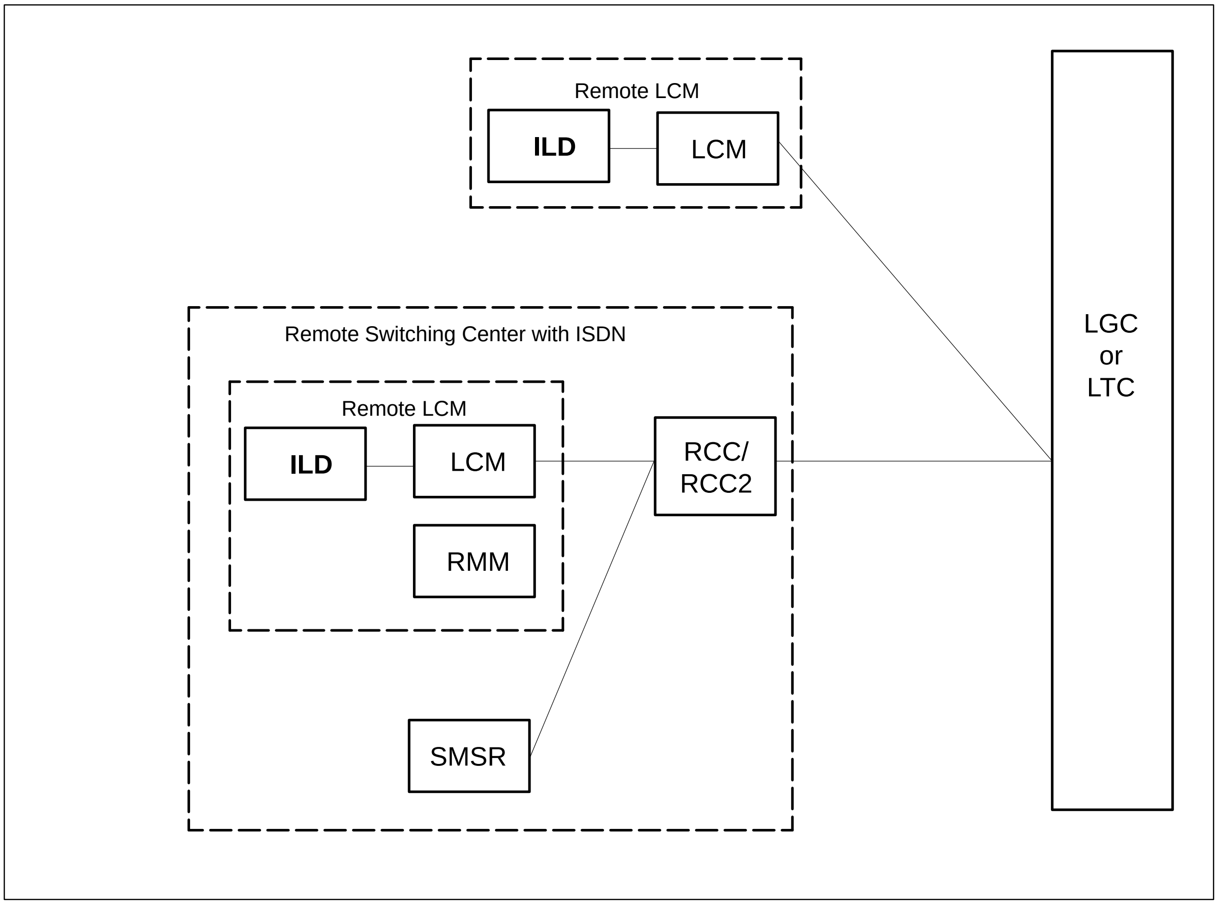
Required information

None

Update sequence

The next figure illustrates possible node configurations for the ILD. Serving PMs must be updated after the ILD.

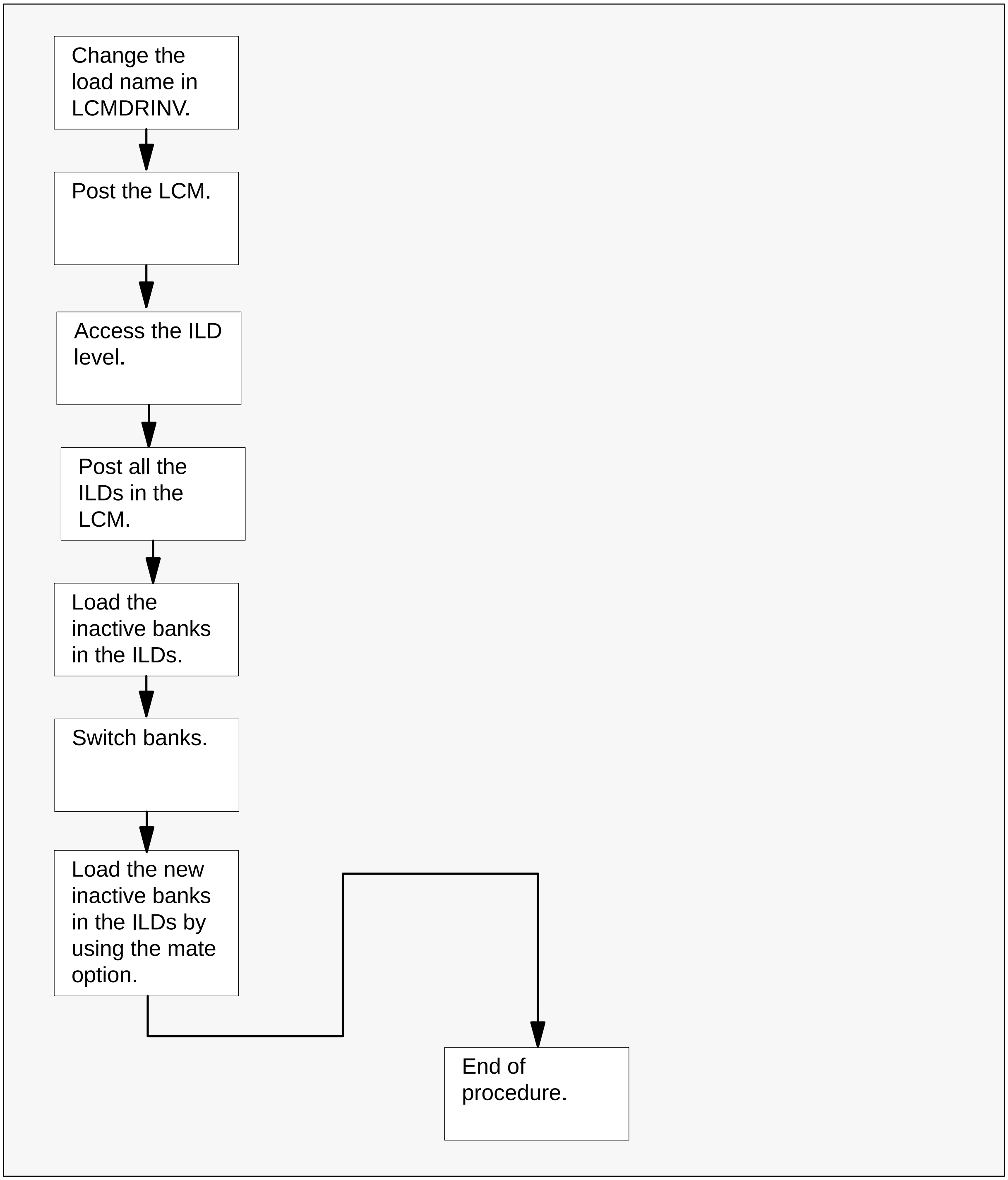
Node configuration for ILD



Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an LCM with ILDs to update.

2 Confirm all prerequisites for this procedure have been met.

3 Update the LCM drawer inventory table by performing the following steps.

a. Access the LCM drawer inventory table by typing

>TABLE LCMDRINV
and pressing the Enter key.

b. Position on the datafill tuple for the PM to be updated by typing

>POS site_name frame_no lcm_no
and pressing the Enter key.

where

site_name	is the name of the site
frame_no	is the number of the frame
lcm_no	is the number of the PM

Example of MAP response

```
RSCA  00  0
(0  NT6X54AA  NT6X05AA )  (1  NT6X54AA  NT6X05AA)
(2  NT6X54DA  NT6X05DA  IDAA08L)  (3 NILDRWR )  (4 NILDRWR )
(5  NT6X54AA  NT6X05AA )  (6  NT6X54AA  NT6X05AA)
(7  NT6X54DA  NT6X05DA  IDAA08L)  (8 NILDRWR )  (9 NILDRWR )  $
```

c. Begin changing the tuple by typing

>CHA
and pressing the Enter key.

The DMS switch prompts you to enter Y to continue processing, or N to quit. Enter Y to continue.

Example of MAP response

```
DRWRTAB:  0  NT6X54AA  NT6X05AA
```

d. Press the Enter key to scroll through the fields until the field with the ILD firmware load is reached.

Example of MAP response

```
DRWRTAB:  2  NT6X54DA  NT6X05DA  IDAA08L
```

e. Enter the new load name by typing

>drwr_id idc_pec ild_pec new_load
and pressing the Enter key.

where

drwr_id	is the physical number of the drawer
idc_pec	is the current NT6X54 PEC
ild_pec	is the current NT6X05 PEC
new_load	is the name of the new load

Example

>2 NT6X54DA NT6X05DA IDAA08AL

f. Press the Enter key to scroll through remaining fields, or repeat the previous steps to change the name of the ILD firmware load in the remaining drawers.

g. Confirm the change by typing

>Y
and pressing the Enter key.

h. Exit the table by typing

>QUIT
and pressing the Enter key.

4 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

5 Post the PM by typing

>POST LCM site_name frame_no lcm_no
and pressing the Enter key.

where

site_name	is the site of the LCM
frame_no	is the number of the frame
lcm_no	is the number of the LCM

6 Access the ILD level of the MAP display by typing

>ILD
and pressing the Enter key.

7 Post all of the ILDs by typing

>POST ALL
and pressing the Enter key.

8

ATTENTION

This command changes the maintenance state of the ILDs' drawer on the LCM to in-service trouble (ISTb). This change generates log PM181, a major alarm, and log PM128. Continue with the procedure. The alarm clears when the ILDs complete loading. Log PM106 indicates the alarm is cleared.

Load the inactive bank in all the ILDs by typing

>LOADPM ALL
and pressing the Enter key.

9 Confirm the action by typing

>Y
and pressing the Enter key.

Note: Wait approximately 15 minutes for the inactive bank in the ILDs to load with this command.

10

> **ATTENTION**
>
> After confirming to switch the banks in the ILD, the following warning is displayed.
>
> ```
> **WARNING**  A COLD Switch Bank will be performed.
> All existing calls will be dropped.
>
> CONTINUE
> Please confirm (“YES”, “Y”, “NO”, or “N”)
> ```

Switch banks in the ILDs by typing

>SWBNK
and pressing the Enter key.

If the prompt is confirmed with YES or Y, the status of the ILD is made system-busy and the banks are switched.

11

> **ATTENTION**
>
> This command changes the maintenance state of the ILDs’ drawer on the LCM to in-service trouble (ISTb). This change generates log PM181, a major alarm, and log PM128. Continue with the procedure. The alarm clears when the ILDs complete loading. Log PM106 indicates the alarm is cleared.

Load the new inactive bank in all the ILDs by typing

>LOADPM MATE ALL
and pressing the Enter key.

12 Confirm the action by typing

>Y
and pressing the Enter key.

> ***Note:*** Wait approximately five minutes for the inactive bank in the ILD to load from the mate bank with this command.

13 You have successfully updated the ILD and completed this procedure. Review the update schedule.

If there are	Do
additional LCMs with ILDs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the IOM

Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the input output module (IOM).

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- An office image has been taken in the last 24 hours.
- All IOC logs are enabled.
- The IOM is in-service.
- Automatic REX testing is suspended in the office.
- Determine if you need to download a new IOM load, or reprogram the IOM board with the new IOM load. Reprogramming the IOM board requires TOOLSUP access to the UPGIOM command.

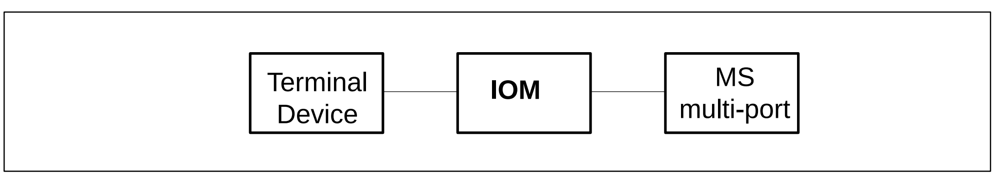
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the IOM. Serving PMs must be updated after the IOM.

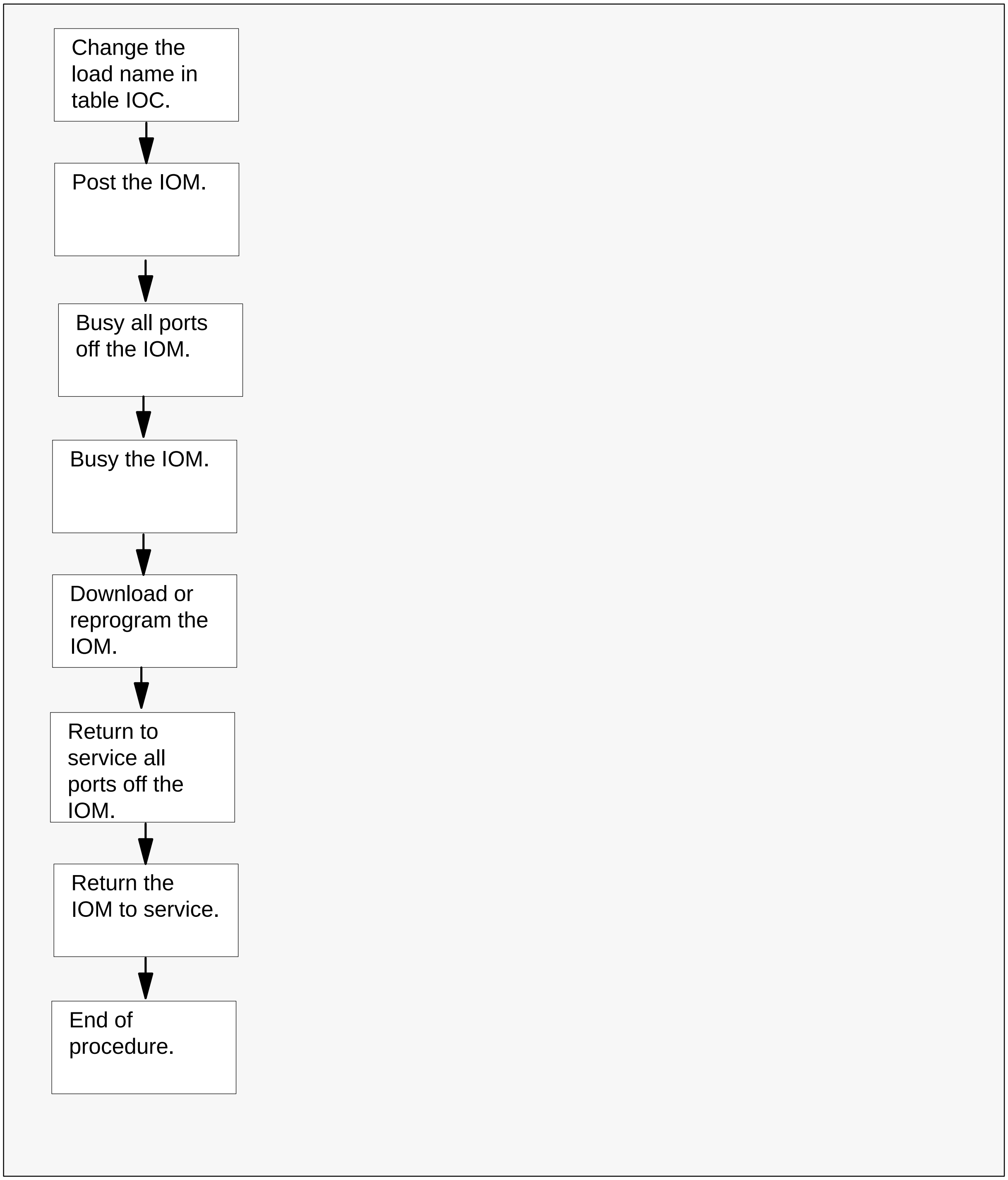
Node configuration for IOM



Notes

None.

Summary of procedure



Steps of procedure

> **ATTENTION**
>
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another node to update.

At the CI level of the MAP display

1 Select an IOM to update.

2 Confirm all prerequisites for this procedure have been met.

3 Change the load name in the inventory table by performing the following steps.

a. Access the IOC inventory table, type

>TABLE IOC
and pressing the Enter key.

If you wish to view the tuples in	Do
a packed format	step 3b.
a regular or expanded format	step 3c.

b. Change the format of the display to a packed format, type

>FORMAT PACK
and pressing the Enter key.

c. Position on the datafill tuple for the IOM to be updated, type

>POS ioc_no
and pressing the Enter key.

where

ioc_no is the number of the IOM being updated

Example

>POS 0

d. Position on field PECINFO, type

>CHA PECINFO
and pressing the Enter key.

e. Press the Enter key to scroll through the fields until prompted for the DFILE name.

f. Enter the new load name, type

>new_load
and pressing the Enter key.

where

new_load   is the name of the new load

Example

>IOMRAH01

g. Press the Enter key to scroll through the fields until prompted for the device name.

h. Enter the name of the device with the new load file, type

>dev_name
and pressing the Enter key.

where

dev_name   is the name of the device with the new load file

Example

>S00DPMLOADS

i. Confirm the change, type

>Y
and pressing the Enter key.

Note: The IOM indicates a MisM (mismatch) condition at the IOC level of the MAP display. This is because of the load mismatch with the inventory table. The MAP display will update within one minute of this action. Continue with this procedure.

4 Exit from the table, type

>QUIT
and pressing the Enter key.

5 Access the IOC level of the MAP display, type

>MAPCI;MTC;IOD;IOC ioc_no
and pressing the Enter key.

where

ioc_no   is the number of the IOM

Example

>MAPCI;MTC;IOD;IOC 4

6 Busy the IOM in-service ports, type

>PORT port_no;BSY
and pressing the Enter key.

where

port_no — is the number of the IOM in-service port

Example

>PORT 0;BSY

7 Repeat step 6 for all in-service ports.

8 Return to the IOC MAP level, type

>QUIT

9 Busy the IOM, type

>BSY IOC
and pressing the Enter key.

10 Determine if you need to download the new IOM load, or reprogram the IOM board with the new IOM load.

Note: Reprogramming the IOM board requires access to the UPGIOM tool.

If you need to	**Do**
download the IOM load	step 11
reprogram the IOM board	step 12

11 Download the IOM load to the IOM board, type

>DOWNLD
and pressing the Enter key.

Go to step 13.

12 Reprogram the IOM board with the IOM load.

CAUTION
Downloading the IOM load file
The UPGIOM command downloads the complete IOM load file as specified. The UPGIOM command also provides options for reprogramming the flash.

ATTENTION
The IOM load file must be listed before the UPGIOM command can be used, If necessary, list the volume containing the IOM load file before continuing with this step.

a. Access the TOOLSUP control, type

>TOOLSUP
and pressing the Enter key.

b. Access the UPGIOM tool, type

>ACCESS on UPGIOM
and pressing the Enter key.

Note: The command response will ask for a password. Call Nortel (Northern Telecom) to obtain the password. Enter the password and press the Enter key.

c. Exit the TOOLSUP control, type

>QUIT
and pressing the Enter key.

d. Re-program the IOM board, type

>UPGIOM new_load RPGM
and pressing the Enter key.

where

new_load	is the name of the IOM load
RPGM	is the optional parameter indicating if the reprogramming option is specified

Example

>UPGIOM IOMRAU01 RPGM

If the reprogram	
passes	continue to step 13
does not pass	Contact the next level of support.

13 Return the IOM busied ports to service, type

>PORT port_no;RTS
and pressing the Enter key.

where

port_no	is the number of the IOM busied port

Example

>PORT 0;RTS

14 Repeat step 13 for all IOM ports busied in step 6.

15 Return the IOM to service, type

>RTS IOC
and pressing the Enter key.

16 Query the IOM and confirm it has the correct load, type

>QIOM
and pressing the Enter key.

If the IOM	Do
has the correct load	step 17
does not have the correct load	Troubleshoot the problem or contact the next level of support.

17 You have successfully updated the IOM and completed this procedure. Review the update schedule for the office.

If there are	Do
additional IOMs to update during this shift	Repeat this procedure for each IOM.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the IPE Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic. Because the IPE is not redundant, all traffic will be lost during this procedure.

Use this procedure to update the intelligent peripheral equipment (IPE).

Prerequisites

Office and PM conditions

This procedure requires that the office and the IPE to be updated meet the following conditions prior to updating.

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The IPE is in-service
- Automatic REX testing is suspended in the office.

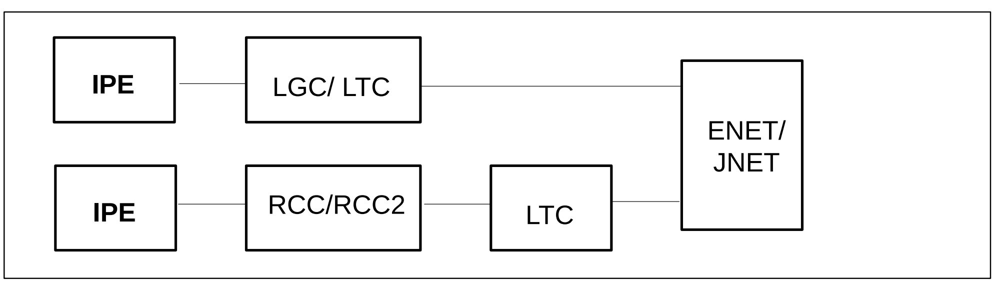
Performing the procedures “Preparing for a PM update” and “Starting a PM update shift” in this document will ensure these prerequisites are met.

Required information

Be sure that you know whether you are upgrading from an NT7DO7AC controller card to an NT7DO7BA controller card, or whether you are just upgrading the IPE software. When upgrading to an NT7DO7BA, follow the IM section of 65–5466.

Update sequence

Node configuration for IPE



Subtending PMs

None

Serving PMs

The following table lists possible serving PMs to the IPE. Any subtending PMs in the node must be updated before the IPE.

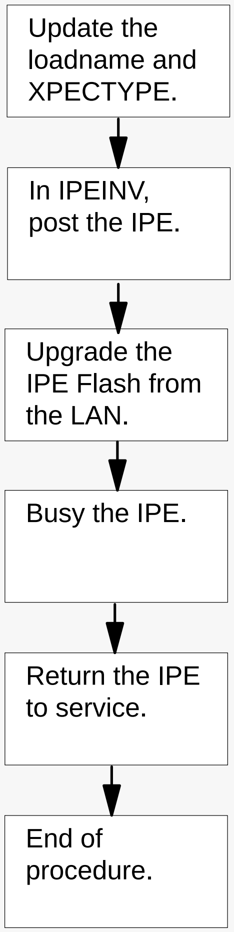
Possible serving PMs to the IPE

PM	Description
LGC	Line group controller
LTC	Line trunk controller
RCC	Remote cluster controller
RCC2	Remote cluster controller 2

Notes

None

Summary of procedure to update an NT7D07BA controller card for MSL11 and up



This flowchart summarizes the procedure.

Follow the instructions listed after the flowchart to perform this procedure.

Steps of procedure

> **ATTENTION**
>
> Follow office policy if a command fails during this procedure. If an RTS command fails, for example, office policy may require you to either contact the next level of support, terminate all update activities for the shift, troubleshoot the problem and return the PM to service, or select another PM to update. Office policy may vary by PM type.

At the CI level of the MAP display

1 Select an IPE to update.

2 Review the introduction to this procedure. All prerequisites must be met before beginning this procedure.

3 Access the IPE inventory table by typing

>TABLE IPEINV
and pressing the Enter key.

4 Position on the datafill tuple for the IPE to be updated by typing

>POS IPENM ipe_no
and pressing the Enter key.

where
ipe_no   is the number of the IPE (0 to 511)

5 **NT7D07AC:** Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where
new_load   is the name of the new load

NT7D07BA: Change the following fields:

LOAD: Datafill the required IPE load by typing, for example,

>CHA LOAD eipe11at
and pressing the Enter key.

TUPLE TO BE CHANGED:

HOST 01 0 7 IPEC 0 1 A 0 8D37DC EIPE11AT

LTC 0 HIPE N (7) (5) (6) (4)$ 8 STANDARD

Change the following fields:

XPECTYPE: Enter ENHANCED for the NT7D07BA

XPECTYPE: STANDARD

>CHA CNTRLCD enhanced
STATE: Enter ENABLED if there is a LAN connection required. Enter DISABLE if no LAN connection is required.

STATE:

>ENABLED
If STATE IS ENABLED, enter IPADDR (which is the IP address for the card), SUBNET and DFLT_GWY (Default Gateway) from you facility group.

IPADDR:

>47 198 136 125 (example)
SUBNET:

>255 255 255 0 (example)
DFLT_GWY

>47 198 128 1 (example)
The following message appears:

************PLEASE BE AWARE***********

Changes from STANDARD to ENHANCED or changes to the IP Port information requires the IPE to be BSYed and RTSd.

6 Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM will change state to `ISTb`. This is due to the load mismatch between the inventory table and the PM. Continue with this procedure.

7 Exit the table by typing

>QUIT
and pressing the Enter key.

8 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

9 Post the IPE by typing

>POST IPE ipec_no shelf_no
and pressing the Enter key.

where
ipec_no is the number of the IPE column (0 to 127)

CAUTION
The BSY command takes subscribers out of service
Busying the posted IPE takes all subscribers on that IPE out of service.

10 Busy the selected IPE by typing

>BSY PM
and pressing the Enter key.

11 Enter YES to confirm by typing

>YES
and pressing the Enter key.

12 **NT7D07AC:** Load the selected IPE by typing

>LOADPM
and pressing the Enter key.

NT7D07BA: This step can be skipped. The NT7D07BA already comes with an initial load in Flash Memory.

13 Return the selected IPE to service by typing

>RTS PM
and pressing the Enter key.

14 **NT7D07AC:** You have successfully updated the IPE and completed this procedure. If there are other PMs or hardware types to update during this shift, go to the appropriate procedure in this document. If this is the last PM or hardware type to be updated during this shift, go to “Finishing a PM update shift” in this document.

15 **NT7D07BA:** Instructions to upgrade the NT7D07BA flash through the LAN must be obtained from Nortel Networks TAS until the Optivity Telephony Manager (OTM) is available. Once OTM is available, all flash upgrades will be performed by OTM.

Updating the ELCM, LCM or LCME

Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.
>
> Do not use parallel loading to update remote LCMs or LCMEs. Update each remote PM individually.

Use this procedure to update one of the following types of PMs.

PM	Description
ELCM/LCM	Line concentrating module (LCM) (64 Kbyte)
	ELCM/LCM (256 Kbyte)
	Remote LCM (RLCM) (64 Kbyte)
	RLCM (256 Kbyte)
LCME	Enhanced line concentrating module with ISDN (LCME)

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure.

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The ELCM, LCM or LCME is in-service.
- The ELCM, LCM or LCME successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Required information

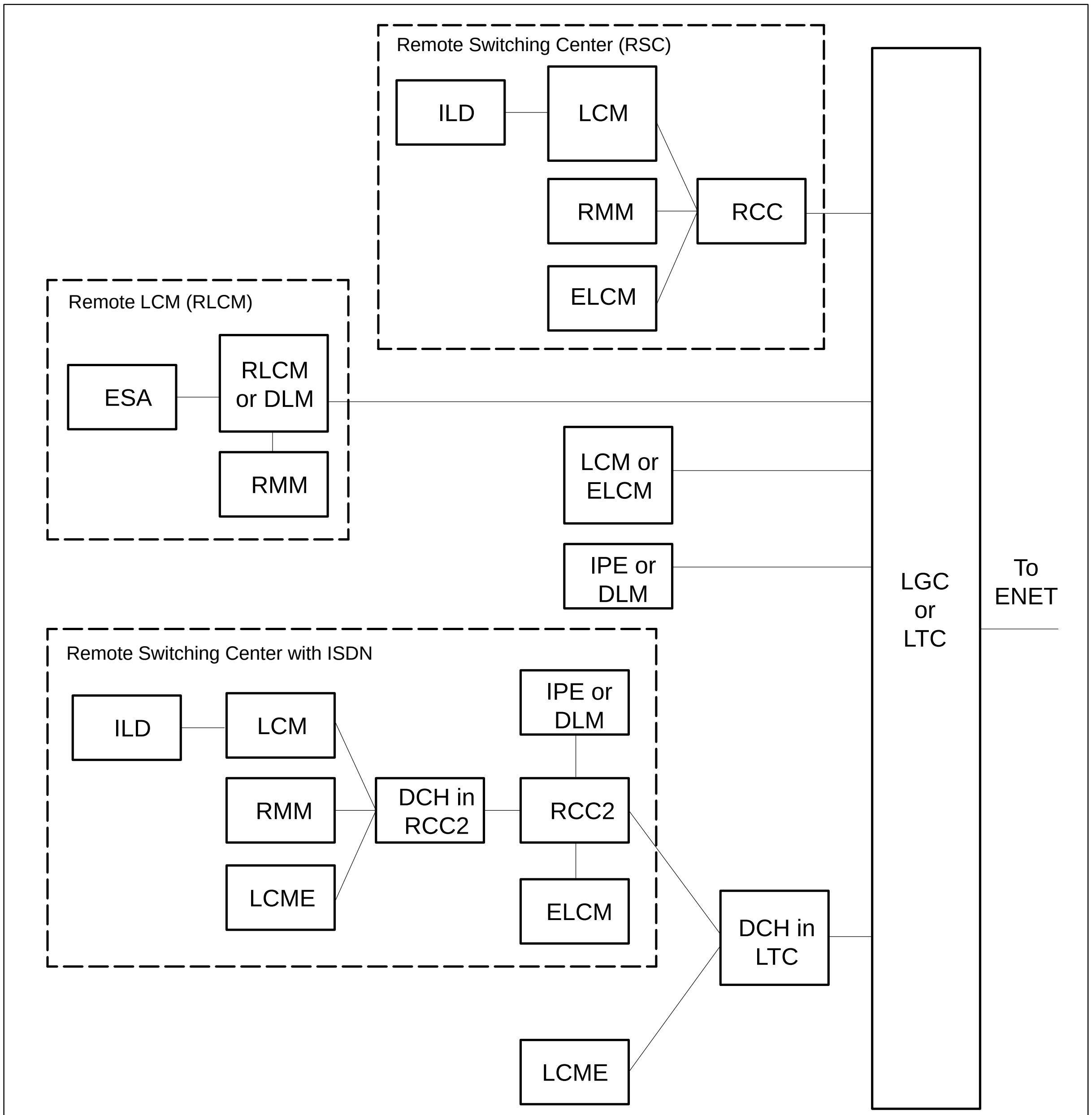
None

Update sequence

The following figure illustrates possible node configurations for the ELCM, LCM or LCME. Subtending PMs must be updated prior to the ELCM,

LCM or LCME. Serving PMs must be updated after the ELCM, LCM or LCME.

Node configuration ELCM, LCM or LCME

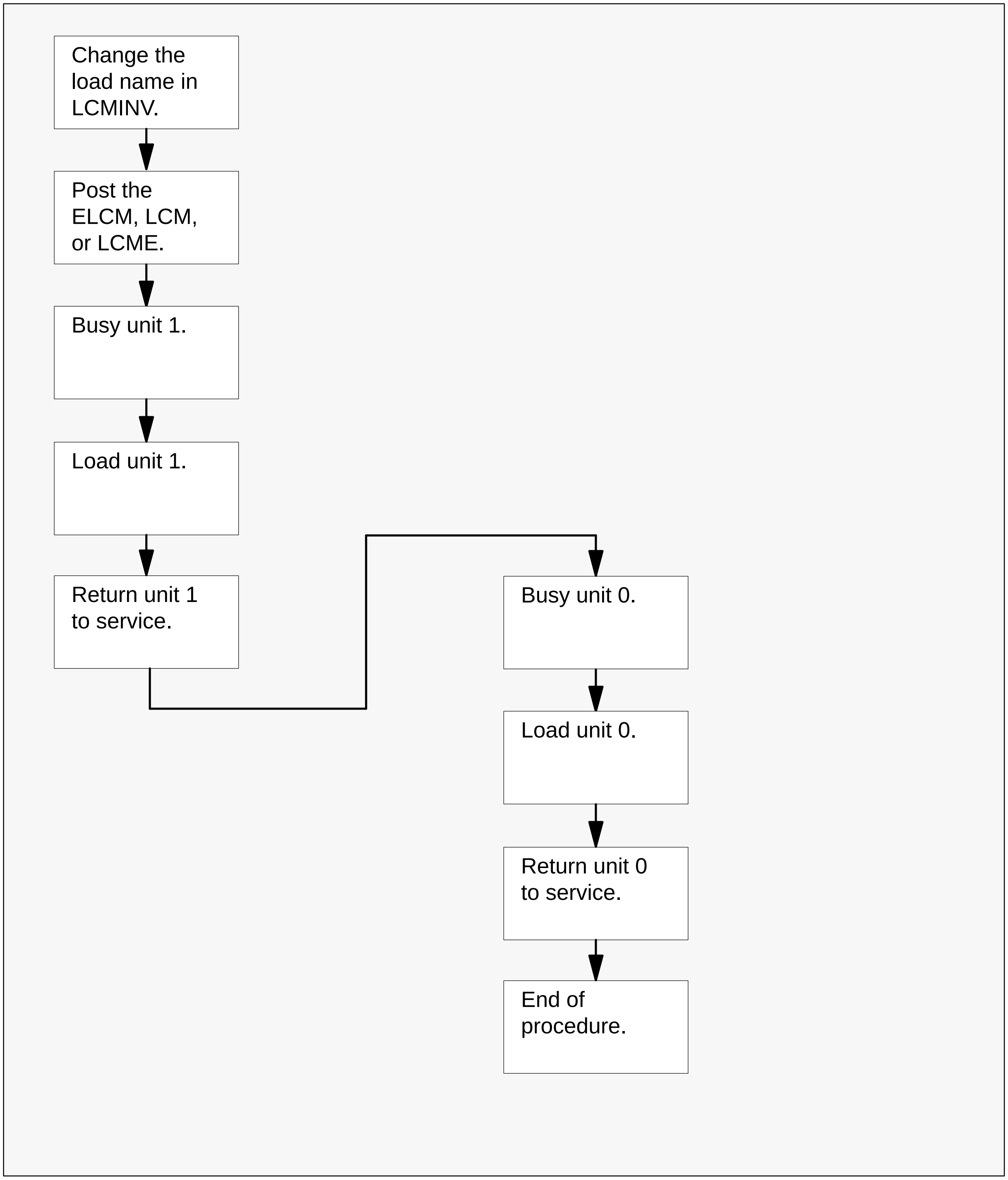


***Note*:** The DCH card must be updated before its serving PM, but it can be updated prior to other subtending PMs in the node. Refer to DCH updates in “Overview of update process” in this document.

Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an ELCM, LCM or LCME to update.

2 Confirm all prerequisites for this procedure have been met.

3 Update the LCM inventory table by performing the following steps.

a. Access the LCM inventory table by typing

>TABLE LCMINV
and pressing the Enter key.

b. Position on the datafill tuple for the PM to be updated by typing

>POS site_name frame_no lcm_no
and pressing the Enter key.

where

site_name	is the name of the site
frame_no	is the number of the frame
lcm_no	is the number of the PM

c. Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load	is the name of the new load

d. Confirm the change by typing

>Y
and pressing the Enter key.

e. Exit the table by typing

>QUIT
and pressing the Enter key.

4 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

5 Post the PM by typing

>POST lcm_type site_name frame_no lcm_no
and pressing the Enter key.

where

lcm_type	is ELCM, LCM or LCME
site_name	is the site of the LCM
frame_no	is the number of the frame
lcm_no	is the number of the LCM

Note 1: The field SITE_NAME is optional with host-based LCMs.

Note 2: The PM is ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

6 Busy unit 1 by typing

>BSY UNIT 1
and pressing the Enter key.

7 Load unit 1 by typing

>LOADPM UNIT 1 CC
and pressing the Enter key.

8 Return unit 1 to service by typing

>RTS UNIT 1
and pressing the Enter key.

9 Busy unit 0 by typing

>BSY UNIT 0
and pressing the Enter key.

10 Load unit 0 by typing

>LOADPM UNIT 0 CC
and pressing the Enter key.

11 Return unit 0 to service by typing

>RTS UNIT 0
and pressing the Enter key.

12 You have successfully updated the ELCM, LCM or LCME and completed this procedure. Review the update schedule.

If there are	Do
additional ELCMs, LCMs or LCMEs to update during this shift	Repeat this procedure or follow the recommendations in “Overview of manual update process” and use parallel loading on the remaining ELCMs, LCMs or LCMEs.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.
Note: Update each remote ELCM, LCM or LCME individually. Do not use the procedure “Using parallel loading to update ELCMs, LCMs or LCMEs” in this document for remote ELCM, LCMs or LCMEs.	

Preparing for a manual PM update

Application

> **ATTENTION**
> Only maintenance technicians experienced with PM loading should perform this procedure.

Use this procedure to prepare an office for a manual peripheral module (PM) update. Perform this procedure once after receiving the PM load and patch tapes.

Note: If the SLM tape cartridge label text indicates *Patches: Yes*, the tape includes the required PRSUs for XPM and ISN load files.

Prerequisites

Meet the following prerequisite before using this procedure.

$XREF patch control file

The $XREF patch control file is included when PRSUs are delivered to the office on a 9-track tape or a SLM tape cartridge, labeled *Patches: Yes*. This patch control file is not included when PRSUs are downloaded directly to the office through the Customer Services Computerized Access Network (C-SCAN).

Update sequence

Not applicable

Required information

None

Notes

The following section provides add information.

PMLOAD alarm

This procedure creates a PMLOAD alarm under the PM banner. This is a minor alarm generated when there is a mismatch between the datafilled PM loads in table PMLOADS and the existing software loads on disk. Local office policy may require modifications in this procedure and to the procedure “Starting a PM update shift” in this document to reduce the number and length of PMLOAD alarms.

PRSU files for new ISN loads

Keep a copy of the ISN PRSU files associated with the new loads for the ONP. These files allow the MSL-100 switch to populate the PRSM database with information on the new files. The PRSM database requires complete information to determine prerequisites for removal action. The ISN PRSU files may be erased after the ONP has successfully completed.

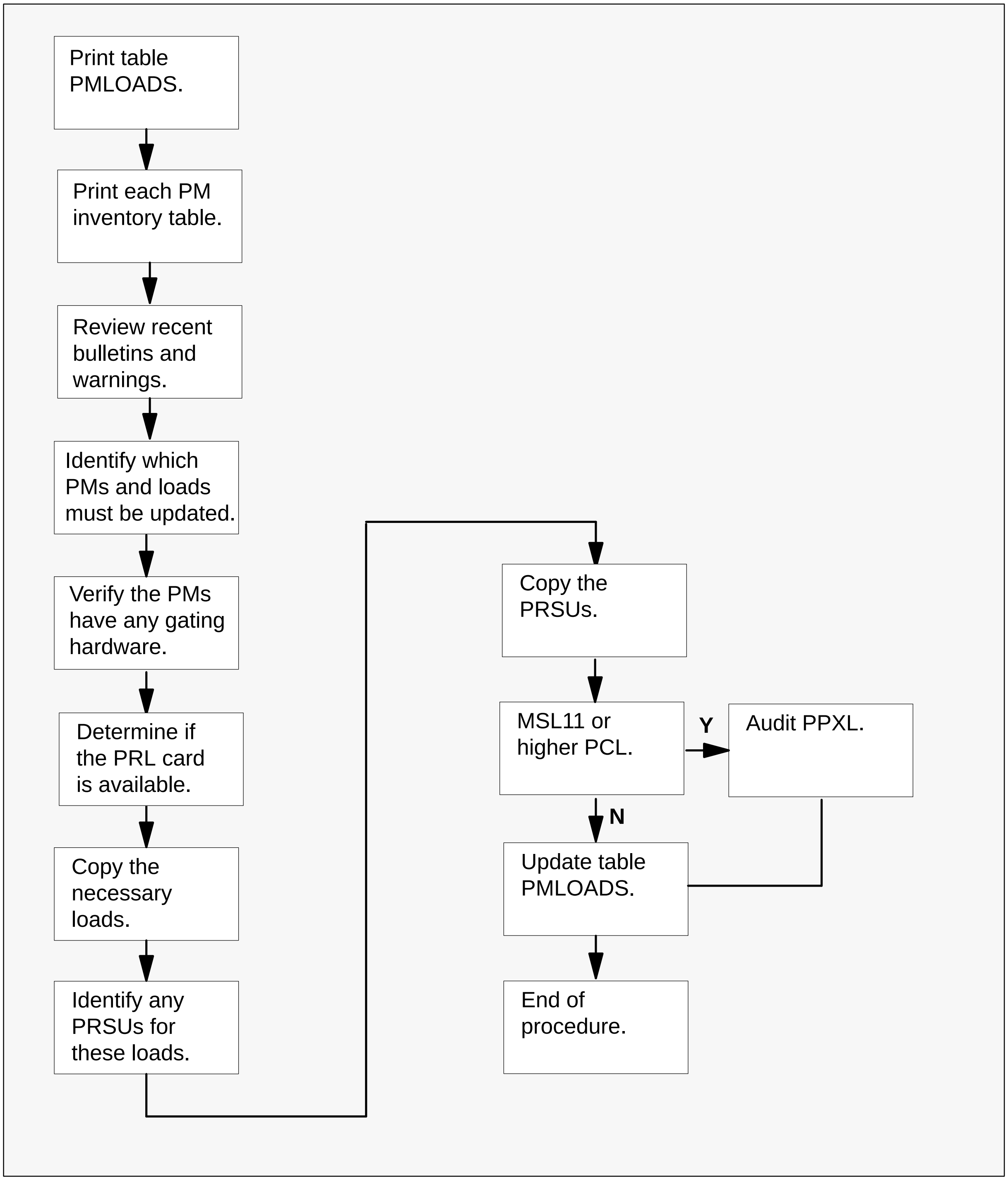
PRSU files for old ISN loads

PRSUs associated with the previous ISN loads may remain at a status of Not Validated (NV). A problem occurs if patches for the previous ISN loads were applied with PATCHER and these previous patch files are not accessible by PRSM. This problem is not service affecting. The previous PRSU files will not be listed after the ONP. If you wish to manually change the PRSU status, perform a VALIDATE with the PRSU file present. The VALIDATE changes the status to Not Needed (NN).

PRSU files for pre-patched ISN loads

PRSU files for pre-patched ISN loads must be located in SFDEV or on a device datafilled in table PADNDEV. The method the office uses to download PRSUs may require deviations from this procedure.

Summary of procedure



Steps of procedure

ATTENTION Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Send the terminal responses to a printer. Type

>RECORD START ONTO prntr_name
and press the Enter key.

where

prntr_name — is the name of the printer

Example

`>RECORD START ONTO PRNTR1`

2 Print the contents of table PMLOADS by performing the following steps.

a. Access table PMLOADS by typing

>TABLE PMLOADS
and press the Enter key.

b. List the contents by typing

>LIST ALL
and press the Enter key.

c. Exit table PMLOADS by typing

>QUIT
and press the Enter key.

3 Print the contents of each PM inventory table by performing the following steps.

a. Access an inventory table by typing

>TABLE pm_inv
and press the Enter key.

where

pm_inv — is the name of the PM inventory table

Example

`>TABLE ltcinv`

If you wish to view the tuples in	Do
a packed format	step 3b.
a regular or expanded format	step 3c.

b. Change the format of the display to a packed format. Type

>FORMAT PACK
and press the Enter key.

c. List the contents by typing

>LIST ALL
and press the Enter key.

d. Exit the table by typing

>QUIT
and press the Enter key.

e. Repeat steps 3a. through 3d. for each PM inventory table in the office.

At your desk

4 Review all bulletins and warnings related to this update and this PM software release document.

5 Identify the loads and PM types to be updated. Compare the contents of table PMLOADS with the loads listed in the PM to load cross reference table in chapter one of this document. If the version of a load changes from the current release to the new release, the load must be updated.

Identify the PMs of each PM type to be updated. Use the contents of the PM inventory tables.

Note: A new XPM processor firmware load does not indicate a need to update the firmware for every PM in the office. Refer to the “Overview of release” chapter in this document for assistance in determining the PMs that require an XPM processor firmware update.

6 Review this document and the appropriate PM inventory tables to determine if any of the PMs to be updated have a PRL circuit card. If any of the PMs have a PRL circuit card, check office policy and determine if the PRL circuit card is to be used in this office update.

7 Confirm any gating hardware requirements for each PM. Review this information in the PM to load cross reference table in the “Overview of release” chapter in this document.

Note: All PMs and all releases do not have gating hardware.

If each PM	Do
has the required hardware	step 8
does not have the required hardware	Contact the next level of support. This office is not prepared for a PM software update.

8 Copy the necessary PM load and PRSU file to a SLM disk volume by performing the following steps.

At the MAP display

a. Access the disk utility. Type

>DISKUT
and press the Enter key.

b. Select an SLM disk volume for the new PM load and PRSU file.

At the SLM tape drive

c. Place the SLM tape cartridge into the SLM tape drive for the selected SLM disk volume.

At the MAP display

d. Mount the SLM tape cartridge in the SLM tape drive. Type

>IT drive_no
and press the Enter key.

where

drive_no is the number of the SLM tape drive

Example

```
>IT S00T
```

e. List the contents of the tape. Type

>LF drive_no SHORT FIRST
and press the Enter key.

where

drive_no is the number of the SLM tape drive

Example of command

```
>LF S00T SHORT FIRST
```

f. Verify each required load is on the tape.

If each required load	Do
is on the tape	step 8g.
is not on the tape	Contact the next level of support. The tape may be missing loads critical to the office.

g. Verify the tape contains the $XREF patch control file.

If the SLM tape cartridge label text	Do
indicates *Patches: Yes*	step 8h.
indicates *Patches: No*	step 8j.

h. Copy the $XREF file to the SLM disk volume. Type

>MFR STDVOL disk_vol drive_no tape_vol $XREF_file
and press the Enter key.

where

disk_vol	is the name of the SLM disk volume
drive_no	is the number of the SLM tape drive
tape_vol	is the PCL-specific SLM tape cartridge volume name
$XREF_file	is the $XREF filename

Example

```
>MFR STDVOL S00DPMLOADS S00T PLNA0014 XPM13RTP$XREF
```

i. Print the $XREF file to identify the PRSUs for the PM load files.

>PRINT $XREF_file
and press the Enter key.

where

$XREF_file	is the XPMxxRTP$XREF patch control file name

Example of command

```
>PRINT XPM13RTP$XREF
```

j.

> **ATTENTION**
>
> The PM load files must be copied from the SLM tape cartridge in sequential order based on the output of step 8e. Otherwise, the SLM tape cartridge rewinds unnecessarily and increases the time to complete the copy process.

Copy one PM load file. Type

>MFR STDVOL disk_vol drive_no tape_vol new_load
and press the Enter key.

where

disk_vol	is the SLM disk volume name
drive_no	is the SLM tape drive number
tape_vol	is the PCL-specific SLM tape cartridge volume name
new_load	is the new PM load file name

Example of command for a base load

```
>MFR STDVOL S00DPMLOADS S00T PLNA0013 LPC11BA
```

Example of command for a PPXL

```
>MFR STDVOL S00DPMLOADS S00T PLNA0014 ECL11BD_990503
```

k. Repeat step 8j. for each required PM load file to be copied.

Note: Some offices require all PM load files to be copied. Check office policy. Use the following MFR command syntax to copy a maximum of five PM load files identified in the command string.

>MFR STDVOL disk_vol drive_no tape_vol new_load new_load new_load new_load new_load

l. List the SLM disk volume contents to verify all PM load files are in the volume. Type

>LF disk_vol
and press the Enter key.

where

disk_vol	is the SLM disk volume name

Example of command

```
>LF S00DPMLOADS
```

If all PM load files	Do
are in the volume	step 9
are not in the volume	step 8j.

9 Copy the PM load files from the active SLM disk volume to a backup SLM disk volume. Perform the following steps.

a. List the active PM load file SLM disk volume contents. Type

>LF disk_vol
and press the Enter key.

where

disk_vol	is the SLM disk volume name

Example of command

```
>LF SOODPMLOADS
```

b. Select a different SLM disk volume to store the backup PM load files.

c. Copy one PM load file. Type

>COPY new_load disk_vol
and press the Enter key.

where

new_load	is the new PM load file name
disk_vol	is the backup SLM disk volume name

Example of command

```
>COPY LPC11BA S01DPMLOADS
```

d. Repeat step 9c. for each PM load file.

e. List the backup PM load file SLM disk volume contents to verify all PM load files are in the volume. Type

>LF disk_vol
and press the Enter key.

where

disk_vol	is the backup SLM disk volume name

Example of command

```
>LF S01DPMLOADS
```

If all PM load files	Do
are in the backup volume	step 10
are not in the backup volume	step 9c.

10 Identify and copy the PRSU files. Perform the following steps.

a. Review the following PRSU delivery methods. Go to step 13 if no PRSUs require loading.

If PRSUs are delivered to the office	Do
on a SLM cartridge labeled *Patches: Yes*	step 10b.
on a 9-track tape	step 11

Note: Some offices may receive their PRSUs through C-SCAN. These offices may need to revise these procedures to suit their configurations.

b.

ATTENTION

The PRSU files must be copied from the SLM tape cartridge in sequential order based on the output of step 8e. Otherwise, the SLM tape cartridge rewinds unnecessarily and increases the time to complete the copy process.

Copy one PRSU file. Type

>MFR STDVOL disk_vol drive_no tape_vol prsu_id
and press the Enter key.

where

disk_vol	is the SLM disk volume name
drive_no	is the SLM tape drive number
tape_vol	is the PCL-specific SLM tape cartridge volume name
prsu_id	is the PRSU file name

Example of command

```
>MFR STDVOL S00DPMLOADS S00T PLNA0014 XBV37X11
```

Note: The PRSUs for a pre-patched XPM load (PPXL) file must reside in the same SLM disk volume that contains the PPXL file.

c. Repeat step 8b. for each PRSU file.

Note: Some offices require all PRSU files to be copied. Check office policy. Use the following MFR command syntax to copy a maximum of five PRSU files identified in the command string.

>MFR STDVOL disk_vol drive_no tape_vol prsu_id prsu_id prsu_id prsu_id prsu_id

d. List the SLM disk volume contents to verify all PRSU files are in the volume. Type

>LF disk_vol
and press the Enter key.

where

disk_vol   is the SLM disk volume name

Example of command

```
>LF S00DPMLOADS
```

If all PRSU files	Do
are in the volume	step 8e.
are not in the volume	step 8b.

e. Eject the SLM tape cartridge. Type

>ET drive_no
and press the Enter key.

where

drive_no   is the SLM tape drive number

Example of command

```
>ET S00T
```

At the SLM tape drive

f. Remove the SLM tape cartridge. Go to step 12.

11 Identify and copy the PRSUs. Perform the following steps.

At the 9-track tape drive

a. Place the 9-track PRSU tape on the tape drive.

b. Mount the tape. Type

>MOUNT drive_no
and press the Enter key.

where

drive_no   is the number of the drive

Example of command

```
>MOUNT 0
```

c. List the contents of the tape. Type

>TLIST Tdrive_no
and press the Enter key.

where

drive_no   is the number of the tape drive

Example of command

```
>TLIST T0
```

d. Print the contents of the tape. Type

>PRINT TAPE$DIR
and press the Enter key.

e. Copy the $XREF file to the SLM disk volume. Type

>COPY $XREF_file disk_vol
and press the Enter key.

where

$XREF_file   is the XPMxxRTP$XREF file name
disk_vol   is the SLM disk volume name

Example of command

```
>COPY XPM13RTP$XREF S00DPMLOADS
```

f. Print the $XREF file and identify the PRSUs for the PM load files. Type

>PRINT $XREF_file
and press the Enter key.

where

$XREF   is the XPMxxRTP$XREF patch control file name

Example of command

```
>PRINT XPM13RTP$XREF
```

g. Copy one PRSU file. Type

>COPY prsu_id disk_vol
and press the Enter key.

where

prsu_id   is the PRSU file name
disk_vol   is the SLM disk volume name

Example of command

```
>COPY XBV37X11 S00DPMLOADS
```

Note: The PRSUs for a PPXL file must reside in the same SLM disk volume that contains the PPXL file.

h. Repeat step 11g. for each PRSU file.

Note: Check office policy. Some offices require all PRSU files to be copied. Use the FCOPY command to copy all PRSU files.

>FCOPY drive_no disk_vol

i. List the SLM disk volume contents to verify all PRSU files are in the volume. Type

>LF disk_vol
and press the Enter key.

where

disk_vol is the SLM disk volume name

Example of command

`>LF S00DPMLOADS`

If all PRSU files	Do
are in the volume	step 11j.
are not in the volume	step 11g.

j. Demount the tape. Type

>DEMOUNT Tdrive_no
and press the Enter key.

where

drive_no is the tape drive number

Example of command

`>DEMOUNT T0`

At the 9-track tape drive

k. Remove the 9-track tape.

At the MAP display

12 Copy the PRSU files from the active SLM disk volume to a backup SLM disk volume. Perform the next steps.

a. List the active PRSU file SLM disk volume contents. Type

>LF disk_vol
and press the Enter key.

where

disk_vol is the SLM disk volume name

Example of command

`>LF SOODPMLOADS`

b. Select a different SLM disk volume to store the backup PRSU files.

c. Copy one PRSU file. Type

>COPY prsu_id disk_vol
and press the Enter key.

where

prsu_id	is the PRSU file name
disk_vol	is the backup SLM disk volume name

Example of command

```
>COPY XBV37X8A S01DPMLOADS
```

d. Repeat step 12c. for each PRSU file.

e. List the backup PRSU file SLM disk volume contents to verify all PRSU files are in the volume. Type

>LF disk_vol
and press the Enter key.

where

disk_vol	is the backup SLM disk volume name

Example of command

```
>LF S01DPMLOADS
```

If all PRSU files	Do
are in the backup volume	step 13
are not in the backup volume	step 12c.

At the MAP display

13 Quit the utility. Type

>QUIT
and press the Enter key.

If	Do
any of the new PM loads are PPXLs, and the office is at BASE12 or higher	step 14
any of the new PM loads are PPXLs, and the office is at BASE11 or lower	step 15
none of the new PM loads are PPXLs	step 15

14 Audit the PPXL load file and update the PRSM database.

a. Access the PRSM utility by typing

>PRSM
and press the Enter key.

b. Audit one PPXL load file by typing

>LFAUDIT PPXL loadname loadfilename disk_vol
and press the Enter key.

where

loadname	is the name of the base load of the PPXL
loadfilename	is the complete PPXL file name with the date extension
disk_vol	is the SLM disk volume where the PPXL file resides

Example of command

>LFAUDIT PPXL ECL11BD ECL11BD_990503 S00DPMLOADS

Example of MAP response

```
>Audit ok
```

c. Repeat step 14b. for each new PPXL used in the office.

d. Quit the PRSM utility by typing

>QUIT
and press the Enter key.

15 Update table PMLOADS with the names of the new loads.

a. Access table PMLOADS by typing

>TABLE PMLOADS
and press the Enter key.

If you wish to view the tuples in	Do
a packed format	step 15b.
a regular or expanded format	step 15c.

b. Change the format of the display to a packed format by typing

>FORMAT PACK
and press the Enter key.

c. Add the new PM load name by typing

>ADD new_load actfile actvol bkpfile bkpvol N
and press the Enter key.

where

new_load	is the new PM load file name
actfile	is the new PM load file name
actvol	is the active SLM disk volume name
bkpfile	is the new PM load file name
bkpvol	is the backup SLM disk volume name

Example command for a base load

>ADD LPC11BA LPC11BA S00DPMLOADS LPC11BA S00DPMLOADS N

Example command for a PPXL

>ADD ECL11BD ECL11BD_990503 S00DPMLOADS ECL11BD_990503 S01DPMLOADS N

Note 1: A base load may also be used in field BKPFILE.

Note 2: Automatic loadfile PRSU application, as specified in field UPDACT, is not available. The only acceptable value for field UPDACT is N.

Note 3: Do not add the MS bus port card (NT9X17) load to table PMLOADS. Only table MSFWLOAD contains this load name. Update table MSFWLOAD during the procedure “Updating the MS multi-port card (NT9X17)” in this document.

d. Confirm the addition by typing

>Y
and press the Enter key.

e. Repeat step 15c. and 15d. for each load to be updated.

f. Exit table PMLOADS by typing

>QUIT
and press the Enter key.

16 Stop the terminal responses from printing. Type

>RECORD STOP ONTO prntr_name
and press the Enter key.

where

prntr_name	is the name of the printer

Example of command

```
>RECORD STOP ONTO PRNTR1
```

17 You have completed this procedure and successfully prepared the office for a PM update. The PM update must now be scheduled. Refer to chapters “Overview of release” and “Overview of update process” in this document.

Updating the MPC

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update one of the following types of multi-protocol controllers (MPC).

PM	Description
MPC	MPC for X.25 1980 CCIT compliant protocol (MPC0)
	MPC for X.25 1984 CCIT compliant protocol (MPC4)
	Asynchronous MPC (MPCA)
	MPC for TATS CRTSIM (MPCC)
	MPC for X.25 protocol in packet switch network and synchronous V.32 dialup (MPCX)

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All MPC logs are enabled.
- The MPC is in-service.
- Automatic REX testing is suspended in the office.
- The MPC is a NT1X89 circuit card contained in an IOC shelf. This procedure does not apply to an MPC that is in an IOM.

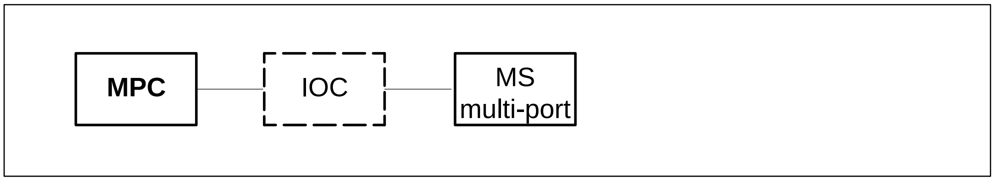
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the MPC. Serving PMs must be updated after the MPC.

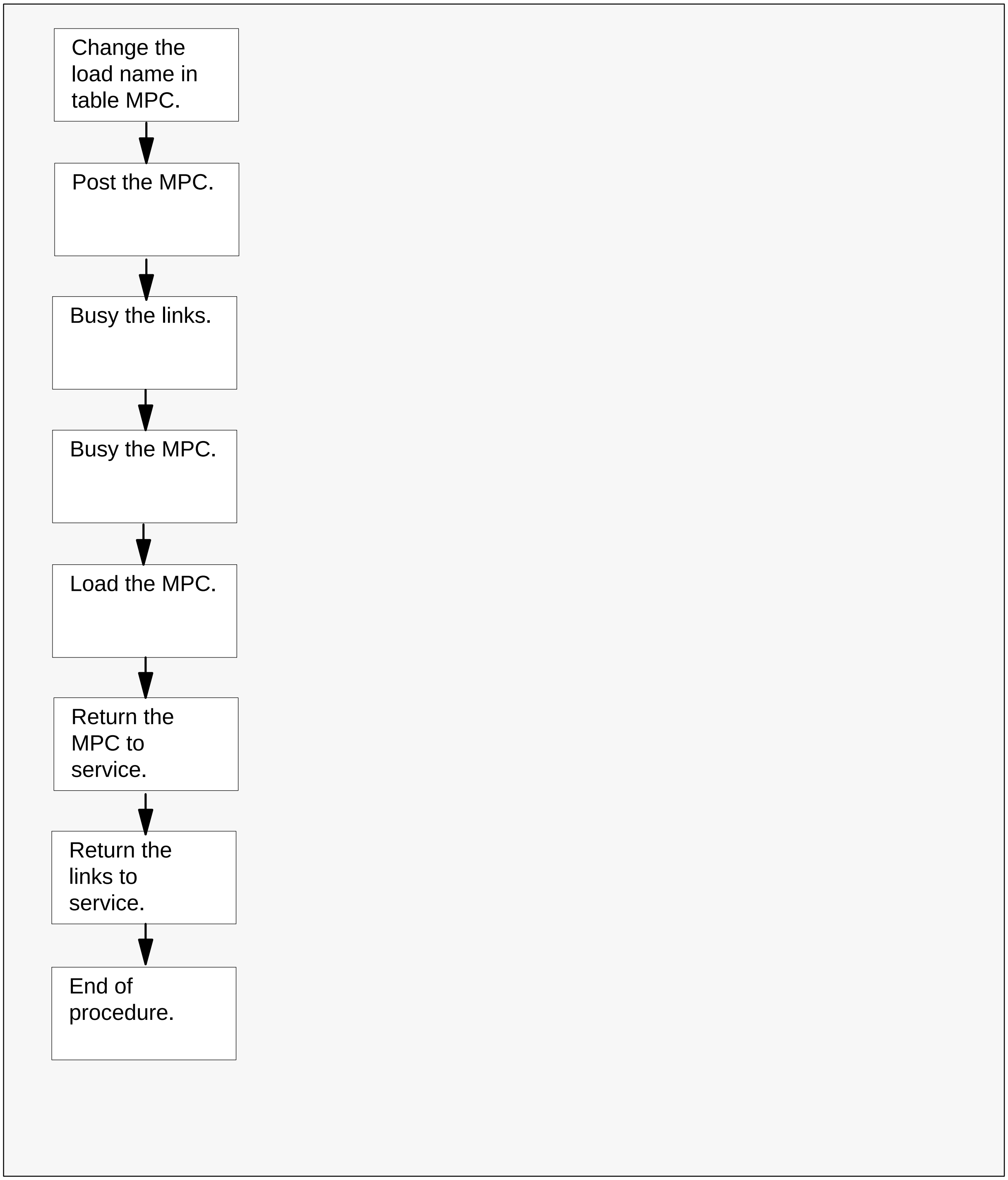
Node configuration for MPC



Notes

Determine the types of services the MPC uses and follow the appropriate procedures to remove the service and notify appropriate customers. Services the MPC may use include network operations protocol (NOP), simplified message desk interface (SMDI), and automatic call distribution (ACD).

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another MPC to update.

At the CI level of the MAP display

1 Select an MPC to update.

2 Confirm all prerequisites for this procedure have been met.

3 Access the MPC inventory table by typing

>TABLE MPC
and pressing the Enter key.

4 Position on the datafill tuple for the MPC to be updated by typing

>POS mpc_no
and pressing the Enter key.

where

mpc_no	is the number of the MPC

5 Check the loadname displayed. If the loadname is IOM$LOAD, this MPC is in an IOM, and does not require separate updating. Go to step 20.

6 Change the load name to the new load name by typing

>CHA DLDFILE new_load
and pressing the Enter key.

where

new_load	is the name of the new load

7 Confirm the change by typing

>Y
and pressing the Enter key.

Note: The MPC state changes to in-service trouble (ISTb) due to the load mismatch with the inventory table. Continue with this procedure.

8 Exit the table by typing

>QUIT
and pressing the Enter key.

9 Access the IOD level of the MAP display by typing

>MAPCI; MTC; IOD
and pressing the Enter key.

10 Display the MPCs by typing

>LISTDEV MPC
and pressing the Enter key.

11 Record the IOC number and MPC number for the MPC to be updated.

12 Post the MPC by typing

>IOC ioc_no; MPC mpc_no
and pressing the Enter key.

where

ioc_no	is the number of the IOC
mpc_no	is the number of the MPC

Note: The MPC state changes to ISTb due to the load mismatch with its inventory table. If necessary, wait for the MPC to change to ISTb before continuing with this procedure. If the MPC does not change to ISTb, confirm the inventory table is correctly updated and the correct MPC is posted.

13 Busy all the MPC links by typing

>BSY LINKS
and pressing the Enter key.

14 Busy the MPC by typing

>BSY
and pressing the Enter key.

15 Load the MPC by typing

>DOWNLD
and pressing the Enter key.

16 Return the MPC to service by typing

>RTS
and pressing the Enter key.

17 Wait for the Ready prompt.

18 Return the busied MPC links to service by typing

>RTS LINKS
and pressing the Enter key.

19 Wait for the links to become enabled.

20 You have successfully updated the MPC and completed this procedure. Review the update schedule.

If there are	Do
additional MPCs to update during this shift	Repeat this procedure for each MPC.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the MS multi-port card (NT9X17)

Application

CAUTION
Possible service interruption
Only a maintenance technician experienced with MS updating should perform this procedure.

Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the firmware load in the following message switch (MS) multi-port cards.

PEC	Description
NT9X17BB	DMS-Bus 32-port card
NT9X17CA	DMS-Bus 128-port card
NT9X17DA	MS 64-port card

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- An office image has been taken in the last 24 hours.
- All MS logs are enabled.
- The MS is in-service.
- The MS successfully passed its last REX test.
- Automatic REX testing is suspended in the office.
- All PMs and other hardware types in the office have been updated.

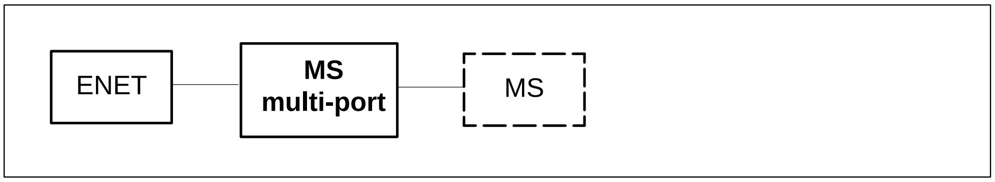
Required information

None

Update sequence

The next figure illustrates the node configuration for the MS multi-port card. All PMs and other hardware types, including the ENET, are considered subtending PMs. They must be updated prior to the MS multi-port card during a PM update. The MS should be updated after the MS multi-port card as part of the front-end update.

Node configuration for MS multi-port card

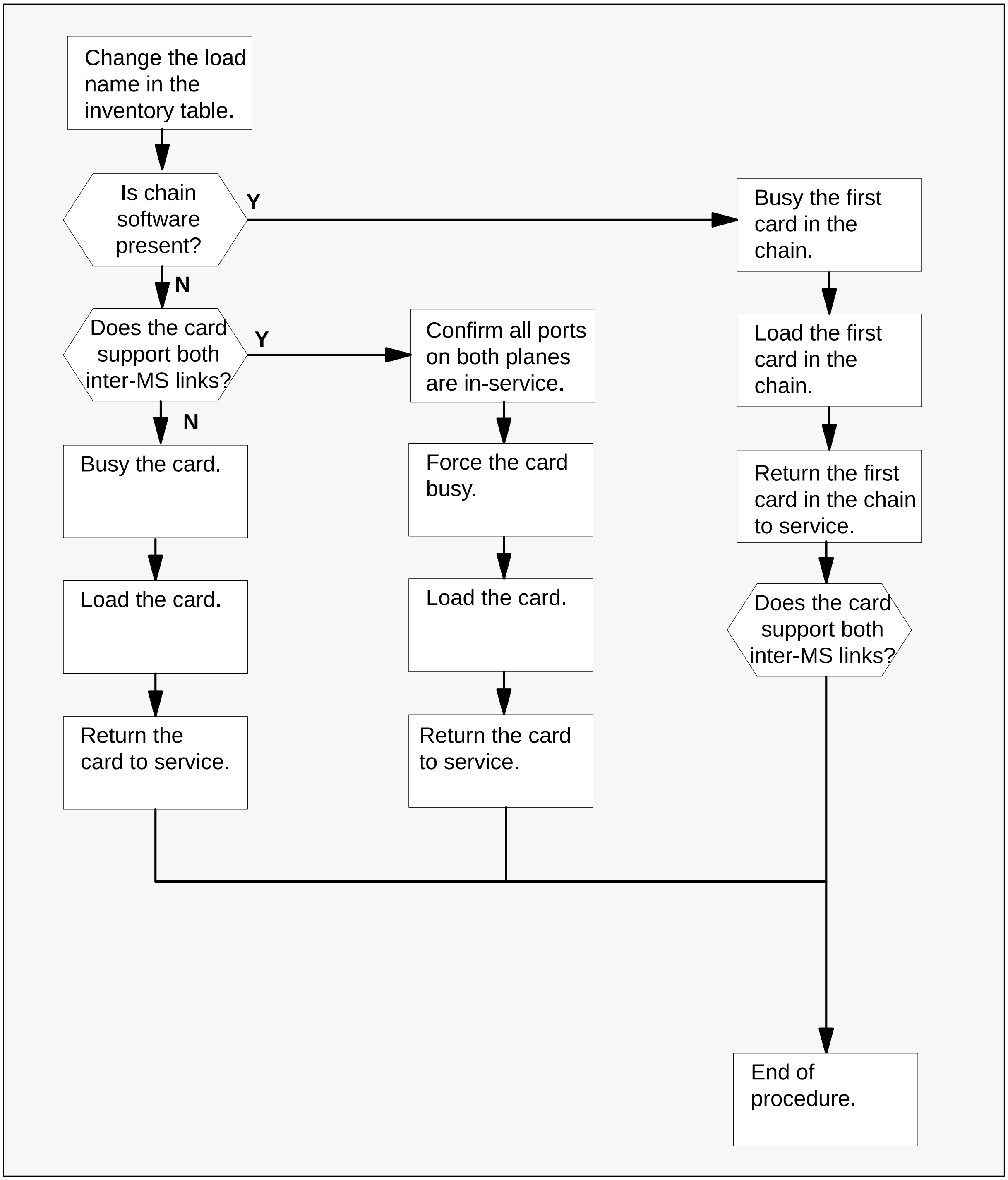


Notes

Any circuit cards on the mate message switch (MS) that have not been updated become in-service trouble, because of the mismatch between the firmware and the load datafilled in table MSFWLOAD.

Do not datafill the new load name in table PMLOADS, this results in a PMLOAD alarm.

Summary of procedure (per MS port circuit card)



Steps of procedure

> **ATTENTION**
>
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an MS and MS multi-port card (NT9X17) to update.

2 Confirm all prerequisites for this procedure have been met.

3 Update the MS firmware inventory table by performing the following steps.

a. Access the MS firmware inventory table by typing

>TABLE MSFWLOAD
and pressing the Enter key.

b. Position on the datafill tuple for the card to be updated by typing

>POS nt9x17_pec
and pressing the Enter key.

where

nt9X17_pec	is the full PEC of the card

Example

>POS NT9X17DA

c.

> **ATTENTION**
>
> If the load name has a date extension, it is a pre-patched load. Do not datafill the date extension. Refer to “Overview of release” in this document for more information on date extensions and pre-patched loads.
>
> If the device name must be changed, use the CHA command without parameters to step through the tuple and change the necessary information.

Change the current firmware load name to the new firmware load name by typing

>CHA FILENAME 9x17_load
and pressing the Enter key.

where

9x17_load is the name of the new firmware load

Example

>CHA FILENAME MPF13BD

d. Confirm the change by typing

>Y
and pressing the Enter key.

If the MS shelf	Do
has additional multi-port cards to be updated	step 3b.
does not have additional multi-port cards to be updated	step 3e.

e. Exit the table by typing

>QUIT
and pressing the Enter key.

4 Access the SHELF level of the MAP display for the MS with the MS multi-port card being updated by typing

>MAPCI; MTC; MS; SHELF
and pressing the Enter key.

5 Look at the CHAIN configuration line and determine if shelf has chain software. Chain software is present if the symbols **|** or <>, which indicate chain entities, are present.

If chain software is	Do
present	step 6
not present	step 7

6 All cards in the chain must be busied and returned to service as a group during the update process. Perform the following steps.

a. Select a chain on the shelf.

b. Busy the first card in the chain by typing

>BSY ms_no card_no CHAIN
and pressing the Enter key.

where

ms_no	is the number of the MS
card_no	is the number of the first card in the chain

Note: Busying the first card will busy all the cards in the chain.

Example

>BSY 0 5 CHAIN

c.

ATTENTION

Do not use the FROM parameter to load the 9X17 circuit card from another circuit card. Use the LOADCD command as specified in this procedure to load the circuit card from the inventory table.

Load the first circuit card in the chain by typing

>LOADCD ms_no card_no
and pressing the Enter key.

where

ms_no	is the number of the MS
card_no	is the number of the circuit card

Note: The MAP display responds with a message indicating an incompatible load. Continue with the procedure.

Example

>LOADCD 0 5

d. Confirm the action by typing

>Y
and pressing the Enter key.

Note: Skip this step if not asked to confirm the action.

e. Complete the previous two steps for each circuit card in the chain.

f. Return the circuit card in the chain to service by typing

>RTS ms_no card_no CHAIN
and pressing the Enter key.

where

ms_no	is the number of the MS
card_no	is the number of the first circuit ard in the chain

Example

>RTS 0 5 CHAIN

Note: Returning the first circuit card to service, returns all the circuit cards in the chain to service.

g. Repeat step 6 for each chain on the shelf.

h. If necessary, repeat step 6 for each shelf in the MS.

i. Go to step 11.

7

> **CAUTION**
> **Possible service interruption**
> Contact the next level of support if you are unable to determine if the NT9X17 circuit card supports both inter-MS links. Incorrect busying and loading of the NT9X17 circuit card can cause service interruptions.

Review office records or use the TRNSL P command to determine if the NT9X17 supports both inter-MS links.

If the NT9X17	Do
supports both inter-MS links	step 8
does not support both inter-MS links	step 10

8

> **CAUTION**
> **Possible service interruption**
> All ports on both MS planes must in-service before updating an NT9X17 circuit card that supports both inter-MS links on the same circuit card.
>
> Contact the next level of support if unable to determine if all ports on both MS planes are in-service.

Confirm all ports on both MS planes are in-service.

If all ports on both MS planes are	Do
in-service	step 9
not in-service	Troubleshoot the problem and return to this step. If unable to troubleshoot the problem, contact the next level of support.

9 Busy, load, and return to service each NT9X17 on the shelf by performing the following steps.

a. Select a circuit card to update.

b. Busy the circuit card by typing

>BSY ms_no card_no FORCE
and pressing the Enter key.

where

ms_no	is the number of the MS
card_no	is the number of the circuit card

Example

>BSY 0 5 FORCE

c.

ATTENTION
Do not use the FROM parameter to load the 9X17 circuit card from another circuit card. Use the LOADCD command as specified in this procedure to load the circuit card from the inventory table.

Load the circuit card by typing

>LOADCD ms_no card_no
and pressing the Enter key.

where

ms_no	is the number of the MS
card_no	is the number of the circuit card

Example

>LOADCD 0 5

Note: The MAP display responds with a message indicating an incompatible load. Continue with the procedure.

d. Confirm the action by typing

>Y
and pressing the Enter key.

e. Return the circuit card to service by typing

>RTS ms_no card_no
and pressing the Enter key.

where

ms_no	is the number of the MS
card_no	is the number of the circuit card

Example

>RTS 0 5

f. Repeat step 9 for each NT9X17 on the shelf.

g. If necessary, repeat step 9 for each shelf in the MS.

h. Go to step 11.

10 Busy, load, and return to service each NT9X17 circuit card on the shelf by performing the following steps.

a. Select a card to update.

b. Busy the circuit card by typing

>BSY ms_no card_no
and pressing the Enter key.

where

ms_no	is the number of the MS
card_no	is the number of the circuit card

Example

>BSY 0 5

c.

ATTENTION

Do not use the FROM parameter to load the 9X17 circuit card from another circuit card. Use the LOADCD command as specified in this procedure to load the circuit card from the inventory table.

Load the circuit card by typing

>LOADCD ms_no card_no
and pressing the Enter key.

where

ms_no	is the number of the MS
card_no	is the number of the circuit card

Note: The MAP display responds with a message indicating an incompatible load. Continue with the procedure.

Example

>LOADCD 0 5

d. Confirm the action by typing

>Y
and pressing the Enter key.

e. Return the circuit card to service by typing

>RTS ms_no card_no
and pressing the Enter key.

where

ms_no	is the number of the MS
card_no	is the number of the circuit card

Example

>RTS 0 5

f. Repeat step 10 for each NT9X17 circuit card on the shelf.

g. If necessary, repeat step 10 for each shelf in the MS.

11 You have successfully updated the MS multi-port circuit card and completed this procedure. After a soak period of four hours, or as defined by office policy, use this procedure to update the MS port bus circuit cards in the other MS. If this is the end of the shift, go to “Finishing a PM update shift” in this document.

Updating the MTM Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update one of the following types of peripheral modules (PM).

PM	Description
MTM	Maintenance trunk module (MTM) Remote MTM MTM on integrated services module (ISM) shelf

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The MTM is in service.
- All automatic routine exercise (REX) tests are suspended.

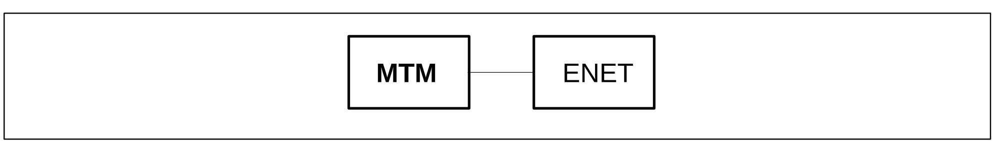
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the MTM. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

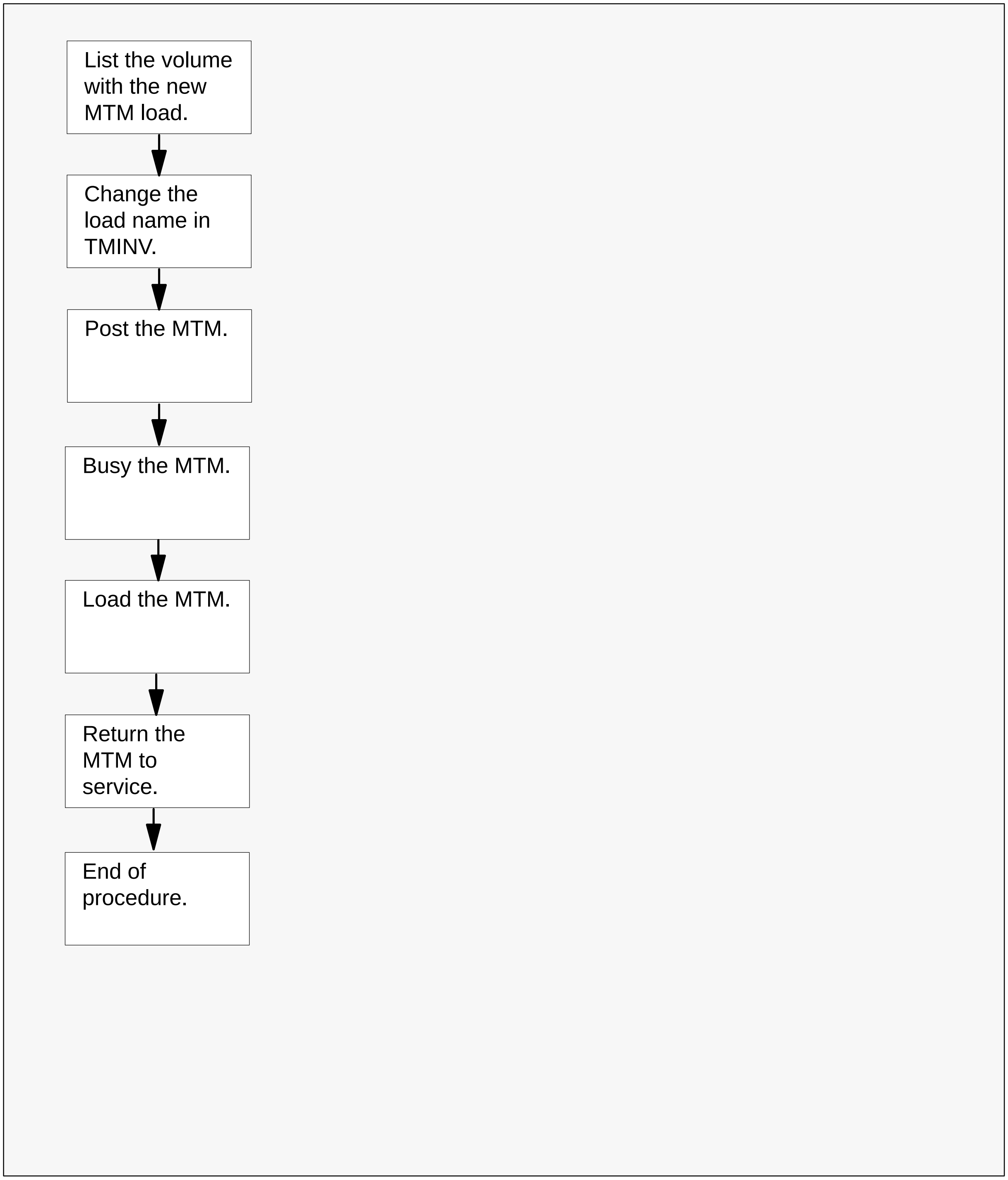
Node configuration for MTM



Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. For example, if an RTS command fails office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an MTM to update.

2 Review the prerequisites at the start of this procedure. Confirm you meet these prerequisites.

If the load files are stored on a	Do
DDU device	step 3
SLM device	step 4

3 List the volume with the new load.

a. Enter the disk utility. Type

>DSKUT
and press the Enter key.

b. List the disk volume. Type

>LISTVOL vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LISTVOL  D000DPMLOADS
```

c. Skip step 4 and go to step 5.

4 List the volume with the new load.

a. Enter the disk utility. Type

>DISKUT
and press the Enter key.

b. List the disk volume. Type

>LF vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LF  S01DPMLOADS
```

5 Exit the disk utility. Type

>QUIT
and press the Enter key.

6 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE TMINV
and press the Enter key.

b. Position on the tuple for the MTM. Type

>POS MTM mtm_no
and press the Enter key.

where

mtm_no is the number of the MTM

Example of command

```
>POS  MTM  11
```

c. Change the load name in the tuple to the new load name. Type

>CHA LOAD new_load
and press the Enter key.

where

new_load is the name of the new load

Example of command

```
>CHA  LOAD  MTMKA02
```

d. Confirm the change. Type

>Y
and press the Enter key.

e. Close the PM inventory table. Type

>QUIT
and press the Enter key.

7 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM
and press the Enter key.

8 Post the MTM. Type

>POST MTM mtm_no
and press the Enter key.

where

mtm_no is the number of the MTM

Example of command

```
>POST  MTM  11
```

9 Busy the MTM. Type

>BSY
and press the Enter key.

10 Load the MTM. Type

>LOADPM
and press the Enter key.

11 Return the MTM to service. Type

>RTS
and press the Enter key.

12 You have updated the MTM and completed this procedure. Review the update schedule.

If you have	Do
other MTMs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the NIU Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the network interface unit (NIU).

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The NIU is in-service.
- The NIU successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.
- The PRSM automated process does not run during this shift.

Required information

Review the update checklists and schedules to answer the following questions. This information is required to successfully complete this procedure.

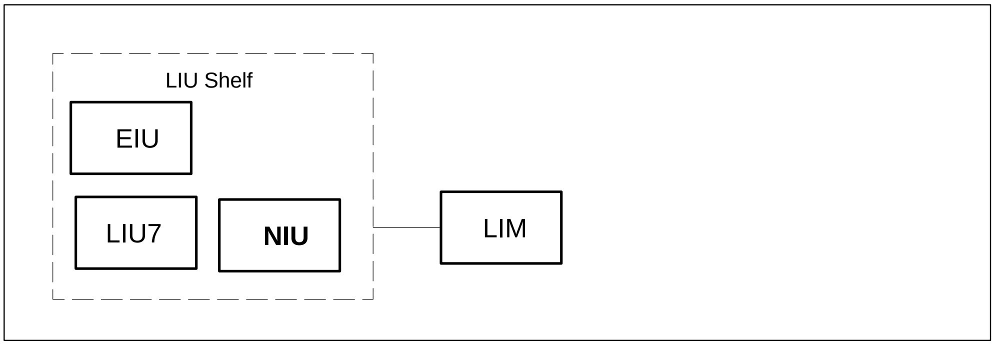
- Does the new load have PRSUs?
- Do the PRSUs have to be applied during this procedure, or were they applied to the load during a previous update procedure?
- Was an image taken of the first NIU being updated in the office?
- Does an image need to be taken of this NIU?

For assistance, refer to “Overview of release” and “Overview of update process” in this document.

Update sequence

The following figure illustrates a possible node configuration for the NIU. Update the LIM as soon as possible after all its subtending PMs, including the NIU, are successfully updated.

Node configuration for NIU



If the NIU provides channelized access to an Ethernet interface unit (EIU) or a CCS7 link interface unit (LIU7), the EIU or LIU7 is a subtending PM to the NIU. These PMs must be updated before the NIU.

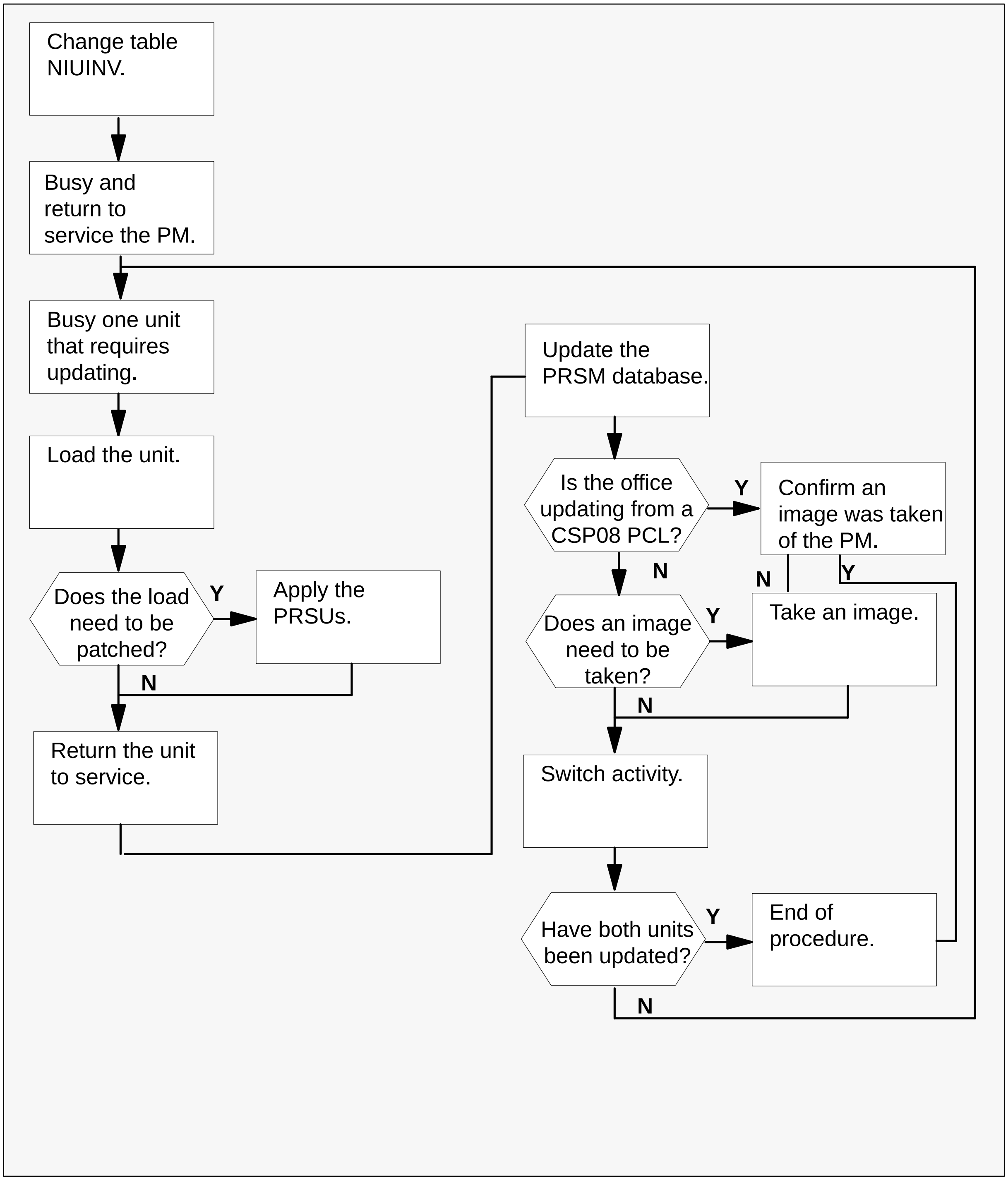
Notes

The NIU load can be be patched using sets if PRSM is enabled. Refer to the the procedure “Using a set to patch the NIU load” in this document.

For integrated services node (ISN) auto imaging (IAI) to take an image during the PM update, offices must meet the following requirements:

- Enter the appropriate datafill in table IMGSCHED.
- Enter the appropriate datafill in table IMAGEDEV.
- Ensure AUTODUMP is on.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails, for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an NIU to update.

2 Confirm all prerequisites for this procedure have been met.

3
a. Access the NIU's inventory table by typing

>TABLE NIUINV
and pressing the Enter key.

b. Position on the datafill tuple for the NIU to be updated by typing

>POS niu_no
and pressing the Enter key.

where

niu_no is the number of the NIU

c. Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load is the name of the new load

Example

>CHA LOAD NRS07BM

d. Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM state changes to in-service trouble (ISTb) due to the load mismatch with the inventory table. Continue with this procedure.

e. Exit the table by typing

>QUIT
and pressing the Enter key.

4 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

5 Post the NIU by typing

>POST NIU niu_no
and pressing the Enter key.

where

niu_no is the number of the NIU being updated

Example

>POST NIU niu_no

Note: The PM state changes to ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

6 Ensure the NIU will successfully pass an out-of-service test and return to service by performing the following steps.

a. Busy the NIU's inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

b. Return the NIU's inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

c. Switch activity by typing

>SWACT
and pressing the Enter key.

d. Confirm the action by typing

>Y
and pressing the Enter key.

e. Busy the new inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

f. Return the NIU's inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

7 Busy the NIU's inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

Note: The client PMs of the NIU unit will change state to in-service trouble. Continue with this procedure.

8 Load the inactive unit by typing

>LOADPM INACTIVE
and pressing the Enter key.

If the NIU unit being updated is	Do
the first NIU unit in the office to use the new load	step 9
not the first NIU unit in the office to use the new load	step 12

9 Review the PM update checklist and determine if PRSUs must be applied to the load.

If the new load	Do
has PRSUs that must be manually applied	step 10
does not have PRSUs to be manually applied	step 12

10 Apply the PRSUs by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according to the NIU's current database by typing

>DBAUDIT NIU pm_no unit_no
and pressing the Enter key.

where

pm_no is the number of the NIU
unit_no is the number of the unit

Example

>DBAUDIT NIU 0 0

Note: PRSUs from the previous release may remain at NV status, they are removed during the daily FILEAUDIT.

c. Apply the PRSUs by typing

>APPLY ’prsu_name IN NIU pm_no unit_no
and pressing the Enter key.

where

prsu_name	is the name of the PRSU (repeat variable as required)
pm_no	is the number of the PM being updated
unit_no	is the number of the unit

Example

>APPLY ’AMP00IB9 I AMP90IT8 I RMS39IB9 IN NIU 0 0

Note: It is not necessary to apply the PRSUs in a particular order. PRSM automatically sorts the PRSUs if they are applied in a set.

11 Exit the utility by typing

>QUIT
and pressing the Enter key.

12 Return the inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

13 Wait for the MAP display to show the unit as in-service. It may take two to three minutes for the MAP display to show the unit as in-service.

14 Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

15 Confirm the PM is properly patched by performing the following steps.

16 Update the PRSM database according to the NIU’s current database by typing

>DBAUDIT NIU pm_no unit_no
and pressing the Enter key.

where

pm_no	is the number of the NIU
unit_no	is the number of the unit

Example

>DBAUDIT NIU 0 0

Note: PRSUs from the previous release may remain at NV status, they are removed during the daily FILEAUDIT.

17 Display the PRSU list by typing

>REPORT DEST NIU pm_no unit_no
and pressing the Enter key.

where

pm_no	is the number of the NIU
unit_no	is the number of the unit

Example

>REPORT DEST NIU 0 0

If	Do
all PRSUs for the new load are applied to the PM	step 18
all PRSUs for the new load are not applied to the PM	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 16. If a DBAUDIT has been performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 18. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

18 Exit the utility by typing

>QUIT
and pressing the Enter key.

19 Wait for the MAP display to show the unit as in-service. It may take two to three minutes for the MAP display to show the unit as in-service.

If	Do
an image needs to be taken of this unit and the office is at Base09 or a higher PCL.	step 20
an image needs to be taken of this unit and the office is at Base08 or lower PCL.	step 21
an image does not need to be taken of this unit	step 30

Note: Take an image of the first NIU unit being updated. Office policy and the update schedule will determine the need for additional images.

20 Confirm an image was automatically taken of the PM by performing the following steps.

a. Open the AUTODUMP history file for ISN PMs by typing

   AUTODUMP HISTORY ISN
   and pressing the Enter key.

b. Review the contents of the file, confirm an image was automatically taken of the PM.

If an image of the PM	Do
was automatically taken	step 29
was not automatically taken	step 21

Note: If an image of the PM was not automatically taken, confirm AUTODUMP is ON, check the datafill in tables IMGSCHED and IMAGEDEV. Take a manual image if auto imaging failed to execute.

21

ATTENTION

Take an image of the NIU load immediately after patching. Use this image to reload any remaining NIUs with the patched load. If an image is not taken, PRSUs will have to be manually applied each time an NIU is reloaded.

This procedure busies the NIU unit before taking the image. However, an image can be taken on an in-service NIU. Check office policy.

Busy the NIU unit by typing

>BSY
and pressing the Enter key.

22 Access the disk utility by typing

>DISKUT
and pressing the Enter key.

23 Take an image of the new patched NIU node by typing

>DUMP file_name dev_name ACTIVE RETAIN NODE NIU niu_no unit_no
and pressing the Enter key.

where

file_name	is the name of the image file
dev_name	is the name of the device that will store the image
niu_no	is the number of the NIU
unit_no	is the number of the unit

Example

>DUMP NRS07BM S00DPMLOADS ACTIVE RETAIN NODE NIU 0 0

24 List the SLM volume by typing

>LF vol_name
and pressing the Enter key.

where

vol_name is the name of the volume

Example

>LF S00DPMLOADS

Note: `_NIU` will be appended to the file name.

25 Delete the previous load file by typing

>DELETEFL old_file
and pressing the Enter key.

where

old_file is the name of the previous load file

Example

>DELETEFL NRS07BM

26 Eliminate the extension on the new load file name by typing

>RNF cur_name new_name
and pressing the Enter key.

where

cur_name	is the name of the current load file
new_name	is the name of the current load file without the extension

Example

>RNF NRS07BM_NIU NRS07BM

27 Exit the disk utility by typing

>QUIT
and pressing the Enter key.

28 Perform a NIL change to the load name in table PMLOADS by performing the following steps.

a. Access table PMLOADS by typing

>TABLE PMLOADS
and pressing the Enter key.

b. Position on the datafill tuple for the load by typing

>POS load_name
and pressing the Enter key.

where

load_name   is the name of the load

Example

>POS NRS07BM

c. Begin the process of a NIL change by typing

>CHA
and pressing the Enter key.

d. Press the Enter key to scroll through the fields until a confirmation prompt is received.

e. Confirm the unchanged tuple by typing

>Y
and pressing the Enter key.

f. Exit table PMLOADS by typing

>QUIT
and pressing the Enter key.

29 Return the NIU unit to service by typing

>RTS UNIT unit_no
and pressing the Enter key.

where

unit_no   is the number of the unit

Example

>RTS UNIT 0

30 Switch activity between the two units by typing

>SWACT

and pressing the Enter key.

If	Do
one unit of the NIU has been updated	step 7
both units of the NIU have been updated	step 31

31 You have successfully updated the NIU and completed this procedure. Review the update schedule.

If there are	Do
additional NIUs to update during this shift	Repeat this procedure for each NIU.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the OAU Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the office alarm unit (OAU).

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All peripheral module (PM) logs are enabled.
- The OAU is in service.
- All automatic routine exercise (REX) tests are suspended.

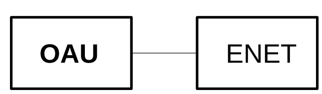
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the OAU. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

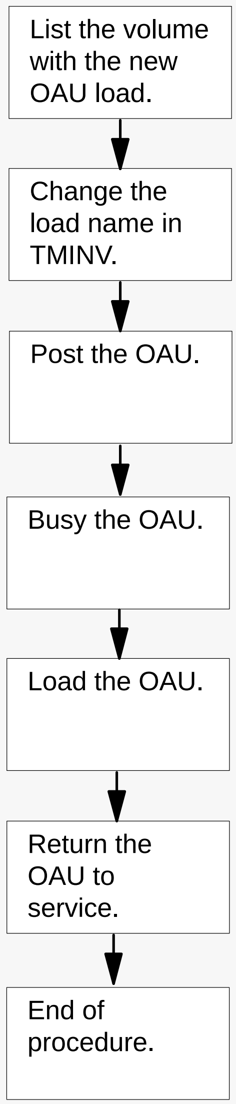
Node configuration for OAU



Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. For example, if an RTS command fails office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an OAU to update.

2 Review the prerequisites at the start of this procedure. Confirm that you meet these prerequisites.

If the load files are stored on a	Do
DDU device	step 3
SLM device	step 4

3 List the volume with the new load.

a. Enter the disk utility. Type

>DSKUT
and press the Enter key.

b. List the disk volume. Type

>LISTVOL vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LISTVOL  D000DPMLOADS
```

c. Skip step 4 and go to step 5.

4 List the volume with the new load.

a. Enter the disk utility. Type

>DISKUT
and press the Enter key.

b. List the disk volume. Type

>LF vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LF  S01DPMLOADS
```

5 Exit the disk utility. Type

>QUIT
and press the Enter key.

6 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE TMINV
and press the Enter key.

b. Position on the tuple for the OAU. Type

>POS OAU oau_no
and press the Enter key.

where

oau_no is the number of the OAU

Example of command

```
>POS  OAU  11
```

c. Change the load name in the tuple to the new load name. Type

>CHA LOAD new_load
and press the Enter key.

where

new_load is the name of the new load

Example of command

```
>CHA  LOAD  MTMKA02
```

d. Confirm the change. Type

>Y
and press the Enter key.

e. Close the PM inventory table. Type

>QUIT
and press the Enter key.

7 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM
and press the Enter key.

8 Post the OAU. Type

>POST OAU oau_no
and press the Enter key.

where

oau_no   is the number of the OAU

Example of command

```
>POST  OAU  11
```

9 Busy the OAU. Type

>BSY
and press the Enter key.

10 Load the OAU. Type

>LOADPM
and press the Enter key.

11 Return the OAU to service. Type

>RTS
and press the Enter key.

12 You have updated the OAU and completed this procedure. Review the update schedule.

If you have	Do
other OAUs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Preparing for a PM update using PMUPGRADE

Application

> **CAUTION**
> **Loss of information for automated PM update**
> Run PMUPGRADE only on the primary PM load tape. Do not run PMUPGRADE on multiple PM load tapes within a PM update cycle. Secondary PM load tapes such as the ADAS PM load tape must be handled manually.

> **ATTENTION**
> Depending on the office's current release, the office may not have all the functionality for automated PM upgrades described in this document. Refer to the "Overview of automated update process" chapter for available functionality.

Use this procedure to prepare an office for a peripheral module (PM) update with the PMUPGRADE utility. Perform this procedure when the PM load tape and post release software updates (PRSU) for the new release are received.

Prerequisites

Meet the following prerequisites before using this procedure.

$XREF patch control file

PMUPGRADE uses the $XREF patch control file to select the required PRSUs. The $XREF file is included when PRSUs are delivered on a 9-track tape or a SLM tape cartridge labeled, *Patches: Yes*. This file is not included when PRSUs are downloaded directly to the office. If the $XREF file is not available PMUPGRADE does not select or copy any PRSUs, PMUPGRADE bypasses these steps. The MAP display generates the following message:

```
WARNING:  No Patch Control File Found.  No patch files
selected.
```

Destination volumes

A destination volume is the volume to which the load or PRSU files will be copied. Each destination volume must have sufficient free space for the new load or PRSU files and meet all office criteria to be ready for use.

PM loads

Review the chapter “Overview of release” in this document. Use the information in the PM to load cross reference table to change the Load File Selection Report generated during this procedure.

Update sequence

Not applicable

Notes

The following notes provide additional information on the PMUPGRADE utility.

File copying

PMUPGRADE will not copy files or update table PMLOADS under the following conditions.

- The name of the new load is the same as the name of the current load.
- The new load exists on the Load Destination volume.

Length of time

Tape operations can take several minutes at each step. For example, the tape can take several minutes to rewind after quitting PMUPGRADE.

Confirmation

This procedure sets CONFIRMATION to ON. The MAP display prompts you after each command and allows you to change the files selected by PMUPGRADE. Setting the CONFIRMATION to OFF disables prompting and requires you to accept the automatic load file selection.

PRSU files for new ISN loads

Keep a copy of the integrated services node (ISN) PRSU files associated with the new loads for the one-night process (ONP). The MSL-100 system uses these files to update the post release software manager (PRSM) database, which requires this information to determine prerequisites for removal action. The ISN PRSU files can be erased after the office successfully completes its ONP.

PRSU files for old ISN loads

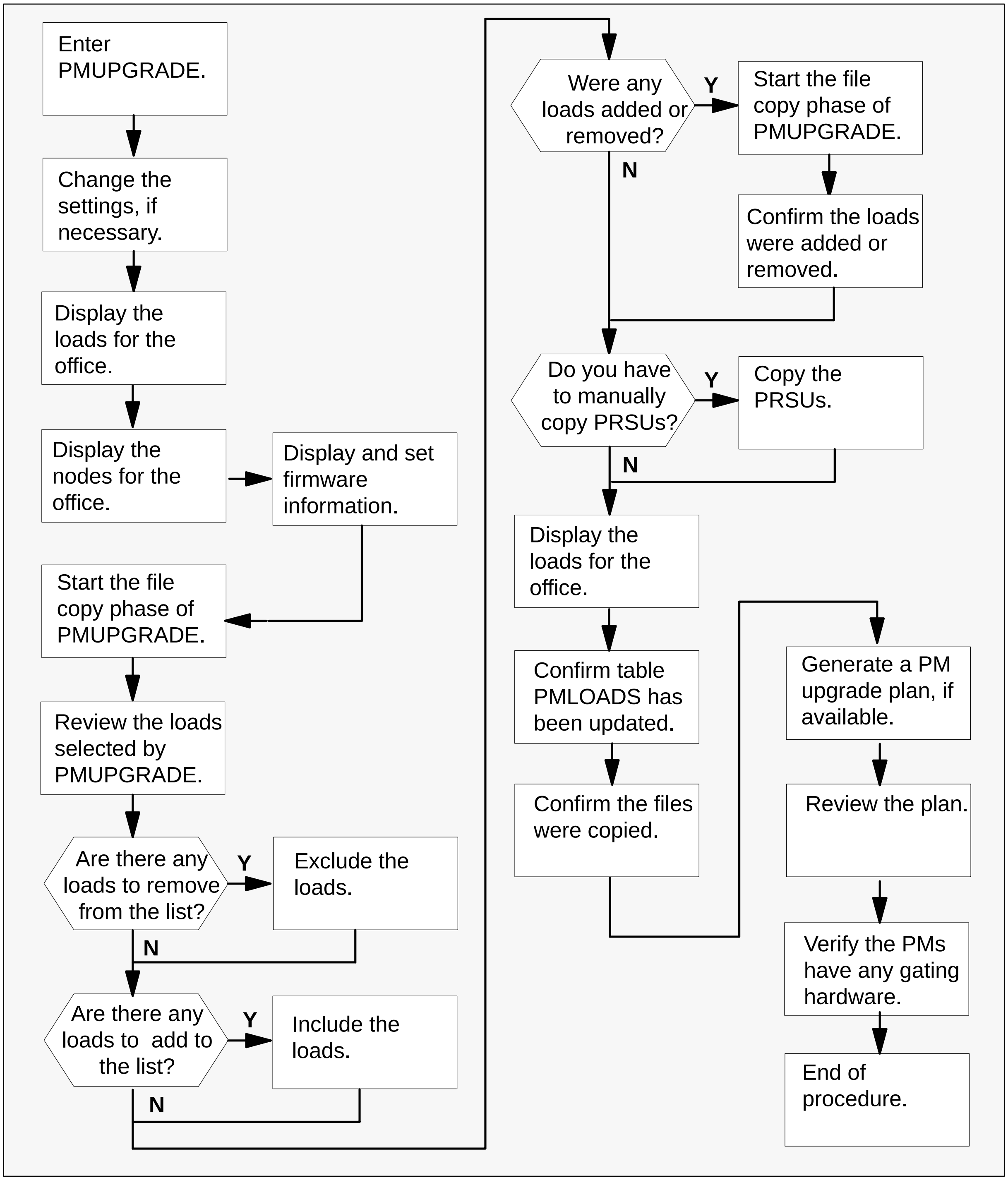
PRSUs associated with the previous ISN loads may remain at a status of Not Validated (NV). A problem occurs if the office used PATCHER to apply the patches and PRSM cannot access the patch files. This problem is not service affecting. The previous PRSU files will not be listed after the ONP. If you wish to manually change the PRSU status, perform a VALIDATE with the

PRSU file present. The VALIDATE will change the status to Not Needed (NN).

PRSU files for pre-patched ISN loads

Store the PRSU files for pre-patched ISN loads in SFDEV or a device datafilled in table PADNDEV. The method the office uses to download PRSUs can change this prerequisite.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Review all bulletins and warnings related to this update and the PM software release document before beginning this procedure.

> **ATTENTION**
> When prompted to confirm a tape is in its appropriate drive, confirm the tape is physically in the drive. Do not use the INSERTTAPE, IT, or MOUNT commands on the tape.

At the CI level of the MAP display

1 Send the terminal responses to a printer. Type

>RECORD START ONTO prntr_name
and press the Enter key.

where

prntr_name	is the name of the printer

Example of command

```
>RECORD  START  ONTO  PRNTR1
```

2 Access the PMUPGRADE utility. Type

>PMUPGRADE
and press the Enter key.

Example of response

```
This PCL does not contain table CSCINV
This PCL does not contain table DLMINV
This PCL does not contain table IPEINV
This PCL does not contain table MNCKTPAK
This PCL does not contain table TPCINV
APINV     contains   0 records
DCHINV    contains   6 records
DCMINV    contains   4 records
DPP       contains   0 records
ENINV     contains   0 records
EXNDINV   contains   2 records
LCMINV    contains   9 records
LIMINV    contains   1 records
LIUINV    contains  28 records
LMINV     contains   4 records
LTCINV    contains  14 records
LTCRINV   contains   0 records
MPC       contains   3 records
MSBINV    contains   0 records
MSFWLOAD  contains   3 records
NIUINV    contains   1 records
OFCVAR    contains   0 records
RCCINV    contains   0 records
RMMINV    contains   1 records
STINV     contains   0 records
TMINV     contains  14 records
TSTEQUIP  contains   0 records
XESAINV   contains   1 records
The current PMUPGRADE settings are:

Load File Distribution:  S00T
Load File Destination:   S00DPMLOADS
Patch File Distribution: S00T
ISN Patch Destination:   SFDEV
XPM Patch Destination:   SFDEV
Confirmation:            OFF
IncludeLoads:
ExcludeLoads:

WARNING: XPM Patch Destination and Patch Distribution incompatible
WARNING: User confirmation mode is disabled
```

Logs and other possible responses

Log or other response	Action
Incompatible destination and distribution volume	Continue with this procedure. The destination and distribution volumes can be changed later in the procedure.
User confirmation mode is disabled.	Continue with this procedure. The mode can be changed later in this procedure.
A load is referenced but not defined in table PMLOADS	Check office policy for the load. Some loads, like the MPF load, should not be entered in table PMLOADS. Some loads, such as the distributed processing peripheral (DPP) load, can be entered in table PMLOADS depending on office policy. Some offices require all loads be entered in table PMLOADS for backup.
A destination volume is not in the MSL-100 switch search path.	The volume is not entered in SFDEV or table PADNDEV. Refer to the Messages section in the “Overview of automated update process” chapter in this document.
The Load File Distribution volume is not correct.	Continue with this procedure and change the Load File Destination volume. PMUPGRADE automatically identifies this volume based on the Load File Destination volume.
Note: The destination volume is the device to which the new load or PRSU files are copied. The distribution volume is the device with the new load or PRSU files. PMUPGRADE copies from the distribution volume to the destination volume.	

3 Set confirmation to ON. Type

>SET CONFIRMATION ON
and press the Enter key.

Example of response

```
The current PMUPGRADE settings are:

Load File Distribution:  S00T
Load File Destination:   S00DPMLOADS
Patch File Distribution: S00T
ISN Patch Destination:   SFDEV
XPM Patch Destination:   SFDEV
Confirmation:            ON
IncludeLoads:
ExcludeLoads:

WARNING: XPM Patch Destination and Patch Distribution incompatible
```

Note: The remainder of this procedure assumes CONFIRMATION is set to ON.

4

> **ATTENTION**
> Each destination volume must have sufficient free space for the new load or PRSU files, and meet all office criteria to be ready for use.

Review the current PMUPGRADE settings. If necessary, change the settings.

a. Confirm the Load File Distribution setting is correct, if necessary change the setting. This command is applicable for MSL08 or higher PCL. Type the following to change the setting.

   >SET LOADDISTRIB vol_name
   and press the Enter key.

   where

   vol_name   is the name of the new Load File Distribution volume

   Example of command

   `>SET  LOADDISTRIB  S01T`

   Example of response

```
The current PMUPGRADE settings are:

Load File Distribution:  S01T
Load File Destination:   S00DPMLOADS
Patch File Distribution: S01T
ISN Patch Destination:   SFDEV
XPM Patch Destination:   SFDEV
Confirmation:            ON
IncludeLoads:
ExcludeLoads:

WARNING: XPM Patch Destination and Patch Distribution incompatible
```

Note: The default setting for the ISN Patch Destination volume and the XPM Patch Destination volume is the first entry in table PADNDEV.

b. Confirm the Load File Destination setting is correct, if necessary change the setting. Type the following to change the setting.

>SET LOADDEST vol_name
and press the Enter key.

where

vol_name is the name of the new Load File Destination volume

Example of command

`>SET LOADDEST S01DPMLOADS`

Example of response

```
The current PMUPGRADE settings are:

Load File Distribution:  S01T
Load File Destination:   S01DPMLOADS
Patch File Distribution: S01T
ISN Patch Destination:   SFDEV
XPM Patch Destination:   SFDEV
Confirmation:            ON
IncludeLoads:
ExcludeLoads:

WARNING: XPM Patch Destination and Patch Distribution incompatible
```

Note: The default setting for the ISN Patch Destination volume and the XPM Patch Destination volume is the first entry in table PADNDEV.

c. Confirm the Patch File Distribution setting is correct, if necessary change the setting. Type the following to change the setting.

>SET PATCHDISTRIB vol_name
and press the Enter key.

where

vol_name is the name of the new Patch Distribution volume

Example of command

```
>SET  PATCHDISTRIB  T0
```

```
The current PMUPGRADE settings are:

Load File Distribution:  S01T
Load File Destination:   S01DPMLOADS
Patch File Distribution: T0
ISN Patch Destination:   SFDEV
XPM Patch Destination:   SFDEV
Confirmation:            ON
IncludeLoads:
ExcludeLoads:

WARNING: XPM Patch Destination and Patch Distribution incompatible
```

d. Confirm the ISN Patch Destination setting is correct, if necessary change the setting. Type the following to change the setting.

>SET ISNPATCH vol_name
and press the Enter key.

where

vol_name is the name of the new ISN Patch Destination volume

Example of command

```
>SET  ISNPATCH  S01DPMLOADS
```

Example of response

```
The current PMUPGRADE settings are:

Load File Distribution:  S01T
Load File Destination:   S01DPMLOADS
Patch File Distribution: T0
ISN Patch Destination:   S01DPMLOADS
XPM Patch Destination:   SFDEV
Confirmation:            ON
IncludeLoads:
ExcludeLoads:

WARNING: XPM Patch Destination and Patch Distribution incompatible
```

Note: The ISN patch destination volume should be datafilled in table PADNDEV.

e. Confirm the XPM Patch Destination setting is correct, if necessary change the setting. Type the following to change the setting.

>SET XPMPATCH vol_name
and press the Enter key.

where

vol_name   is the name of the new XPM Patch Destination volume

Example of command

```
>SET  XPMPATCH  S01DPMLOADS
```

Example of response

```
The current PMUPGRADE settings are:

Load File Distribution:  S01T
Load File Destination:   S01DPMLOADS
Patch File Distribution: T0
ISN Patch Destination:   S01DPMLOADS
XPM Patch Destination:   S01DPMLOADS
Confirmation:            ON
IncludeLoads:
ExcludeLoads:
```

Note 1: The XPM patch destination volume should be datafilled in table PADNDEV.

Note 2: If PRSU files for pre-patched XPM loads (PPXL) are to be copied, refer to the ”PRSU file storage” section in chapter 1 of this document.

5 Generate a report of the loads in the office. Type the following to generate the report.

>DISPLAY LOADS

and press the Enter key.

Example of response

```
                    PMUPGRADE LOAD REPORT
--------------------------------------------------------------------
LOADNAME         ACTFILE          ACTVOL           Tables Used
--------------------------------------------------------------------
ARS04AQ           ARS04AQ           S00DPMLOADS       LIUINV
BLMTB01           BLMTB01           S00DPMLOADS       LMINV
BRLMVA03          BRLMVA03          S00DPMLOADS       LMINV
BTMKA02           BTMKA02           S00DPMLOADS       TMINV
CMR07A            CMR07A            S00DPMLOADS       LTCINV
ECL05AO           ECL05AO           S00DPMLOADS       LTCINV
ED707BM           ED707BM           S00DPMLOADS       LTCINV
EDH05AO           EDH05AO           S00DPMLOADS       DCHINV
ELI05AO           ELI05AO           S00DPMLOADS       LTCINV
ERLMVA02          ERLMVA02          S00DPMLOADS       LMINV
ESA05AO           ESA05AO           S00DPMLOADS       XESAINV
ETC07BM           ETC07BM           S00DPMLOADS       LIUINV
F8C07BM           F8C07BM           S00DPMLOADS       LIUINV
LCM01D            LCM01D            S00DPMLOADS       LCMINV
LCME05AI          LCME05AI          S00DPMLOADS       LCMINV
LPC07BM           LPC07BM           S00DPMLOADS       LIMINV
LRS04AQ           LRS04AQ           S00DPMLOADS       LIUINV
MPC403AD          MPC403AD          S00DPMLOADS       MPC
MPF36CJ           MPF36CJ           S00DPMLOADS       MSFWLOAD
MTMKA02           MTMKA02           S00DPMLOADS       TMINV
MX77NG03          MX77NG03          S00DPMLOADS       LTCINV
NRS07BM           NRS07BM           S00DPMLOADS       NIUINV
RDCMPA02          RDCMPA02          S00DPMLOADS       DCMINV
RMM04A            RMM04A            S00DPMLOADS       RMMINV
XLCM05AI          XLCM05AI          S00DPMLOADS       LCMINV
XLCM05AI          XLCM05AI          S00DPMLOADS       LCMINV
RMM34C            RMM34C            S00DPMLOADS
```

Note 1: PMUPGRADE compiles the PMUPGRADE Load Report from table PMLOADS and the PM inventory tables. This example illustrates a report for a typical office.

Note 2: A load may possibly have no entry under Tables Used. Such a load could be an out-dated load no longer used in the office, for example RMM34C. Check office policy, if necessary perform the following steps to correct the report.

- Exit PMUPGRADE.
- Delete the out-dated load from table PMLOADS.
- Return to step 2 of this procedure.

6 Generate a node report for the office. Type the following to generate a node report.

>DISPLAY NODES

and press the Enter key.

Example of response

```
               PMUPGRADE NODE REPORT

Inventory Table :  DCHINV
-------------------------------------------------------------
Nodename         Loads Used
-------------------------------------------------------------
1                  EDH05AO
2                  EDH05AO
3                  EDH05AO
4                  EDH05AO

Inventory Table :  LCMINV
-------------------------------------------------------------
Nodename         Loads Used
------------------------------------------------------------
HOST  04 0         LCM01D
HOST  04 1         LCM01D
HOST  07 0         LCME05AI
HOST  07 1         LCME05AI
REM4  00 0         XLCM05AI
REM4  01 0         LCM01D
HST4  00 0         XLCM05AI

Inventory Table :  LIUINV
-------------------------------------------------------------
Nodename         Loads Used
-------------------------------------------------------------
LIU7 101           ARS04AQ
LIU7 102           ARS04AQ
LIU7 104           LRS04AQ
LIU7 109           ARS04AQ
FRIU 115           F8C07BM
FRIU 122           F8C07BM
EIU 116            ETC07BM
EIU 130            ETC07BM

Inventory Table :  LTCINV
-------------------------------------------------------------
Nodename         Loads Used
-------------------------------------------------------------
LGC 7              ELI05AO    MX77NG03   CMR07A
DTC 0              ED707BM    MX77NG03
DTC 1              ED707BM    MX77NG03
LTC 0              ECL05AO    MX77NG03
LTC 4              ECL05AO    MX77NG03   CMR07A
LTC 8              ELI05AO    MX77NG03
DTCI 19            ELI05AO    MX77NG03
```

Note 1: The PMUPGRADE Node Report is compiled from PM inventory tables. The preceding example illustrates some of the reports for some of the PM inventory tables.

Note 2: The nodename information for table MNCKTPAK is obtained from table MNNODE.

7

If the office’s current release level	
is at MSL10 or a higher PCL	continue with step 7
is at MSL09 or a lower PCL	go to step 8

Determine the XPM firmware preferred load. Perform the next steps.

> **ATTENTION**
>
> This step specifies the preferred firmware load for each firmware type in the PMUPGRADE Firmware Information report. The START FILECOPY command uses this information to select and copy the applicable firmware loads from the PM load tape.
>
> Office policy determines the firmware load to use during the PM update when the PM load tape contains the baseline load and a new release load. Nortel Networks recommends an update of the firmware load for a firmware type when the current firmware load is below the baseline release.

a. Display the firmware information, type

>DISPLAY FWINFO
and press the Enter key.

The DISPLAY FWINFO command displays two reports:

- the “firmware types” report
- the “firmware loads” report

Note: If `None` is the response received after typing in the DISPLAY FWINFO command, proceed to step 8.

The firmware types report contains a list of all the types of firmware in the office, which may have a corresponding baseline load and new release load on the PM load tape.

The firmware types are

- STDMX77, for standard MX77 firmware
- STDAX74, for standard AX74 firmware
- CPMMX77, for MX77 firmware in CPM or host of CPM

- CPMAX74, for AX74 firmware in CPM or host of CPM
- STDSX05, for standard SX05 firmware
- ILD, for ISDN line drawer firmware

In the preceding list CPMMX77 and CPMAX74 are available firmware types. Examples of CPMs are the remote cluster controller 2 (RCC2) and subscriber carrier module-100 access 2 (SMA2). The host to a CPM can be a line group controller (LGC), LGC with ISDN (LGCI), line trunk controller (LTC) or LTC with ISDN (LTCI).

The firmware loads report contains a list of the

- current firmware loads in the office
- type of each current firmware load
- baseline load, new release load and preferred load of each current firmware load. The baseline load, new release load and preferred load are blank until specified in step 7b.

Example of command

```
>DISPLAY FWINFO
```

Example of response

```
                  PMUPGRADE FIRMWARE INFORMATION

Firmware types in the inventory tables
---------------------------------------------------------------
FIRMWARE    TYPE                    BASELINE      NEW RELEASE
TYPE        DESCRIPTION             LOAD          LOAD
---------------------------------------------------------------
STDMX77     Standard MX77 firmware



Firmware loads in the inventory tables
---------------------------------------------------------------
LOAD    CURRENT   FIRMWARE  BASELINE  NEW RELEASE  PREFERRED
NUMBER  LOAD      TYPE      LOAD      LOAD         LOAD
---------------------------------------------------------------
1.      MX77NG03  STDMX77
2.      MX77NF01  STDMX77
```

b. For each firmware type displayed in the firmware types report, determine the baseline load and the new release load. The “XPM processor (NTAX74, NTMX77 or NTSX05) firmware baseline” table in chapter 1 can be used as a reference. The “Firmware baseline” column in this table can be used to determine the baseline load. The “Current firmware release” column can be used to determine the new release load.

For each firmware type displayed in the firmware types report, type the next two commands.

>SET FWBASELINE firmware_type baseline_load
and press the Enter key.

where

firmware_type	is a firmware type of STDMX77, STDAX74, CPMMX77, CPMAX74, STDSX05 or ILD
baseline_load	is a firmware baseline load name for the associated firmware type

Example of command

```
>SET FWBASELINE STDMX77 MX77NB03
```

Example of response

```
                   PMUPGRADE FIRMWARE INFORMATION

   Firmware types in the inventory tables
   ---------------------------------------------------------------
   FIRMWARE    TYPE                     BASELINE      NEW RELEASE
   TYPE        DESCRIPTION              LOAD          LOAD
   ---------------------------------------------------------------
   STDMX77     Standard MX77 firmware   MX77NB03



   Firmware loads in the inventory tables
   ---------------------------------------------------------------
   LOAD    CURRENT   FIRMWARE BASELINE NEW RELEASE PREFERRED
   NUMBER  LOAD      TYPE     LOAD     LOAD        LOAD
   ---------------------------------------------------------------
   1.      MX77NG03  STDMX77  MX77NB03             MX77NG03
   2.      MX77NF01  STDMX77  MX77NB03             MX77NF01
```

>SET FWNEWREL firmware_type new_release_load
and press the Enter key.

where

firmware_type	is a firmware type of STDMX77, STDAX74, CPMMX77, CPMAX74, STDSX05 or ILD
new_release_load	is a new release load name for the associated firmware type

Example of command

```
>SET FWNEWREL STDMX77 UPFWNM04
```

Example of response

```
                    PMUPGRADE FIRMWARE INFORMATION
Firmware types in the inventory tables
---------------------------------------------------------------
FIRMWARE    TYPE                    BASELINE      NEW RELEASE
TYPE        DESCRIPTION             LOAD          LOAD
---------------------------------------------------------------
STDMX77     Standard MX77 firmware  MX77NB03      UPFWNM04



Firmware loads in the inventory tables
---------------------------------------------------------------
LOAD     CURRENT   FIRMWARE BASELINE NEW RELEASE   PREFERRED
NUMBER   LOAD      TYPE     LOAD     LOAD          LOAD

---------------------------------------------------------------
1.       MX77NG03  STDMX77  MX77NB03 UPFWNM04      MX77NG03
2.       MX77NF01  STDMX77  MX77NB03 UPFWNM04      MX77NF01
```

c. After completion of step 7b. the firmware loads report contains the automatic preferred load selection (“PREFERRED LOAD” column). This automatic selection is based on a comparison of the versions of the current load in the office, the baseline load and the new release load.

If the current load is below baseline, the baseline load is the preferred load. This baseline load is copied by the START FILECOPY command.

If the current load is between the baseline load and the new release load, the current load is the preferred load. In this case, the START FILECOPY does not copy any file.

Review the automatic preferred load selection. If desired, bypass the automatic selection with another preferred load. The preferred load can be the current load, the baseline load or the new release load.

Select the preferred load by typing

>SET FWPREFERRED load_number preferred_load
and press the Enter key.

where

load_number	is a load sequence number shown by the command DISPLAY FWINFO.
preferred_load	is the preferred load. Use CURRENT for the current firmware load in the MSL-100 switch. Use BASELINE for the baseline firmware load on the PM load tape. Use NEWREL for the new release firmware load on the PM load tape.

Note: Bypassing the automatic selection may cause the START FILECOPY command to copy a file.

Example of command

>SET FWPREFERRED 2 NEWREL

Example of response

```
                  PMUPGRADE FIRMWARE INFORMATION

Firmware types in the inventory tables
----------------------------------------------------------------
FIRMWARE    TYPE                    BASELINE      NEW RELEASE
TYPE        DESCRIPTION             LOAD          LOAD
----------------------------------------------------------------
STDMX77     Standard MX77 firmware  MX77NB03      UPFWNM04



Firmware loads in the inventory tables
----------------------------------------------------------------
LOAD    CURRENT   FIRMWARE  BASELINE  NEW RELEASE  PREFERRED
NUMBER  LOAD      TYPE      LOAD      LOAD         LOAD

----------------------------------------------------------------
1.      MX77NG03  STDMX77   MX77NB03  UPFWNM04     MX77NG03
2.      MX77NF01  STDMX77   MX77NB03  UPFWNM04     UPFWNM04
```

8

ATTENTION

The FILECOPY phase of PMUPGRADE takes about 40 minutes, depending on the number of loads and PRSUs to be copied.

If pre-patched XPM loads (PPXL) are included in the new loads, it may be necessary to datafill table PADNDEV before performing this step. Refer to the “Overview of automated update process” chapter in this document.

If PPXLs are used, the PRSUs for the PPXL must reside on the MSL-100 switch before PMUPGRADE modifies table PMLOADS. The PRSUs should reside in the same volume as the PPXL file.

When prompted to confirm a tape is in its appropriate drive, confirm the tape is physically in the drive. Do not use the INSERTTAPE, IT, or MOUNT commands on the tape.

If the SLM tape cartridge label text indicates *Patches: Y,* the tape includes the required PRSUs for XPM and ISN load files.

Start the filecopy phase of the utility. Type

>START FILECOPY

and press the Enter key.

Example of response

```
Please confirm that the load tape is in drive S01T and
the patch tape is on T0.
Ready to continue?
Please confirm (”YES”, ”Y”, ”NO”, or ”N”):
```

Note: Your method of PRSU delivery can cause your MAP display to differ from the previous example.

9 Confirm the load and PRSU tapes are in the specified drives, and continue with PMUPGRADE. Type

>Y

and press the Enter key.

Example of response

```
Listing the distribution volume.
```

PMUPGRADE will take about 20 minutes to list the Load Distribution Volume.

Example of response

```
PLNA0010_INFO   D1T005          D2T005          DPP008
DPT030          EMMAB09         ITMAB06         ADCMQA01
ATMKA02         BLMTB01         BRLMVA03        BTMKA02
DTUBAD01        DTUHAA02        DTUDAA00        EDRMAE02
ERLMVA02        MPC003AC        MPC403AC        MPCA03AC
MPCC03AC        MPCX33AB        MTMKA02         MTULJ04
RDCMPA02        RMTMKA01        TKMTKA02        TTMNA01
CMR07A          NSM05BC         AX74XE01        CRI81AZ_970822
ECL81AZ         ECR81AZ         ED781AZ         EDH81AZ
ELI81AZ_970822  ESA81AW         ESH81AZ         ESI81AZ
ESR81AZ         ESS81AZ         ESU81AZ         ETM81AZ
EXC81AZ         ILDRAB03        LCM01D          LCME81BA
MX77NB03        MX77NI05        OAM33BB         RMM05A
UPFWNK01        XLCM81BA        XM281AZ         XRI81AZ_970822
XSC81AZ         ARS08BC         ENC08AX         ETC08AX
F8C08BC         LPC08AX         LRS08BC         MPF08AX
MUC08AX         NRS08AX         XRC08BC

Selecting load files from S01T
```

10

> **ATTENTION**
>
> Enter the correct replacement loadname before continuing with this procedure. If you enter an incorrect loadfile or leave the current load without a replacement loadfile, PMUPGRADE and SWUPGRADE PM will use this incorrect information to plan and perform the automated PM update.

Observe the MAP display as PMUPGRADE selects load files. Watch for a response like the following example.

Example of response

```
No replacement loadname found on distribution volume for SM206BH1.
Please enter replacement loadname, or “S” (Same) or “Q” (Quit FILECOPY)
```

If you receive a response similar to the one above, determine why PMUPGRADE cannot find the replacement loadname and identify the replacement loadname. Refer to the “Overview of release” chapter in this document for assistance. When the replacement loadname is identified, enter the appropriate response and allow PMUPGRADE to continue.

The following table lists possible conditions where PMUPGRADE may not find a replacement loadname.

PMUPGRADE no replacement conditions

Condition	Example	Do
A new load type replaces the current load type.	The XM2 load replaces the SM2 load for SMA2.	Enter the XM2 loadname.
The load is manufacture discontinued.	The MC7 load is manufacture discontinued for MSB7.	Enter S.
Note: PMUPGRADE can request several replacement loadnames during a single FILECOPY.		
—continued—		

PMUPGRADE no replacement conditions(continued)

Condition	Example	Do
The load is not available on the PM load tape in the Load Distribution Volume.	The APU and VPU loads are not included on the primary PM load tape.	Enter S and manually copy the APU and VPU loads when the ADAS PM load tape arrives in the office.
A new XPM09 or XPM10 load is replacing an old XPM81 LOAD	The ESA09BC load replaces the ESA81AW load.	Enter the new XPM09 or XPM10 loadname.
A filler PM loadname indicating a PM does not have a load.	The IOM$LOAD value in table MPCINV. The IOM$LOAD value is used as a filler PM loadname.	Enter S.
Note: PMUPGRADE can request several replacement loadnames during a single FILECOPY.		
—end—		

11 Wait for PMUPGRADE to generate a report like the following example.

Example of response

```
                           LOAD FILE SELECTION REPORT


CURRENT LOAD      AUTO–SELECTED FILES                  EXCLUDED
------------      -------------------                  --------
ARS04AQ           ARS08BC
BLMTB01           Same Load
BRLMVA03          Same Load
BTMKA02           Same Load
CMR07A            Same Load
ECL05AO           ECL81AZ
ED707BM           ED781AZ
EDH05AO           EDH81AZ
ELI05AO           ELI81AZ_970822
ERLMVA02          Same Load
ETC07BM           ETC08AX
ESA05AO           ESA81AW
ETC07BM           ETC08AX
F8C07BM           F8C08BC
LCM01D            Same Load
LCME05AI          LCME81BA
LPC07BM           LPC08AX
LRS04AQ           LRS08BC
MPC403AD          Same Load
MPF36CJ           MPF08AX
MTMKA02           Same Load
MX77NG03          MX77NI05
NRS07BM           NRS08AX
RDCMPA02          Same Load
RMM04A            RMM05A
XLCM05AI          XLCM81BA
SM206BH1          XM281AZ

                  INCLUDED LOADS
                  --------------
                  None

Accessing destination volumes:  S01DPMLOADS.
Continue:
Please confirm:  (“YES”, “Y”, “NO”, or “N”):
```

12 Review the Load File Selection Report and determine if any loads need to be added to the report or removed from the report. The following table lists possible conditions when a load should be included or excluded.

Conditions	Example	Do
A new load type is introduced.	A new universal XPM firmware load, UPFW, is introduced for XPMs.	Continue with this procedure. Add the load to the report later in the procedure.
A load type is not needed in the office.	A new MX77 load is not needed in the office, since all XPMs will use the new universal XPM firmware load.	Continue with this procedure. Remove the load from the report later in this procedure.

Refer to the “Overview of release” chapter in this document for assistance.

If	Do
one or more loads must be removed from Load File Selection Report	step 13
one or more loads must be added to the Load File Selection Report	step 13
the Load File Selection Report is complete and no loads should be added or removed	step 18

13 Stop the file copy process. Type

>N
and press the Enter key.

If	Do
one or more loads must be removed from the Load File Selection Report	step 14
no loads are to be removed from the Load File Selection Report	step 15

14 Remove the loads from the Load File Selection Report. Type

>SET EXCLUDELOADS load_name
and press the Enter key.

where

load_name is the name of the load to be excluded (repeat variable as required)

Example of command

```
>SET  EXCLUDELOADS  LPC08AX
```

or

```
>SET  EXCLUDELOADS  LPC08AX  MX77NI05
```

Note 1: The list of excluded loads is not cumulative; it is reset with each use of the SET EXCLUDELOADS command.

Note 2: Separate the load names with a blank space.

Example of MAP response

```
The current PMUPGRADE settings are:

Load File Distribution:  S01T
Load File Destination:   S01DPMLOADS
Patch File Distribution: T0
ISN Patch Destination:   S01DPMLOADS
XPM Patch Destination:   S01DPMLOADS
Confirmation:            ON
IncludeLoads:
ExcludeLoads:            LPC08AX
```

If	Do
one or more loads must be added from the Load File Selection Report	step 15
no loads are to be added to the Load File Selection Report	step 16

15 Add the loads to the Load File Selection Report. Type

>SET INCLUDELOADS load_name
and press the Enter key.

where

load_name is the name of the load to be included (repeat variable as required)

Example of command

```
>SET  INCLUDELOADS  IOMHAO01
```

or

```
>SET  INCLUDELOADS  IOMHAO01  MUC08AX
```

Note: The list of included loads is not cumulative; it is reset with each use of the SET INCLUDELOADS command.

Example of MAP response

```
The current PMUPGRADE settings are:

Load File Distribution:  S01T
Load File Destination:   S01DPMLOADS
Patch File Distribution: T0
ISN Patch Destination:   S01DPMLOADS
XPM Patch Destination:   S01DPMLOADS
Confirmation:            ON
IncludeLoads:            MTULJ04
ExcludeLoads:            LPC08AX
```

16 Repeat the file selection phase of the utility. Type

>START FILECOPY
and press the Enter key.

Example of response

```
Listing the distribution volume.
```

Note 1: PMUPGRADE uses the previous listing of the distribution volume.

Note 2: PMUPGRADE does not physically list the volumes again.

Example of response

```
PLNA0010_INFO   D1T005          D2T005          DPP008
DPT030          EMMAB09         ITMAB06         ADCMQA01
ATMKA02         BLMTB01         BRLMVA03        BTMKA02
DTUBAD01        DTUHAA02        DTUDAA00        EDRMAE02
ERLMVA02        MPC003AC        MPC403AC        MPCA03AC
MPCC03AC        MPCX33AB        MTMKA02         MTULJ04
RDCMPA02        RMTMKA01        TKMTKA02        TTMNA01
CMR07A          NSM05BC         AX74XE01        CRI81AZ_970822
ECL81AZ         ECR81AZ         ED781AZ         EDH81AZ
ELI81AZ_970822  ESA81AW         ESH81AZ         ESI81AZ
ESR81AZ         ESS81AZ         ESU81AZ         ETM81AZ
EXC81AZ         ILDRAB03        LCM01D          LCME81BA
MX77NB03        MX77NI05        OAM33BB         RMM05A
UPFWNK01        XLCM81BA        XM281AZ         XRI81AZ_970822
XSC81AZ         ARS08BC         ENC08AX         ETC08AX
F8C08BC         LPC08AX         LRS08BC         MPF08AX
MUC08AX         NRS08AX         XRC08BC

Selecting load files from S01T
```

Example of response

```
                         LOAD FILE SELECTION REPORT


CURRENT LOAD      AUTO–SELECTED FILES                   EXCLUDED
------------      -------------------                   --------
ARS04AQ           ARS08BC
BLMTB01           Same Load
BRLMVA03          Same Load
BTMKA02           Same Load
CMR07A            Same Load
ECL05AO           ECL81AZ
ED707BM           ED781AZ
EDH05AO           EDH81AZ
ELI05AO           ELI81AZ_970822
ERLMVA02          Same Load
ETC07BM           ETC08AX
ESA05AO           ESA81AW
ETC07BM           ETC08AX
F8C07BM           F8C08BC
LCM01D            Same Load
LCME05AI          LCME81BA
LPC07BM           LPC08AX                               EXCLUDED
LRS04AQ           LRS08BC
MPC403AD          Same Load
MPF36CJ           MPF08AX
MTMKA02           Same Load
MX77NG03          MX77NI05
NRS07BM           NRS08AX
RDCMPA02          Same Load
RMM04A            RMM05A
XLCM05AI          XLCM81BA
SM206BH1          XM281AZ

                  INCLUDED LOADS
                  --------------
                  MTULJ04

Accessing destination volumes:  S01DPMLOADS.
Continue:
Please confirm:  (“YES”, “Y”, “NO”, or “N”):
```

17 Confirm if any loads have been included or excluded from the list of selected loads.

18 Confirm the action. Type

>Y

and press the Enter key.

Example of response if a patch control is not available

```
Selecting patch files.
WARNING:  No Patch Control File Found.  No patch files selected.
Do you wish to continue?
Please confirm (”YES”, ”Y”, ”NO”, or ”N”):
```

Example of response if a patch control is available

```
Selecting patch files.
Checking for file duplicates and volume free space
Creating the list of files to copy.
Copying load and patch files to destination volumes.
Continue?
Please confirm (”YES”, ”Y”, ”NO”, or ”N”):
```

If a patch control file	Do
is not available	step 19
is available	step 22

19

> **ATTENTION**
> PMUPGRADE uses the $XREF patch control file to select PRSUs for copying. Depending on the method of PRSU delivery, this file may not be available. If the file is not available, PMUPGRADE generates a warning that no patch control file has been found.

Continue with this procedure, depending on the status of the PRSU files.

If	Do
PRSUs are not manually copied to the destination volumes	step 20
PRSUs are manually copied to the destination volumes	step 21
the release does not have PRSUs	step 21

20 Manually select and copy the PRSUs.

> **ATTENTION**
> Do not respond to the PMUPGRADE prompt at this time. Copy the PRSUs from another MAP terminal, then return to the terminal PMUPGRADE is active on.

From another MAP terminal

a. Identify the PRSUs to be copied, using the Load File Selection Report generated by PMUPGRADE.

b. Access the office's disk utility.

c. Copy the ISN PRSUs to the ISN Patch Destination volume identified in the PMUPGRADE settings.

d. Copy the XPM PRSUs to the XPM Patch Destination volume identified in the PMUPGRADE settings.

e. Quit the disk utility.

From the terminal PMUPGRADE is active on

21 Confirm the action. Type

>Y

and press the Enter key.

Example of response

```
Checking for file duplicates and volume free space.
Creating the list of files to copy.
Do you wish to continue?
Please confirm (”YES”, ”Y”, ”NO”, or ”N”):
```

22

ATTENTION

This portion of the FILECOPY phase takes about 20 minutes, depending on the number of load and PRSU files.

Confirm the action. Type

>Y

and press the Enter key.

Example of response

```
Adding new loads to PMLOADS table.
The FILECOPY phase is complete.
```

23 Generate a load report for the office. Type

>DISPLAY LOADS

and press the Enter key.

Example of response

```
                 PMUPGRADE LOAD REPORT
---------------------------------------------------------------------
LOADNAME         ACTFILE          ACTVOL           Tables Used
---------------------------------------------------------------------
ARS04AQ          ARS04AQ          S00DPMLOADS      LIUINV
BLMTB01          BLMTB01          S00DPMLOADS      LMINV
BRLMVA03         BRLMVA03         S00DPMLOADS      LMINV
BTMKA02          BTMKA02          S00DPMLOADS      TMINV
CMR07A           CMR07A           S00DPMLOADS      LTCINV
ECL05AO          ECL05AO          S00DPMLOADS      LTCINV
ED707BM          ED707BM          S00DPMLOADS      LTCINV
EDH05AO          EDH05AO          S00DPMLOADS      DCHINV
ELI05AO          ELI05AO          S00DPMLOADS      LTCINV
ERLMVA02         ERLMVA02         S00DPMLOADS      LMINV
ESA05AO          ESA05AO          S00DPMLOADS      XESAINV
ETC07BM          ETC07BM          S00DPMLOADS      LIUINV
F8C07BM          F8C07BM          S00DPMLOADS      LIUINV
LCM01D           LCM01D           S00DPMLOADS      LCMINV
LCME05AI         LCME05AI         S00DPMLOADS      LCMINV
LPC07BM          LPC07BM          S00DPMLOADS      LIMINV
LRS04AQ          LRS04AQ          S00DPMLOADS      LIUINV
MPC403AD         MPC403AD         S00DPMLOADS      MPC
MPF36CJ          MPF36CJ          S00DPMLOADS      MSFWLOAD
MTMKA02          MTMKA02          S00DPMLOADS      TMINV
MX77NG03         MX77NG03         S00DPMLOADS      LTCINV
NRS07BM          NRS07BM          S00DPMLOADS      NIUINV
RDCMPA02         RDCMPA02         S00DPMLOADS      DCMINV
RMM04A           RMM04A           S00DPMLOADS      RMMINV
XLCM05AI         XLCM05AI         S00DPMLOADS      LCMINV
ARS08BC          ARS08BC          S01DPMLOADS
ECL81AZ          ECL81AZ          S01DPMLOADS
ED781AZ          ED781AZ          S01DPMLOADS
EDH81AZ          EDH81AZ          S01DPMLOADS
ELI81AZ          ELI81AZ_970822   S01DPMLOADS
ESA81AW          ESA81AW          S01DPMLOADS
ETC08AX          ETC08AX          S01DPMLOADS
F8C08BC          F8C08BC          S01DPMLOADS
LCME81BA         LCME81BA         S01DPMLOADS
LRS08BC          LRS08BC          S01DPMLOADS
MPF08AX          MPF08AX          S01DPMLOADS
MUC08AX          MUC08AX          S01DPMLOADS
MX77NI05         MX77NI05         S01DPMLOADS
NRS08AX          NRS08AX          S01DPMLOADS
RMM05A           RMM05A           S01DPMLOADS
XLCM81BA         XLCM81BA         S01DPMLOADS
XM281AZ          XM281AZ          S01DPMLOADS
MTULJ04          MTULJ04          S01DPMLOADS
```

24 Review the load report and confirm the selected new loads have been added to the report.

25

> **ATTENTION**
>
> PMUPGRADE may detect an error when it attempts to update table PMLOADS with a PPXL. An error may be detected when the XPM patch destination volume is not entered in table PADNDEV. An error may also be detected when the PRSUs for the PPXL do not reside on the MSL-100 switch. To recover from this error, manually add the tuples to table PMLOADS.

Confirm PMUPGRADE has updated table PMLOADS.

a. Access table PMLOADS. Type

>TABLE PMLOADS
and press the Enter key.

b. Display the contents of the table. Type

>LIST ALL
and press the Enter key.

c. Confirm each new load has been added to table PMLOADS.

d. Exit the table. Type

>QUIT
and press the Enter key.

26

> **ATTENTION**
>
> Your office’s PMUPGRADE settings can require changes to this step.

Confirm PMUPGRADE has copied the load and PRSU files to the correct destination volume.

a. Access the DISKUT utility. Type

>DISKUT
and press the Enter key.

b. List the files on the Load File Destination volume. Type

>LISTFL vol_name
and press the Enter key.

where

vol_name — is the name of the Load File Destination volume

Example of command

```
>LISTFL  S01DPMLOADS
```

c. If necessary, repeat step 26b. for each Patch Destination volume.

d. Confirm each new file has been copied to the volume.

e. Exit the utility. Type

>QUIT
and press the Enter key.

27 Start the generation of the PM upgrade plan. Type

>START PLAN
and press the Enter key.

Example of response

```
Generating the PM Upgrade Plan.
Using results from FILECOPY generated on 1997/09/15  15:33:53.221 MON
The PLAN phase is now complete.
```

28 Display the PM upgrade plan. Type

>DISPLAY PLAN
and press the Enter key.

The PMUPGRADE Plan Report organizes the PM update by tasks and layers. A task is a set of PMs of the same type at the same site with the same load requirements. A layer is set of independent tasks.

Example of response

```
                   PMUPGRADE PLAN REPORT

Upgrade Layer: 1
-----------------

TASK 1:
SITE:
LOADS:  FROM EDH05AO TO EDH81AZ
NODES:  DCH 1
        DCH 2
        DCH 3
        DCH 4
REQUIRES: none
AUTOMATED: NO

TASK 2:
SITE:
LOADS:  FROM ARS04AQ TO ARS08BC
NODES:  LIU7 101
        LIU7 102
REQUIRES: none
AUTOMATED: NO

TASK 3:
SITE:
LOADS:  FROM LRS04AQ TO LRS08BC
NODES:  LIU7 104
LIU7 109
REQUIRES: none
AUTOMATED: NO

TASK 4:
SITE:
LOADS:  FROM F8C07BM TO F8C08BC
NODES:  FRIU 115
FRIU 122
REQUIRES: none
AUTOMATED: NO

TASK 5:
SITE:
LOADS:  FROM ETC07BM TO ETC08AX
NODES:  EIU 116
        EIU 130
        EIU 131
REQUIRES: none
AUTOMATED: NO
```

Example of response (continued)

```
TASK 7:
SITE:
LOADS:  FROM ED707BM TO ED781AZ
        FROM MX77NG03 TO MX77NI05
NODES:  DTC 0
        DTC 1
REQUIRES: none
AUTOMATED: YES

TASK 8:
SITE:
LOADS:  FROM ELI05AO TO ELI81AZ
        FROM MX77NG03 TO MX77NI05
NODES:  DTCI 19
REQUIRES: none
AUTOMATED: YES


Upgrade Layer: 2
-----------------

TASK 9:
SITE:
LOADS:  FROM NRS07BM TO NRS08AX
NODES:  NIU 1
REQUIRES: TASK 2, 3, 4, 5, 6
AUTOMATED: NO

TASK 10:
SITE:   REM4
LOADS:  FROM RMM04A TO RMM05A
NODES:  RMM 6
REQUIRES: TASK 1
AUTOMATED: NO

TASK 11:
SITE:   REM4
LOADS:  FROM ESA05AO TO ESA81AW
NODES:  ESA 4
REQUIRES: TASK 1
AUTOMATED: YES


Upgrade Layer: 3
-----------------

TASK 12:
SITE:   HOST
LOADS:  FROM LCME05AI TO LCME81BA
NODES:  LCME 07 0
        LCME 07 1
REQUIRES: TASK 1, 10, 11
AUTOMATED: YES
```

29 Review the PMUPGRADE Plan Report

- Confirm all PMs that require upgrading are included in the plan report.

  Note: For loads added to the loadfile selection report using the SET INCLUDELOADS command, the associated PMs must be manually upgraded. Refer to “Planning the update” in chapter 2 to determine the appropriate location for manually upgraded PMs in the plan report.

- Confirm the sequence of tasks in the plan report conforms to office policy.

  Note: If the sequence of tasks does not comply, use the RUNSTEP command during the automated PM upgrade to change the order of tasks.

- Confirm offline PMs that are being commissioned in the office are not included in the plan report. If an offline PM is included in the plan report
  - update the appropriate PM inventory table. Change the loadname field for that PM to the new loadname from the loadfile selection report.
  - repeat steps 27 and 28. Ensure the offline PMs are not included in the new plan report.

30 Exit the PMUPGRADE utility. Type

>QUIT
and press the Enter key.

31 Stop the terminal’s responses from printing. Type

>RECORD STOP ONTO prntr_name
and press the Enter key.

where

prntr_name is the name of the printer

Example of command

```
>RECORD  STOP  ONTO  PRNTR1
```

32

ATTENTION

Check office policy concerning additional copies of PM loads and PRSUs. Some offices require additional copies of PM loads and PRSUs copied to a parallel device.

Remove the PM load tape from the tape drive and the PRSU tape from the patch drive.

At your desk

33 Determine if the peripheral/remote loader (PRL) circuit card (NT7X05) is available for this PM update. Check office policy and review tables LTCINV, LTCRINV, and RCCINV to identify PMs that have the PRL circuit card. Refer to the “Overview of update process” chapter for information on the PRL circuit card.

34 Confirm each PM to be updated has any required gating hardware. Gating hardware is specific product engineering codes (PEC) required by a PM to support this release. Review this information in the PM to load cross reference table in the “Overview of release” chapter in this document.

Note: All PMs do not have gating hardware.

If each PM	Do
has the required hardware	step 35
does not have the required hardware	Contact the next level of support. This office is not prepared for a PM software update.

35 You have completed this procedure and successfully prepared the office for a PM update.

Using a PRL circuit card to update an XPM

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

ATTENTION
Do not use this procedure if the unit being updated is the first unit in the office to use the new load. Use the appropriate update procedure in this document, and use this procedure to load remaining units.

Use this procedure to use a peripheral/remote loader (PRL) circuit card (NT7X05 or NTSX06) to update one of the following types of XPMs.

XPM list

PM	Description	Processor
DTC	Digital trunk controller (DTC)	NTMX77
	DTC with (DTC7)	NTMX77
DTCI	DTC with ISDN (DTCI)	NTSX05
LGC	Line group controller (LGC)	NTMX77
	LGC with subtending RCC	NTMX77
	LGC with subtending RCC2	NTMX77
	LGC with ILD	NTSX05
	LGCI with subtending RCC	NTSX05
	LGCI with subtending RCC2	NTSX05
LTC	Line trunk controller (LTC)	NTMX77
	LTC with subtending RCC	NTMX77
	LTC with subtending RCC2	NTMX77
	LTC with ILD	NTSX05
LTC (cont)	LTCI with subtending RCC	NTSX05

—continued—

XPM list (continued)

PM	Description	Processor
	LTCI with subtending RCC2	NTSX05
RCC	Remote cluster controller (RCC)	NTMX77
RCC2	Remote cluster controller 2 (RCC2) with ISDN	NTAX74 NTMX77
SMS	Subscriber carrier module-100S (SMS)	NTMX77
SMSR	Subscriber carrier module-100S remote	NTMX77
SMU	Subscriber carrier module-100 urban	NTMX77
	Subscriber carrier module-100 urban with and ISDN	NTMX77

—end—

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The names of all new loads for the PM are datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The XPM is in-service.
- The XPM successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.
- The PRSM automated processes such as DBAUDIT and AUTOAPP must not run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. This information is required to successfully complete this procedure.

- Does the XPM processor firmware require updating?
- Does the CMR load require updating?
  — Does it have PRSUs?
- What is the patch status of the new PM load?

- — Is it a pre-patched load?
- — Do the PRSUs have to applied during this procedure, or were they applied as part of a previous update procedure?

- Is the PM part of a dual RCC or RCC2 configuration?

For assistance, refer to “Overview of release” and “Overview of update process” in this document.

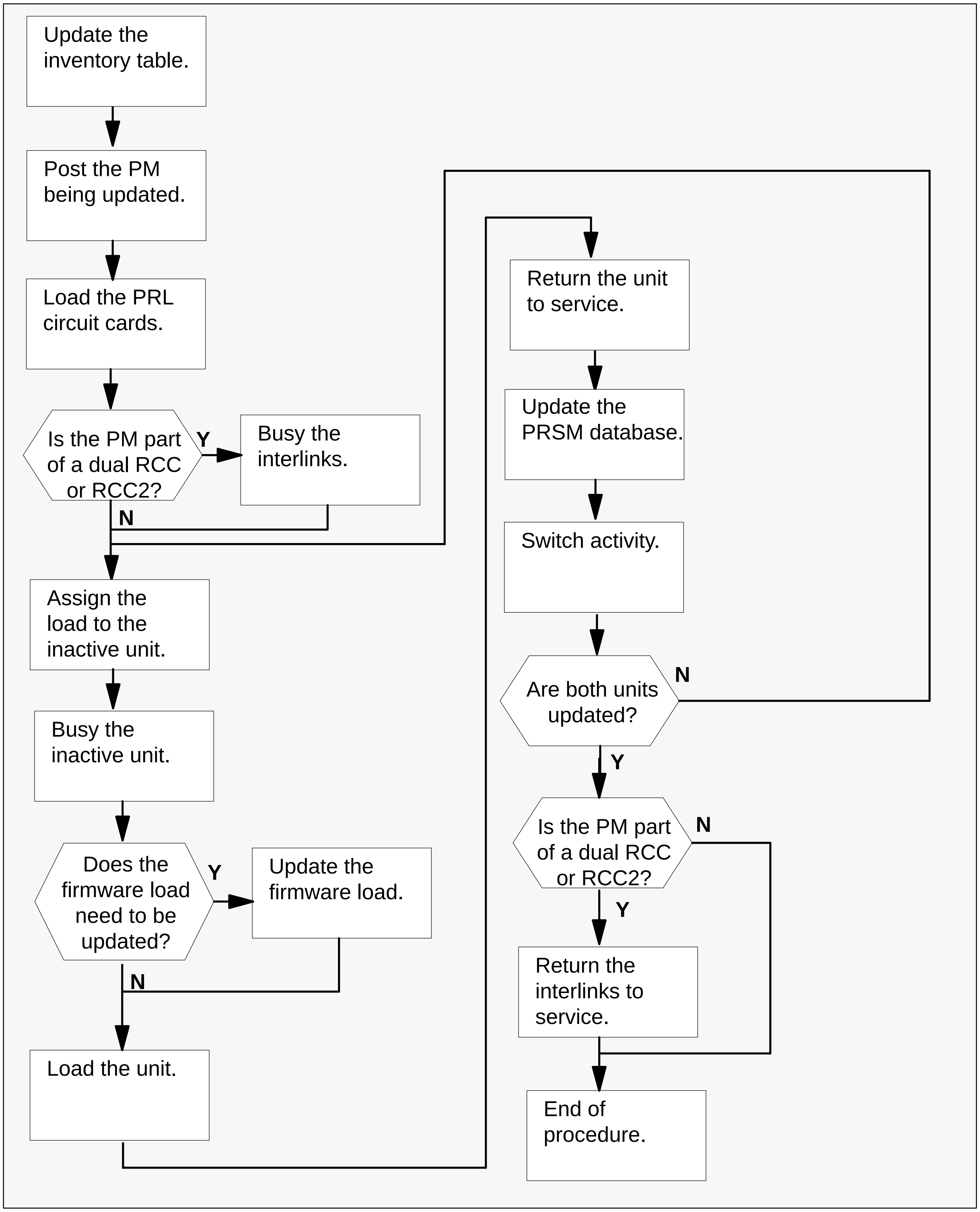
Update sequence

Refer to the PM-specific update procedures in this document for the update sequence of XPMs supported by the PRL circuit card.

Notes

Since loading the PRL circuit card is a background task, offices may wish to load the PRL circuit card with XPMSTOR during business hours of low traffic. The NOWAIT parameter may be used when loading a single PRL circuit card.

Summary of procedure



Steps of procedure

ATTENTION

Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an XPM to update.

2 Confirm all prerequisites for this procedure have been met.

3 Access the PM inventory table by typing

>TABLE pm_inv
and pressing the Enter key.

where

pm_inv	is LTCINV (for a DTC, DTCI, LGC, LTC, SMS, or SMU) is LTCRINV (for an SMSR) is RCCINV (for an RCC or RCC2)

Example

>TABLE LTCINV

4 Change the format of the display to a packed format by typing

>FORMAT PACK
and pressing the Enter key.

5 Position on the datafill tuple for the PM to be updated by typing

>POS pm_type pm_no
and pressing the Enter key.

If updating an RCC or RCC2, type

>POS site_name pm_type pm_no

where

site_name	is the name of the site with the RCC or RCC2
pm_type	is the type of PM
pm_no	is the number of the PM being updated

Example

>POS LGC 0
>POS REM0 RCC 1

6

ATTENTION

If the load name has a date extension, the load is a pre-patched load. Do not datafill the date extension. Refer to “Overview of release” in this document for more information on date extensions and pre-patched loads.

Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load	is the name of the new load

Example

>CHA LOAD ECL08BC

7 Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM state changes to ISTb due to the load mismatch with the inventory table. Continue with this procedure.

If the XPM processor firmware	**Do**
must be updated	step 8
does not need to be updated	step 10

Note: The need for an XPM processor firmware update is determined during the procedure “Preparing for a manual PM update” and reflected in an office’s update checklists and schedules.

8 Change the XPM processor firmware load name to the new load name by typing

>CHA E2LOAD mx_load
and pressing the Enter key.

where

mx_load is the name of the new XPM processor firmware load

Example

>CHA E2LOAD UPFWNJ03

9 Confirm the change by typing

>Y
and pressing the Enter key.

10 Determine if the PM has a CMR load to be updated.

If the CMR load	**Do**
must be updated	step 11
does not need to be updated	step 12

11 Update the CMR load name by performing the following steps.

a. Access the OPTCARD field by typing

>CHA OPTCARD
and pressing the Enter key.

b. Press the Enter key to scroll through the fields until prompted for the CMR load name.

c. Enter the new CMR load name by typing

   >cmr_load
   and pressing the Enter key.

   where

   cmr_load   is the name of the new CMR load

   Example

   >CMR07A

d. Press the Enter key to scroll through the fields until the blank OPTCARD prompt appears.

e. Exit the OPTCARD field by typing

   >$
   and pressing the Enter key.

f. Confirm the change by typing

   >Y
   and pressing the Enter key.

12 Exit the table by typing

>QUIT
and pressing the Enter key.

13 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

14 Post the PM by typing

>POST pm_type pm_no
and pressing the Enter key.

where

pm_type   is the type of PM
pm_no   is the number of the PM being updated

Example

>POST LGC 0

Note: The PM is ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

15

ATTENTION
This step loads both PRL circuit cards. This reduces loading time but may increase risks on ISDN XPMs if a recovery is required.

Load the PRL circuit card by typing the following command.

>XPMSTOR PM
and pressing the Enter key.

Note: The PMs remain ISTb due to the load mismatch between the PRL circuit card and the PMs. The PMs remain ISTb until the PMs are loaded with the new load. Continue with this procedure.

If the PM being updated is	Do
an RCC or RCC2 that is part of a dual RCC configuration	step 16
an RCC or RCC2 that is not part of a dual RCC configuration	step 17
not an RCC or RCC2	step 17

Note: If an RCC or RCC2 is part of a dual RCC configuration, busy the interlinks before continuing with this procedure.

16 Busy the interlinks by performing the following steps.

a. Access the IRLINK level of the MAP display by typing

>IRLINK
and pressing the Enter key.

b. Display the interlinks by typing

>QUERYIR
and pressing the Enter key.

c. Disable interswitching by typing

INTERSWITCH DISABLE

d. Select and busy an interlink by typing

>BSY link_no
and pressing the Enter key.

where

link_no is the number of the interlink

Example

>BSY 1

e. Repeat the previous step for each interlink.

f. Exit the IRLINK level by typing

>QUIT
and pressing the Enter key.

17 Use PRSM to assign the load to the inactive unit by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Identify the new load by typing one of the following commands.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no unit_no
and press the Enter key.

where

new_load	is the name of the new load
pm_type	is the type of PM
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Examples

>ASSIGN UPGRADE_LD ECL08BC IN DESTSET DTC 0 1

18 Exit the utility by typing

>QUIT
and pressing the Enter key.

19 Determine which software release the office is currently at.

If	Do
the office is at MSL08 or lower	steps 20 and 21
the office is at MSL09 or higher	steps 22 through 24

20 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware	Do
must be updated	step 21
does not need to be updated	step 25

21 Load the firmware into the inactive unit by typing

>LOADPM INACTIVE CC FIRMWARE
and pressing the Enter key.

Go to step 25.

22

ATTENTION

To ensure the new firmware is loaded, steps 22 through 24 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 22 through 24. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 22 and 24 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the inactive unit by typing

>LOADFW INACTIVE
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

If the XPM processor firmware	Do
must be updated	step 23
does not need to be updated	step 25

23 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

24 Activate the firmware in the inactive unit by typing

>LOADFW INACTIVE UPGRADE
and pressing the Enter key.

25

CAUTION
Possible service interruption
Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load the inactive unit by typing

>LOADPM INACTIVE LOCAL LOADFILE
and pressing the Enter key.

26 Return the inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

27

ATTENTION
A non-ISDN XPM may change state to ISTb after it returns to service while a new image is taken. Wait for the image to be taken before continuing with this procedure.

Wait for the MAP display to show the unit as in-service. This ensures superframe sync and data sync are achieved.

28 Use PRSM to confirm the inactive unit is properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according the PM's current PRSU list by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is LGC or LTC
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>DBAUDIT LTC 0 1

c. Display the PRSU list for the inactive unit by typing

>REPORT DEST pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is LGC or LTC
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>REPORT DEST LTC 0 1

d. Confirm all PRSUs for the new load are applied to the inactive unit.

If	Do
all PRSUs for the new load are applied to the inactive unit	step 29
all PRSUs for the new load are not applied to the inactive unit	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 28b. If a DBAUDIT has been performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 29. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

29 Exit the utility by typing

>QUIT

and pressing the Enter key.

30 Switch activity between the units by typing

>SWACT

and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

31 Confirm the switch of activity by typing

>Y

and pressing the Enter key.

32 Wait for the MAP display to show the unit as in-service. This ensures superframe sync and data sync are achieved. It may take two to three minutes for the MAP display to show the unit as in-service.

If	Do
one unit is updated	step 17
both units are updated	step 33
Note: If one unit is updated, the inactive unit is ISTb due to the load mismatch between the unit and the PM inventory table. The node remains ISTb until both units are updated with the new load.	

33 Determine if the PM being updated is part of a dual RCC configuration.

If the PM being updated is	Do
an RCC or RCC2 that is part of a dual RCC configuration	step 34
an RCC or RCC2 that is not part of a dual RCC configuration	step 35
not an RCC or RCC2	step 35
Note: If an RCC or RCC2 is part of a dual RCC configuration,return the interlinks to service before continuing with this procedure.	

34 Return the interlinks to service by performing the following steps.

a. Access the IRLINK level of the MAP display by typing

>IRLINK
and pressing the Enter key.

b. Display the interlinks by typing

>QUERYIR
and pressing the Enter key.

c. Return an interlink to service by typing

>RTS link_no
and pressing the Enter key.

where

link_no is the number of the interlink

Example

>RTS 1

d. Repeat the previous step for each interlink.

e. Enable interswitching by typing

INTERSWITCH ENABLE

f. Exit the IRLINK level by typing

>QUIT
and pressing the Enter key.

35 You have successfully used the PRL circuit card to update an XPM and have completed this procedure. Review the update schedule for the office.

If there are	Do
additional XPMs with PRL circuit cards to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the dual RCC or RCC2

Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

> **ATTENTION**
> If the PM being updated is equipped with a peripheral/remote loader (PRL) circuit card, use this procedure to update the first PM in the office that uses the new load. Refer to the procedure “Using a PRL circuit card to update an XPM” in this document to update remaining PMs.

Use this procedure to update one of the following types of PMs in a dual configuration.

PM	Description	Processor
RCC	Remote cluster controller (RCC)	NTMX77
RCC2	Remote cluster controller 2 (RCC2)	NTAX74

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The names of all new loads for the PM are datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The RCC or RCC2 is in-service.
- The RCC or RCC2 successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.
- The PRSM automated processes such as DBAUDIT and AUTOAPP must not run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. This information is required to successfully complete this procedure.

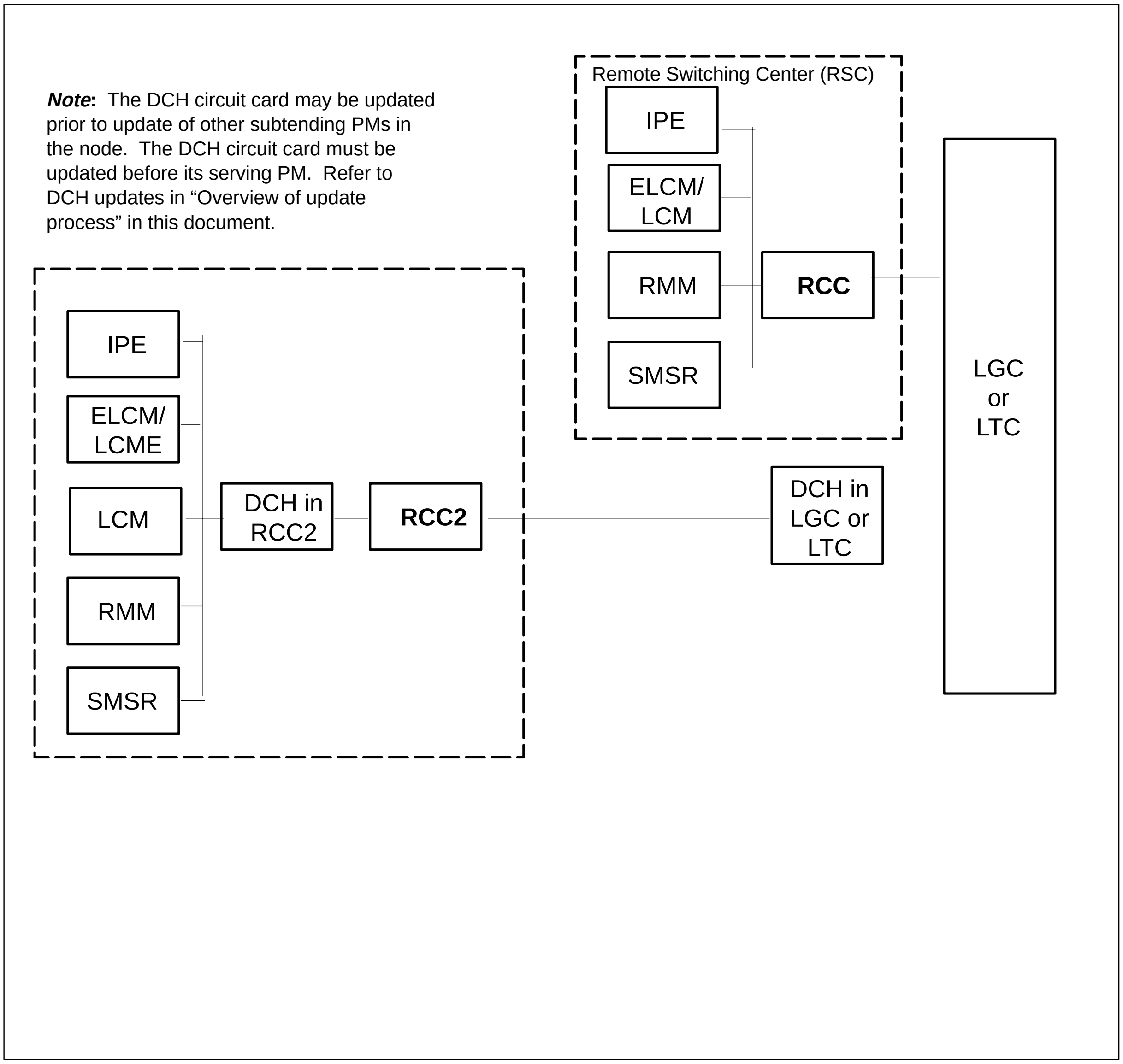
- Does the PM's processor firmware require updating?
- Does the CMR load require updating?
- What is the patch status of the new PM load?
  - — Does it have PRSUs?
  - — Is it a pre-patched load?
  - — Do the PRSUs have to applied during this procedure, or were they applied as part of a previous update procedure?

For assistance, refer to "Overview of release" and "Overview of update process" in this document.

Update sequence

The following figure illustrates possible node configurations for the RCC or RCC2. Subtending PMs must be updated prior to the RCC or RCC2. Serving PMs must be updated after the RCC or RCC2.

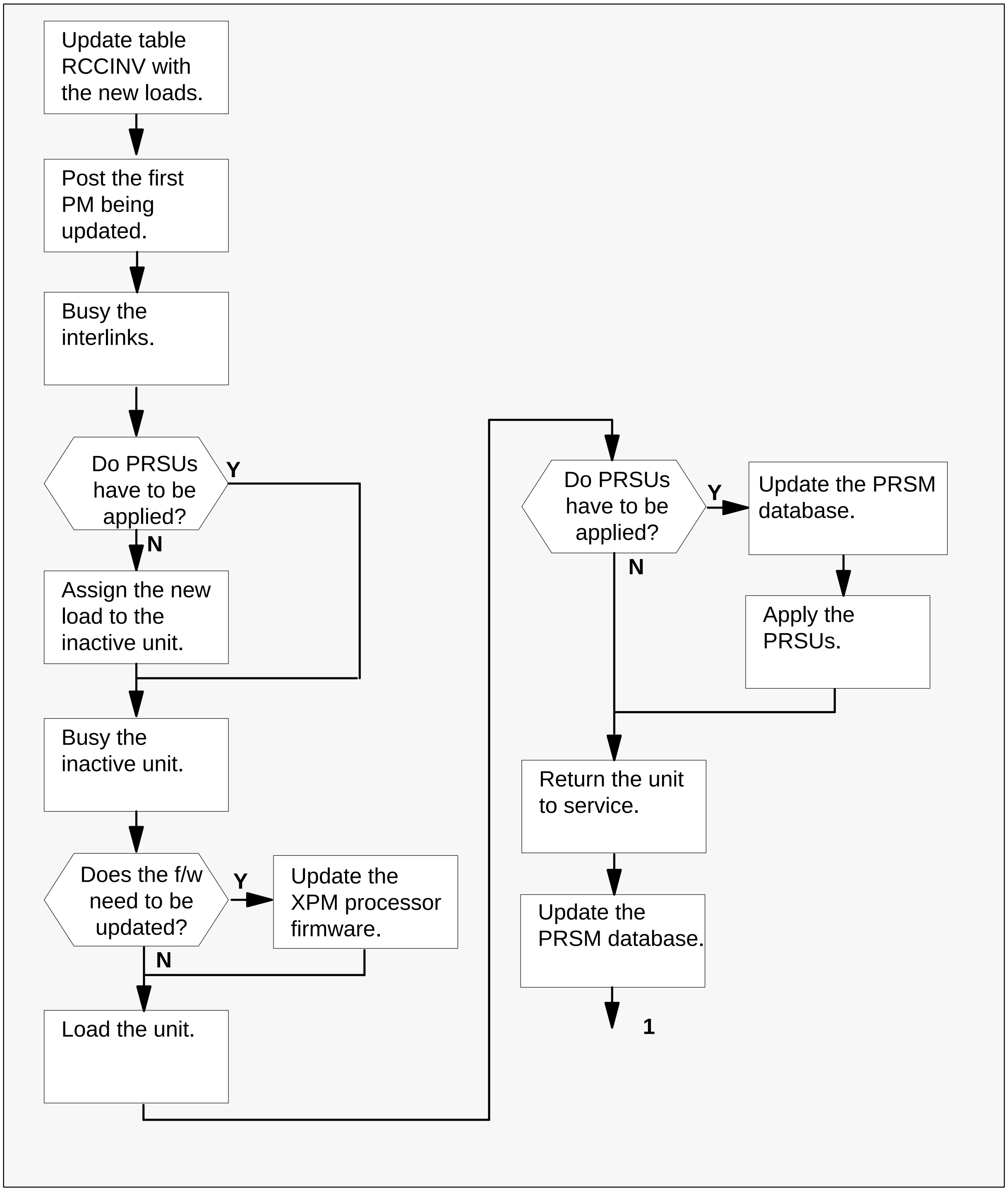
Node configuration for RCC or RCC2



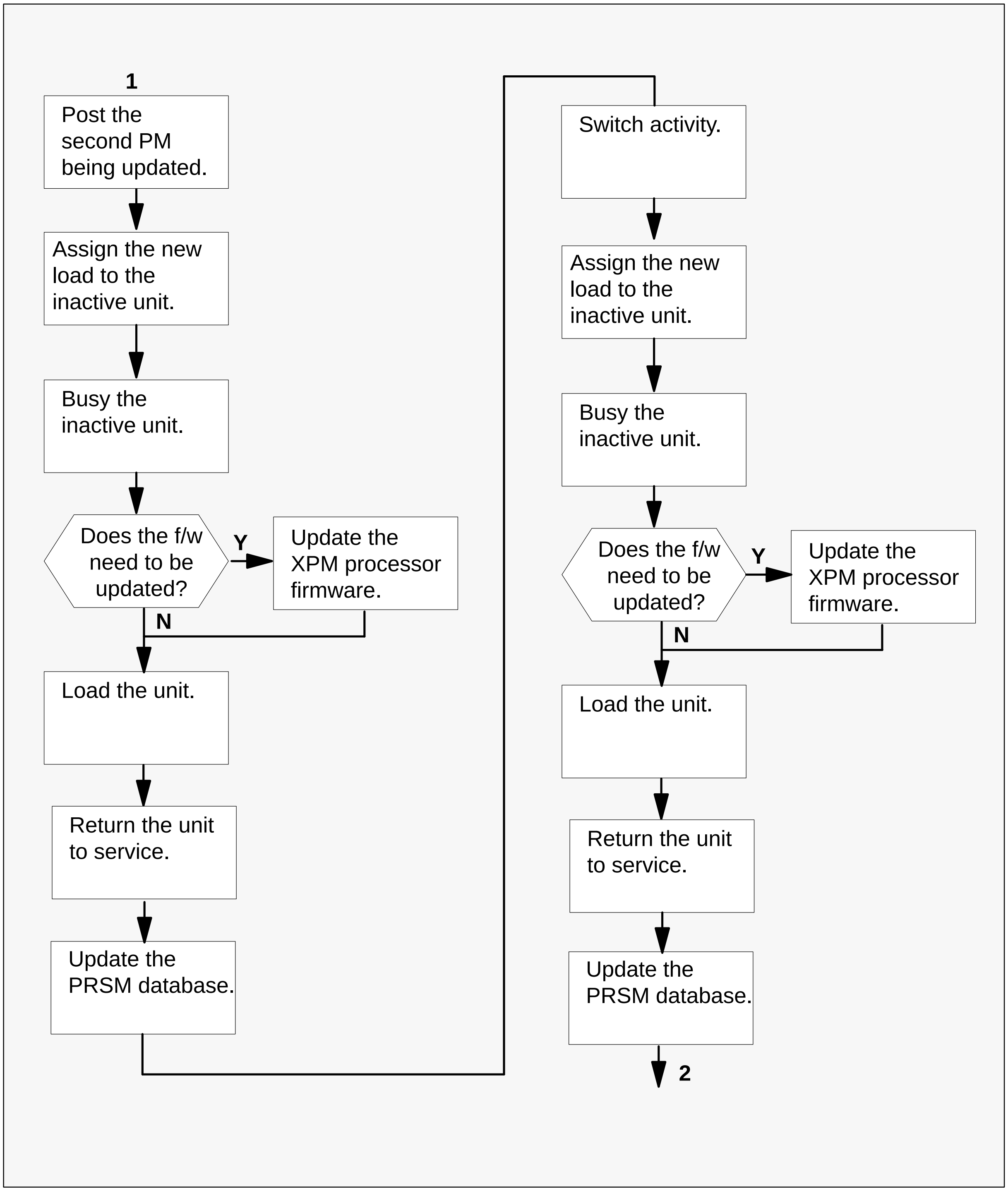
Notes

None.

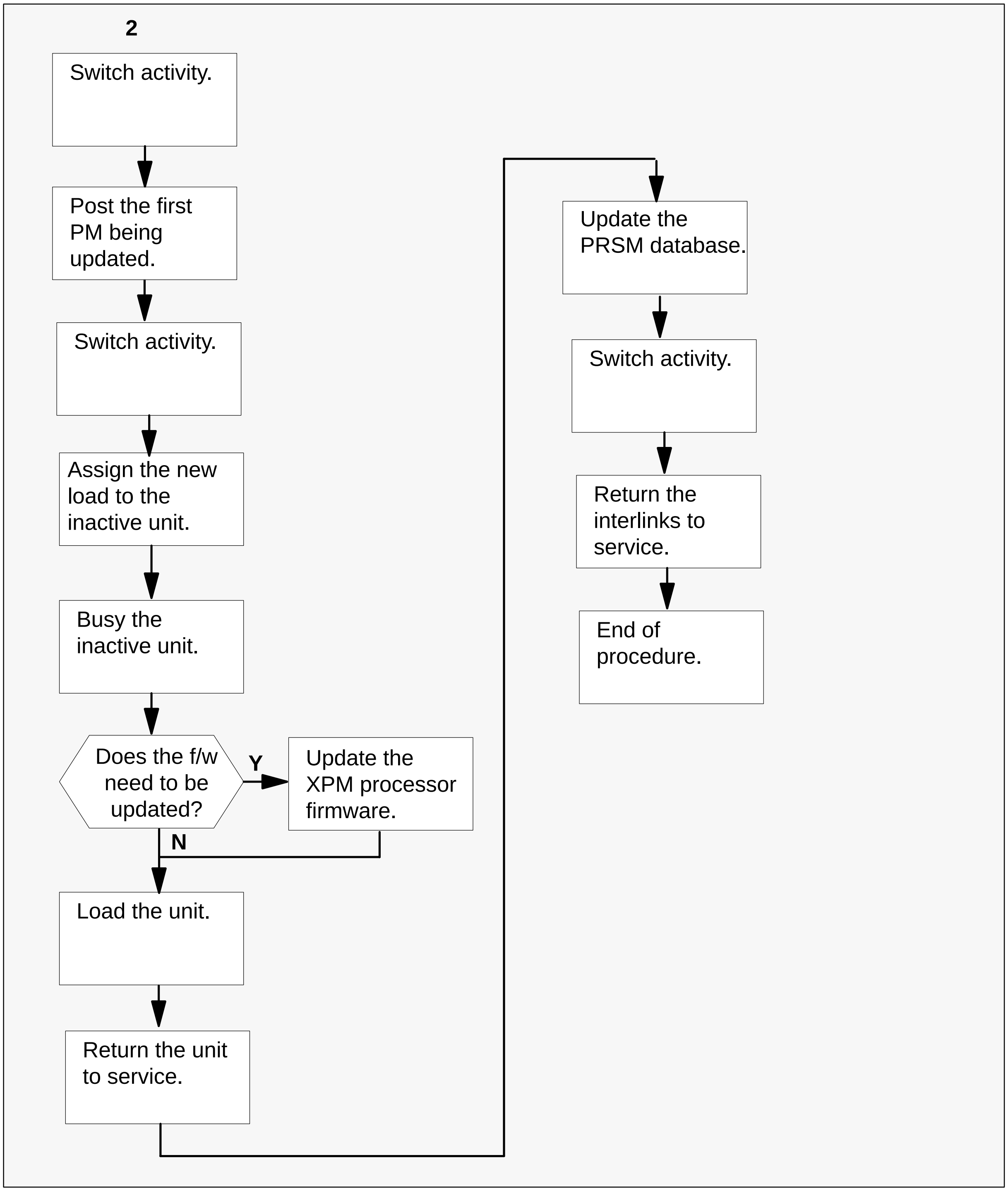
Summary of procedure



Summary of procedure (continued)



Summary of procedure (continued)



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an RCC or RCC2 to update.

2 Confirm all prerequisites for this procedure have been met.

3 Change the PM load in the inventory table by performing the following steps.

a. Access the PM inventory table by typing

>TABLE RCCINV
and pressing the Enter key.

If you wish to view the tuples in	Do
a packed format	step 3b.
a regular or expanded format	step 3c.

b. Change the format of the display to a packed format by typing

>FORMAT PACK
and pressing the Enter key.

c. Position on the datafill tuple for the PM to be updated by typing

>POS site_name pm_type pm_no
and pressing the Enter key.

where

site_name is the name of the site of the RCC or RCC2
pm_type is RCC or RCC2
pm_no is the number of the PM being updated

Example

>POS REM0 RCC 0

d. Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load	is the name of the new load

Example

>CHA LOAD CRI08BC

e. Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM will change state to in-service trouble (ISTb) due to the load mismatch with the inventory table. Continue with this procedure.

If the PM's XPM processor firmware	Do
must be updated	step 4
does not need to be updated	step 5

Note: Review the update schedules and checklists to determine if XPM processor firmware must be updated. The procedures "Preparing for a manual PM update" or "Preparing for a PM update using PMUPGRADE" determine the need for an update of XPM processor firmware.

4 Change the XPM firmware load in the inventory table by performing the following steps.

a. Change the firmware load name to the new firmware load name by typing

>CHA E2LOAD fw_load
and pressing the Enter key.

where

fw_load	is the name of the new XPM processor firmware load

Example

>CHA E2LOAD UPFWNJ03

b. Confirm the change by typing

>Y
and pressing the Enter key.

5 Determine if the PM has a CMR load to be updated.

If the CMR load	Do
must be updated	step 6
does not need to be updated	step 7

6 Update the CMR load name by performing the following steps.

a. Access the OPTCARD field by typing

>CHA OPTCARD
and pressing the Enter key.

b. Press the Enter key to scroll through the fields until prompted for the CMR load name.

c. Enter the new CMR load name by typing

>cmr_load
and pressing the Enter key.

where

cmr_load is the name of the new CMR load

Example

>CMR07A

d. Press the Enter key to scroll through the fields until the blank OPTCARD prompt appears.

e. Exit the OPTCARD field by typing

>$
and pressing the Enter key.

f. Confirm the change by typing

>Y
and pressing the Enter key.

7 Determine if table RCCINV has been updated for both RCCs or RCC2s.

If table RCCINV has been updated	Do
for one RCC or RCC2	step 3c.
for both RCCs or RCC2s	step 8

8 Exit the table by typing

>QUIT
and pressing the Enter key.

9 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

10 Post the first RCC or RCC2 by typing

>POST pm_type pm_no
and pressing the Enter key.

where

pm_type	is the first RCC or RCC2
pm_no	is the number of the PM being updated

Example

>POST RCC 0

Note: The PM is ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

11 Busy the interlinks by performing the following steps.

a. Access the IRLINK level of the MAP display by typing

>IRLINK
and pressing the Enter key.

b. Display the interlinks by typing

>QUERYIR
and pressing the Enter key.

c. Disable interswitching by typing

>INTERSW DISABLE
and pressing the Enter key.

d. Select and busy an interlink by typing

>BSY link_no
and pressing the Enter key.

where

link_no	is the number of the interlink

Example

>BSY 1

e. Confirm the action by typing

>Y
and pressing the Enter key.

f. Repeat the previous step for each interlink.

g. Exit the IRLINK level by typing

>QUIT
and pressing the Enter key.

12 Identify the inactive unit in the first RCC or RCC2. This is the unit to be updated.

13 Review the update schedules for the office and determine if the inactive unit is the first unit in the office to use the new load.

If the inactive unit is	Do
the first unit in the office to use the new load	step 15
not the first unit in the office to use the new load	step 14

14 Use PRSM to assign the new load to the inactive unit by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b.

> **ATTENTION**
> After performing this step, do not use the DBAUDIT command unless the command is specified in this procedure. The use of the DBAUDIT command prior to the LOADPM command on a PM unit can link PRSUs from the previous load to the new PM load.

Set the new load to the inactive unit by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no unit_no
and pressing the Enter key.

where

new_load	is the name of the new load
pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the first RCC or RCC2

Examples

>ASSIGN UPGRADE_LD CRI08BC IN DESTSET RCC 0 1

c. Exit the utility by typing

>QUIT
and pressing the Enter key.

15 Determine which software release the office is currently at.

If	Do
the office is at MSL08 or lower	steps 16 and 17
the office is at MSL09 or higher	steps 18 through 20

16 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 17
does not need to be updated	step 21

17 Load the firmware into the inactive unit by typing

>LOADPM INACTIVE CC FIRMWARE
and pressing the Enter key.

Go to step 21.

18

ATTENTION

To ensure the new firmware is loaded, steps 18 through 20 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 18 through 20. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 18 and 20 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the inactive unit by typing

>LOADFW INACTIVE
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

19 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 20
does not need to be updated	step 21

20 Update the firmware into the inactive unit by typing

>LOADFW INACTIVE UPGRADE
and pressing the Enter key.

21

CAUTION
Possible service interruption
Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load the inactive unit by typing

>LOADPM INACTIVE
and pressing the Enter key.

If the inactive unit is	Do
the first unit in the office to use the new load	step 22
not the first unit in the office to use the new load	step 24

22 Review the PM update checklist for the office and determine the patch status for the new load.

If the new load	Do
has PRSUs to be manually applied	step 23
does not have PRSUs to be manually applied	step 24

23 Use PRSM to apply the PRSUs by performing the following steps.

CAUTION
Possible service interruption
Apply PRSUs immediately after updating the load. Failure to do so can increase administrative time and interrupt service.

a.

Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database with the name of the new load by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the first RCC or RCC2

Example

>DBAUDIT RCC 0 1

c. Apply the PRSUs by typing

>APPLY ’prsu_id IN pm_type pm_no unit_no
and pressing the Enter key.

where

prsu_id	is the name of the PRSU (repeat variable as required)
pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the first RCC or RCC2

Example of single-line command

>APPLY ’XAJ13X08 I XRP29X08 I XBA45X08 IN RCC 0 1

Example of double-line command

>APPLY ’XAJ13X08 I XRP29X08 I XBA45X08 I XDJ02X08 I +
>’XD02908 I XJL87X08 I XAH13X08 IN RCC 0 1

Note: It is not necessary to apply the PRSUs in a particular order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility by typing

>QUIT
and pressing the Enter key.

24 Return the inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

25 Wait for the MAP display to show the new loaded unit unit as in-service. This ensures superframe sync and data sync are achieved.

26 Confirm the inactive unit is properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according the PM's current PRSU list by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the first RCC or RCC2

Example

>DBAUDIT RCC 0 1

c. Display the PRSU list for the inactive unit by typing

>REPORT DEST pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the first RCC or RCC2

Example

>REPORT DEST RCC 0 1

d. Confirm all PRSUs for the new load are applied to the inactive unit.

If	Do
all PRSUs for the new load are applied to the inactive unit	step 27
all PRSUs for the new load are not applied to the inactive unit	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 26b. If a DBAUDIT has been performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 27. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

27 Exit the utility by typing

>QUIT
and pressing the Enter key.

28 Post the second RCC or RCC2 by typing

>POST pm_type pm_no
and pressing the Enter key.

where

pm_type   is the second RCC or RCC2
pm_no   is the number of the PM being updated

Example

>POST RCC 1

29 Identify the inactive unit in the second RCC or RCC2. This is the unit to be updated.

30 Use PRSM to assign the new load to the inactive unit by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Set the new load to the inactive unit by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no unit_no
and pressing the Enter key.

where

new_load	is the name of the new load
pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the second RCC or RCC2

Examples

>ASSIGN UPGRADE_LD CRI08BC IN DESTSET RCC 1 1

c. Exit the utility by typing

>QUIT
and pressing the Enter key.

31

If	Do
the office is at MSL08 or lower	steps 32 and 33
the office is at MSL09 or higher	steps 34 through 36

32 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 33
does not need to be updated	step 37

33 Load the firmware into the inactive unit by typing

>LOADPM INACTIVE CC FIRMWARE
and pressing the Enter key.

Go to step 37.

34

> **ATTENTION**
>
> To ensure the new firmware is loaded, steps 34 through 36 must be performed consecutively.
>
> Do not use the PMRESET or LOADPM command between steps 34 through 36. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.
>
> If the PMRESET or LOADPM command is entered between steps 34 and 36 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the inactive unit by typing

>LOADFW INACTIVE
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

35 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 36
does not need to be updated	step 37

36 Update the firmware in the inactive unit by typing

>LOADFW INACTIVE UPGRADE
and pressing the Enter key.

37

> **CAUTION**
> **Possible service interruption**
> Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load the inactive unit by typing

>LOADPM INACTIVE
and pressing the Enter key.

38 Return the inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

39 Wait for the MAP display to show the new loaded unit as in-service. This ensures superframe sync and data sync are achieved.

40 Confirm the inactive unit is properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according the PM's current PRSU list by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the second RCC or RCC2

Example

>DBAUDIT RCC 1 1

c. Display the PRSU list for the inactive unit by typing

>REPORT DEST pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the second RCC or RCC2

Example

>REPORT DEST RCC 1 1

d. Confirm all PRSUs for the new load are applied to the inactive unit.

If	Do
all PRSUs for the new load are applied to the inactive unit	step 41
all PRSUs for the new load are not applied to the inactive unit	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 40b. If a DBAUDIT has been performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 41. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

41 Exit the utility by typing

>QUIT
and pressing the Enter key.

42 Switch activity between the units by typing

>SWACT
and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault that is unrelated to the software update. Troubleshoot the condition or contact the next level of support.

43 Confirm the switch of activity by typing

>Y

44 Wait for the MAP display to show the new loaded unit as in-service. This ensures superframe sync and data sync are achieved. It may take two to three minutes for the MAP display to show the unit as in-service.

45 Use PRSM to assign the new load to the inactive unit by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Set the new load to the inactive unit by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no unit_no
and press the Enter key.

where

new_load	is the name of the new load
pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the second RCC or RCC2

Examples

>ASSIGN UPGRADE_LD CRI08BC IN DESTSET RCC 1 0

c. Exit the utility by typing

>QUIT
and pressing the Enter key.

46

If	Do
the office is at MSL08 or lower	steps 47 and 48
the office is at MSL09 or higher	steps 49 through 51

47 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 49
does not need to be updated	step 52

48 Load the firmware into the inactive unit by typing

>LOADPM INACTIVE CC FIRMWARE
and pressing the Enter key.

Go to step 52.

49

ATTENTION

To ensure the new firmware is loaded, steps 49 through 51 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 49 through 51. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 49 and 51 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the inactive unit by typing

>LOADFW INACTIVE
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

50 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 51
does not need to be updated	step 52

51 Update the firmware in the inactive unit by typing

>LOADFW INACTIVE UPGRADE
and pressing the Enter key.

52

CAUTION
Possible service interruption
Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load the inactive unit by typing

>LOADPM INACTIVE
and pressing the Enter key.

53 Return the inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

54 Wait for the MAP display to show the new loaded unit as in-service. This ensures superframe sync and data sync are achieved.

55 Update the PRSM database by performing the following steps.

a. Update the PRSM database according the PM's current PRSU list by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the second RCC or RCC2

Example

>DBAUDIT RCC 1 0

b. Display the PRSU list for the inactive unit by typing

>REPORT DEST pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the second RCC or RCC2

Example

>REPORT DEST RCC 1 0

c. Confirm all PRSUs for the new load are applied to the inactive unit.

If	Do
all PRSUs for the new load are applied to the inactive unit	step 56
all PRSUs for the new load are not applied to the inactive unit	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 55b. If a DBAUDIT has been performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 56. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

56 Exit the utility by typing

>QUIT

and pressing the Enter key.

57 Switch activity between the units and return to their original service states by typing

>SWACT

and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

58 Confirm the switch of activity by typing

>Y

59 Wait for the MAP display to show the newly loaded unit as in-service. This ensures superframe sync and data sync are achieved. It may take two to three minutes for the MAP display to show the unit as in-service.

60 Post the first RCC or RCC2 by typing

>POST pm_type pm_no

and pressing the Enter key.

where

pm_type	is the first RCC or RCC2
pm_no	is the number of the PM being updated

Example

>POST RCC 0

61 Switch activity between the units by typing

>SWACT

and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault that is unrelated to the software update. Troubleshoot the condition or contact the next level of support.

62 Confirm the switch of activity by typing

>Y

63 Wait for the MAP display to show the new loaded unit as in-service. This ensures superframe sync and data sync are achieved. It may take two to three minutes for the MAP display to show the unit as in-service.

64 Identify the new inactive unit in the second RCC or RCC2. This is the unit to be updated.

65 Use PRSM to assign the new load to the inactive unit by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Set the new load to the inactive unit by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no unit_no
and pressing the Enter key.

where

new_load	is the name of the new load
pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the first RCC or RCC2

Examples

>ASSIGN UPGRADE_LD CRI08BC IN DESTSET RCC 0 0

c. Exit the utility by typing

>QUIT
and pressing the Enter key.

66

If	Do
the office is at MSL08 or lower	steps 67 and 68
the office is at MSL09 or higher	steps 69 through 71

67 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 68
does not need to be updated	step 72

68 Load the firmware into the inactive unit by typing

>LOADPM INACTIVE CC FIRMWARE
and pressing the Enter key.

Go to step 72.

69

> **ATTENTION**
>
> To ensure the new firmware is loaded, steps 69 through 71 must be performed consecutively.
>
> Do not use the PMRESET or LOADPM command between steps 69 through 71. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.
>
> If the PMRESET or LOADPM command is entered between steps 69 and 71 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the inactive unit by typing

>LOADFW INACTIVE

and pressing the Enter key.

70 Busy the inactive unit by typing

>BSY INACTIVE

and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 71
does not need to be updated	step 72

71 Update the firmware in the inactive unit by typing

>LOADFW INACTIVE UPGRADE

and pressing the Enter key.

72

> **CAUTION**
> **Possible service interruption**
> Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load the inactive unit by typing

>LOADPM INACTIVE
and pressing the Enter key.

73 Return the inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

74 Wait for the MAP display to show the new loaded unit as in-service. This ensures superframe sync and data sync are achieved.

75 Confirm the unit has the correct PRSUs.

76 Update the PRSM database by performing the following steps.

a. Update the PRSM database according the PM's current PRSU list by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the first RCC or RCC2

Example

>DBAUDIT RCC 0 0

b. Display the PRSU list for the inactive unit by typing

>REPORT DEST pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit in the first RCC or RCC2

Example

>REPORT DEST RCC 0 0

c. Confirm all PRSUs for the new load are applied to the inactive unit.

If	Do
all PRSUs for the new load are applied to the inactive unit	step 77
all PRSUs for the new load are not applied to the inactive unit	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 76b. If a DBAUDIT has been performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 77. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

77 Exit the utility by typing

>QUIT
and pressing the Enter key.

78 Switch activity between the units and return to their original service states by typing

>SWACT
and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

79 Confirm the switch of activity by typing

>Y

80 Wait for the MAP display to show the new loaded unit as in-service. This ensures superframe sync and data sync are achieved. It may take two to three minutes for the MAP display to show the unit as in-service.

81 Return the interlinks to service by performing the following steps.

a. Access the IRLINK level of the MAP display by typing

>IRLINK
and pressing the Enter key.

b. Display the interlinks by typing

>QUERYIR
and pressing the Enter key.

c. Return an interlink to service by typing

>RTS link_no
and pressing the Enter key.

where

link_no is the number of the interlink

Example

>RTS 1

d. Repeat the previous step for each interlink.

e. Enable interswitching by typing

>INTERSW ENABLE
and pressing the Enter key.

f. Exit the IRLINK level by typing

>QUIT
and pressing the Enter key.

82 You have successfully updated the RCC or RCC2 and completed this procedure. Review the update schedule for the office.

If there are	Do
additional dual RCCs or RCC2s to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the RCC or RCC2

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

ATTENTION
Do not use this procedure if updating an RCC or RCC2 in a dual configuration. Refer to the procedure “Updating a dual RCC or RCC2” in this document.

If the PM being updated is equipped with a peripheral/remote loader (PRL) circuit card, use this procedure to update the first PM in the office that uses the new load. Refer to the procedure “Using a PRL circuit card to update an XPM” in this document to update remaining PMs.

Use this procedure to update one of the following types of PMs.

PM	Description	Processor
RCC	Remote cluster controller (RCC)	NTMX77
RCC2	Remote cluster controller 2 (RCC2)	NTAX74 NTMX77

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The names of all new loads for the PM are datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The RCC or RCC2 is in-service.
- The RCC or RCC2 successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

- The PRSM automated processes such as DBAUDIT and AUTOAPP must not run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. This information is required to successfully complete this procedure.

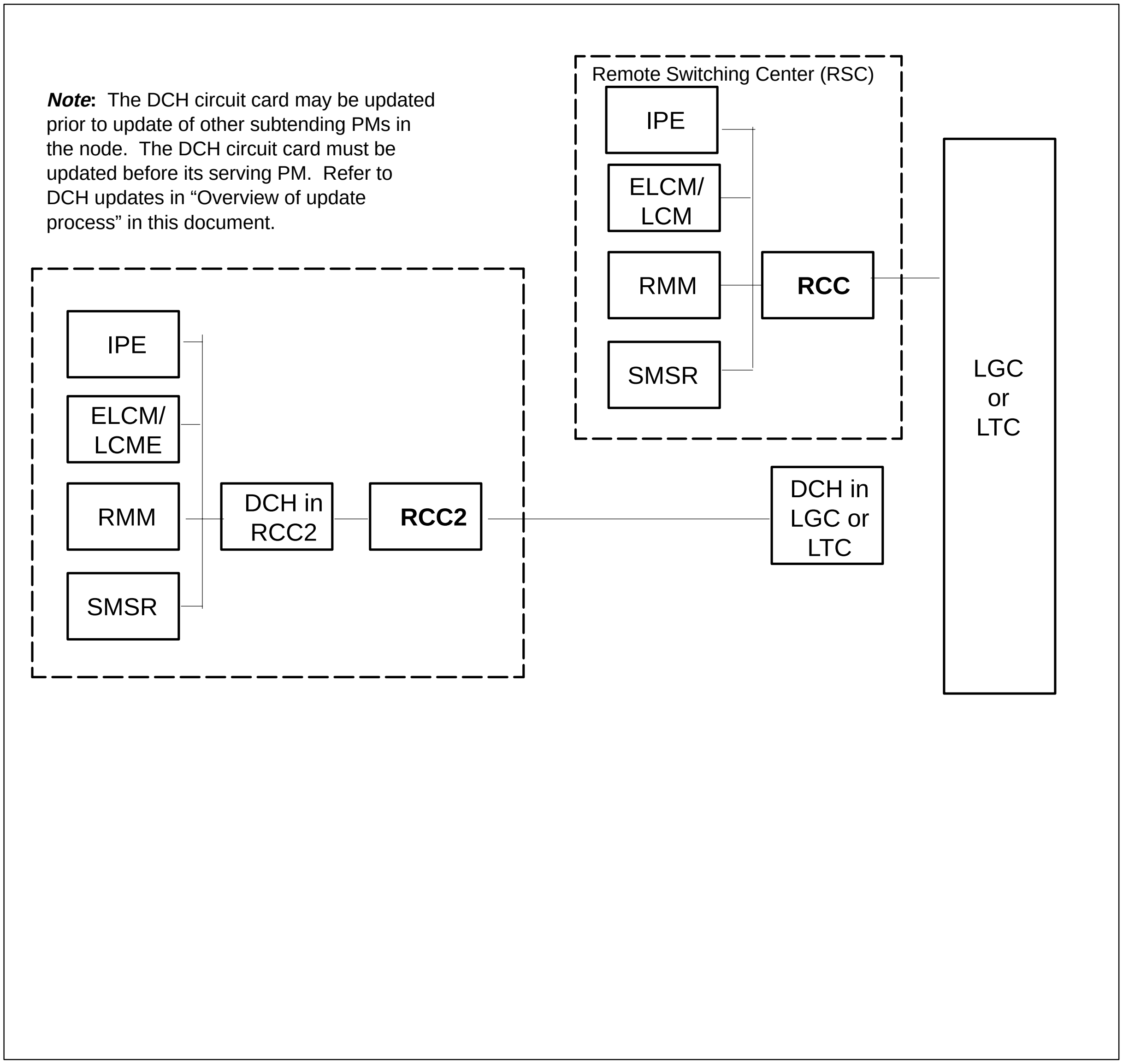
- Does the PM's processor firmware require updating?
- Does the CMR load require updating?
- What is the patch status of the new PM load?
  - Does it have PRSUs?
  - Is it a pre-patched load?
  - Do the PRSUs have to applied during this procedure, or were they applied as part of a previous update procedure?

For assistance, refer to “Overview of release” and “Overview of update process” in this document.

Update sequence

The following figure illustrates possible node configurations for the RCC or RCC2. Subtending PMs must be updated prior to the RCC or RCC2. Serving PMs must be updated after the RCC or RCC2.

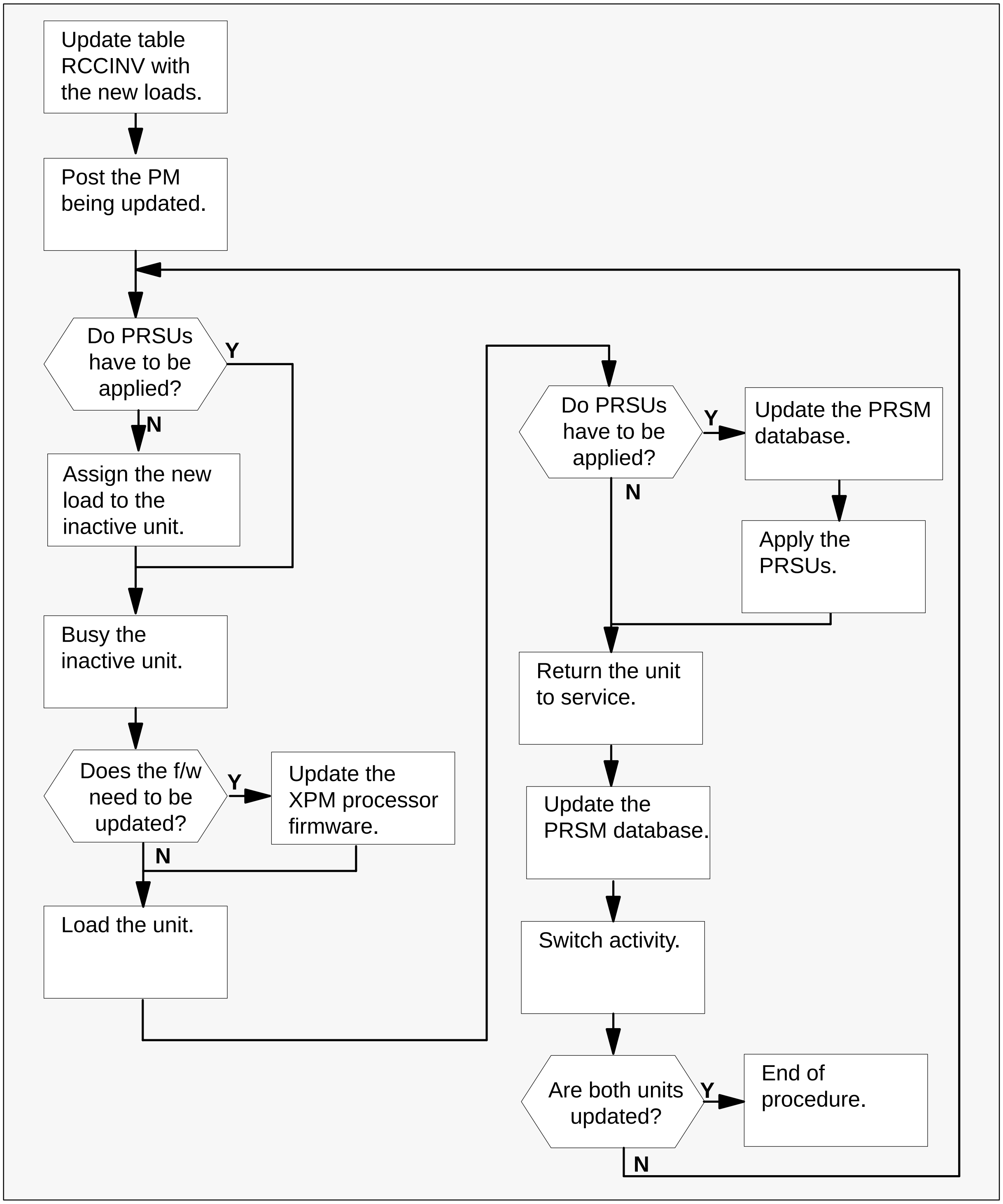
Node configuration for RCC or RCC2



Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Do not use this procedure if updating an RCC or RCC2 in a dual configuration. Refer to the procedure "Updating a dual RCC or RCC2" in this document.

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an RCC or RCC2 to update.

2 Confirm all prerequisites for this procedure have been met.

3 Change the PM load in the inventory table by performing the following steps.

a. Access the PM inventory table by typing

>TABLE RCCINV
and pressing the Enter key.

If you wish to view the tuples in	Do
a packed format	step 3b.
a regular or expanded format	step 3c.

b. Change the format of the display to a packed format by typing

>FORMAT PACK
and pressing the Enter key.

c. Position on the datafill tuple for the PM to be updated by typing

>POS site_name pm_type pm_no
and pressing the Enter key.

where

site_name	is the name of the site
pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated

Example

>POS REM1 RCC 0

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched load. Do not datafill the date extension. Refer to “Overview of release” in this document for more information on date extensions and pre-patched loads.

Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load	is the name of the new load

Example

>CHA LOAD CRI08BC

e. Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM will change state to in-service trouble (ISTb) due to the load mismatch with the inventory table. Continue with this procedure.

If the PM’s XPM processor firmware	Do
must be updated	step 4
does not need to be updated	step 5

Note: Review the update schedules and checklists to determine if XPM processor firmware must be updated. The procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” determine the need for an update of XPM processor firmware.

4 Change the XPM firmware load in the inventory table by performing the following steps.

a. Change the firmware load name to the new firmware load name by typing

>CHA E2LOAD fw_load
and pressing the Enter key.

where

fw_load is the name of the new XPM processor firmware load

Example

>CHA E2LOAD UPFWNJ03

b. Confirm the change by typing

>Y
and pressing the Enter key.

5 Determine if the PM has a CMR load to be updated.

If the CMR load	Do
must be updated	step 6
does not need to be updated	step 7

6 Update the CMR load name by performing the following steps.

a. Access the OPTCARD field by typing

>CHA OPTCARD
and pressing the Enter key.

b. Press the Enter key to scroll through the fields until prompted for the CMR load name.

c. Enter the new CMR load name by typing

>cmr_load
and pressing the Enter key.

where

cmr_load is the name of the new CMR load

Example

>CMR07A

d. Press the Enter key to scroll through the fields until the blank OPTCARD prompt appears.

e. Exit the OPTCARD field by typing

>$
and pressing the Enter key.

f. Confirm the change by typing

>Y
and pressing the Enter key.

7 Exit the table by typing

>QUIT
and pressing the Enter key.

8 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

9 Post the PM by typing

>POST pm_type pm_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated

Example

>POST RCC 0

Note: The PM is ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

10 Identify the inactive unit. This is the unit to be updated.

11 Review the update schedules for the office and determine if the inactive unit is the first unit in the office to use the new load.

If the inactive unit is	Do
the first unit in the office to use the new load	step 13
not the first unit in the office to use the new load	step 12

12 Use PRSM to assign the new load to the inactive unit by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b.

> **ATTENTION**
> After performing this step, do not use the DBAUDIT command unless the command is specified in this procedure. The use of the DBAUDIT command prior to the LOADPM command can link PRSUs from the previous load to the new PM load.

Assign the new load to the inactive unit by typing one of the following commands.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no unit_no
and pressing the Enter key.

where

new_load	is the name of the new load
pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Examples

>ASSIGN UPGRADE_LD CRI08BC IN DESTSET RCC 0 1

c. Exit the utility by typing

>QUIT
and pressing the Enter key.

13 Determine which software release the office is currently at.

If	Do
the office is at MSL08 or lower	steps 14 through 16
the office is at MSL09 or higher	steps17 through 20

14 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 15
does not need to be updated	step 16

15 Load the firmware into the inactive unit by typing

LOADPM INACTIVE CC FIRMWARE
and pressing the Enter key.

Go to step 16.

16

CAUTION
Possible service interruption
Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load the inactive unit by typing

>LOADPM INACTIVE
and pressing the Enter key.

If the inactive unit is	Do
the first unit in the office to use the new load	step 21
not the first unit in the office to use the new load	step 23

17

> **ATTENTION**
>
> To ensure the new firmware is loaded, steps 17 through 19 must be performed consecutively.
>
> Do not use the PMRESET or LOADPM command between steps 17 through 19. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.
>
> If the PMRESET or LOADPM command is entered between steps 17 and 19 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the inactive unit by typing

>LOADFW INACTIVE
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

18 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 19
does not need to be updated	step 20

19 Activate the firmware in the inactive unit by typing

>LOADFW INACTIVE UPGRADE
and pressing the Enter key.

20 Load the inactive unit by typing

>LOADPM INACTIVE
and pressing the Enter key.

If the inactive unit is	Do
the first unit in the office to use the new load	step 21
not the first unit in the office to use the new load	step 23

21 Review the PM update checklist for the office, determine the patch status for the new load.

If the new load	Do
has PRSUs to be manually applied	step 22
does not have PRSUs to be manually applied	step 23

22

CAUTION
Possible service interruption
Apply PRSUs immediately after updating the load. Failure to do so can increase administrative time and interrupt service.

Apply the PRSUs by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database with the new load name by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>DBAUDIT RCC 0 1

c. Apply the PRSUs that need to be manually applied by typing

>APPLY 'prsu_id IN pm_type pm_no unit_no
and pressing the Enter key.

where

prsu_id	is the name of the PRSU (repeat variable as required)
pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example of single-line command

>APPLY 'XAJ13X08 l XRP29X08 l XBA45X08 IN RCC 0 1

Example of double-line command

>APPLY 'XAJ13X08 l XRP29X08 l XBA45X08 l XDJ02X08 l +
>'XD02908 l XJL87X08 l XAH13X08 IN RCC 0 1

Note: It is not necessary to apply the PRSUs in a particular order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility by typing

>QUIT
and pressing the Enter key.

23 Return the inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

24 Wait for the MAP display to show the unit as in-service (InSv). This ensures superframe sync and data sync are achieved.

25 Confirm the inactive unit is properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according the PM’s current PRSU list by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>DBAUDIT RCC 0 1

c. Display the PRSU list for the inactive unit by typing

>REPORT DEST pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is RCC or RCC2
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>REPORT DEST RCC 0 1

d. Confirm all PRSUs for the new load are applied to the inactive unit.

If	Do
all PRSUs for the new load are applied to the inactive unit	step 26
all PRSUs for the new load are not applied to the inactive unit	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 25b. If a DBAUDIT has been performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 26. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

26 Exit the utility by typing

>QUIT

and pressing the Enter key.

27 Switch activity between the units by typing

>SWACT

and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

28 Confirm the switch of activity by typing

>Y

29 Wait for the MAP display to show the new loaded unit as in-service. This ensures superframe sync and data sync are achieved. It may take two to three minutes for the MAP display to show the unit as in-service.

If	Do
one unit is updated	step 10
both units are updated	step 30

Note: If one unit is updated, the inactive unit is ISTb due to the load mismatch between the unit and the PM inventory table. The node remains ISTb until both units are updated with the new load.

30 You have successfully updated the RCC or RCC2 and completed this procedure. Review the update schedule for the office.

If there are	Do
additional RCCs or RCC2s to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the RMM

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the remote maintenance module (RMM).

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The RMM is in-service.
- Automatic REX testing is suspended in the office.

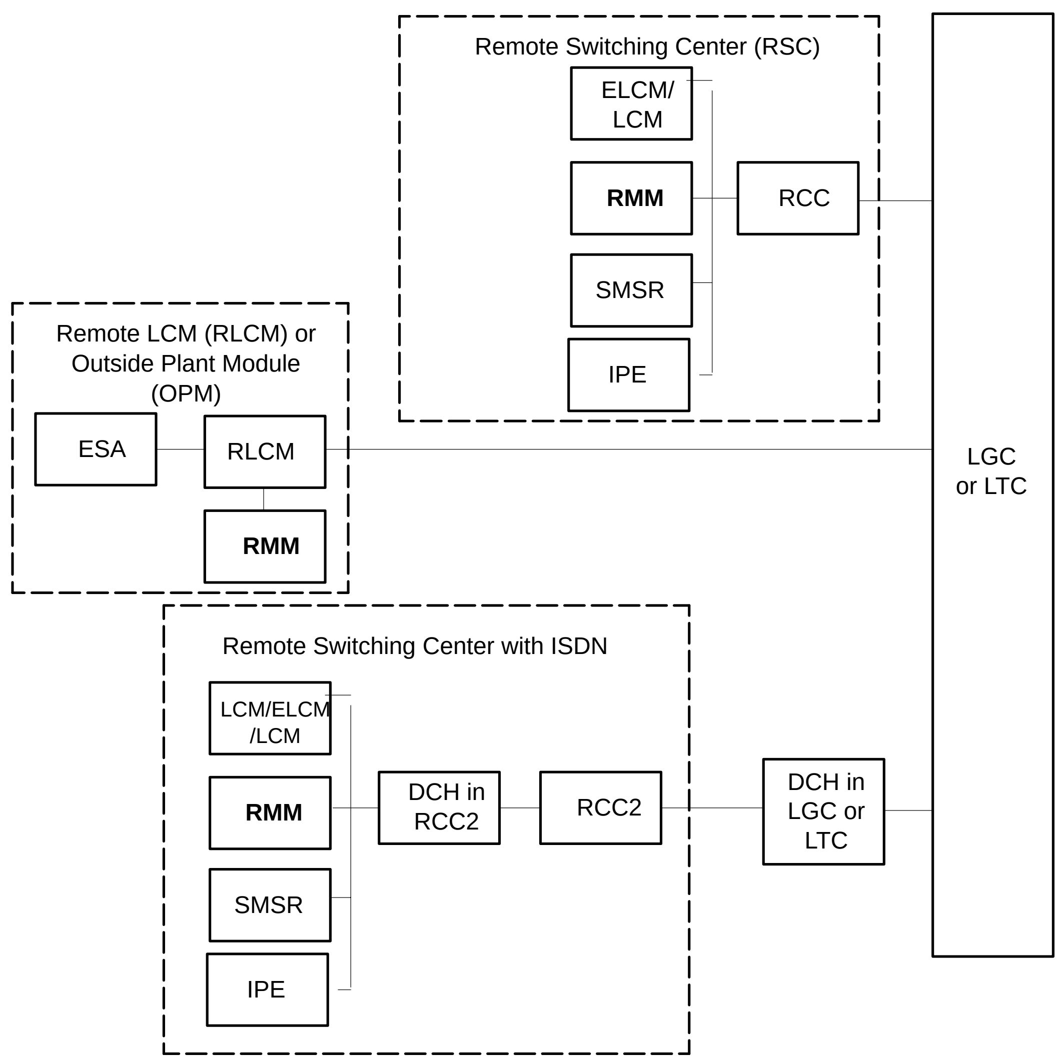
Required information

None

Update sequence

The following figure illustrates possible node configurations for the RMM. Subtending PMs must be updated prior to the RMM. Serving PMs must be updated after the RMM.

Node configuration for RMM

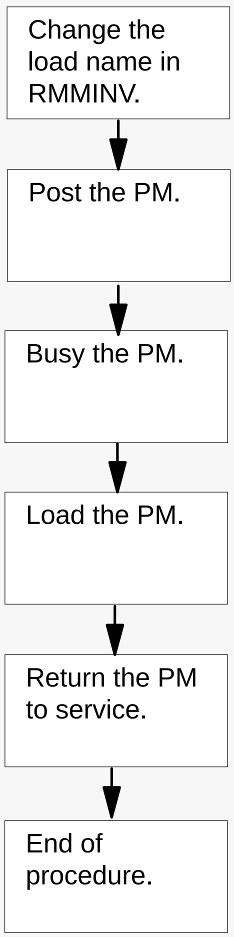


***Note*:** The DCH circuit card must be updated before its serving PM, but it can be updated prior to other subtending PMs in the node. Refer to DCH updates in "Overview of update process" in this document.

Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an RMM to update.

2 Confirm all prerequisites for this procedure have been met.

3 Access the RMM inventory table by typing

>TABLE RMMINV
and pressing the Enter key.

4 Position on the datafill tuple for the RMM to be updated by typing

>POS site_name RMM rmm_no
and pressing the Enter key.

where

site_name	is the name of the RMM's site
rmm_no	is the number of the RMM

5 Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load	is the name of the new load

6 Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM state changes to ISTb due to the load mismatch with the inventory table. Continue with this procedure.

7 Exit the table by typing

>QUIT
and pressing the Enter key.

8 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

9 Post the RMM by typing

>POST RMM rmm_no
and pressing the Enter key.

where

rmm_no   is the number of the RMM being updated

Note: The PM is ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

10 Busy the RMM by typing

>BSY
and pressing the Enter key.

11 List the volume where the RMM load resides by typing

>DISKUT; LF vol_name
and pressing the Enter key.

where

vol_name   is the name of the volume

12 Load the RMM by typing

>LOADPM
and pressing the Enter key.

13 Return the RMM to service by typing

>RTS
and pressing the Enter key.

14 You have successfully updated the RMM and completed this procedure. Review the update schedule.

If there are	Do
additional RMMs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Update procedures

The procedures in this chapter describe how to update peripheral modules (PM) and other hardware types during the PM update process.

The summary of procedures in this chapter are flowcharts which represent a high-level-summary of the steps required to update PMs. Please use the steps of procedures in this chapter for detailed information regarding PM updating.

ATTENTION
The examples in this document are shown for reference purposes only.

Note: If the system load module (SLM) tape cartridge label text indicates *Patches: Yes*, the tape includes the required post-release software updates (PRSU) for XMS-based peripheral module (XPM) and integrated service node (ISN) load files.

Updating the SMA, SMA2, SMS, SMSR, or SMU Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

ATTENTION
If the PM being updated is equipped with a peripheral/remote loader (PRL) circuit card, use this procedure to update the first PM in the office that uses the new load. Refer to the procedure “Using a PRL circuit card to update an XPM” in this document to update remaining PMs.

Use this procedure to update one of the following types of PMs.

PM	Description	Processor
SMA	Subscriber carrier module-100 access (SMA)	NTAX74
SMA2	Subscriber carrier module-100 access 2 (SMA2)	NTAX74
SMS	Subscriber carrier module-100S (SMS)	NTMX77
SMSR	Subscriber carrier module-100S remote (SMSR)	NTMX77
SMU	Subscriber carrier module-100 urban (SMU)	NTMX77
	SMU with ISDN	NTMX77

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The names of all new loads for the PM are datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.

- The SMA, SMA2, SMS, SMSR, or SMU is in-service.
- The SMA, SMA2, SMS, SMSR, or SMU successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.
- The PRSM automated processes such as DBAUDIT and AUTOAPP must not run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. This information is required to successfully complete this procedure.

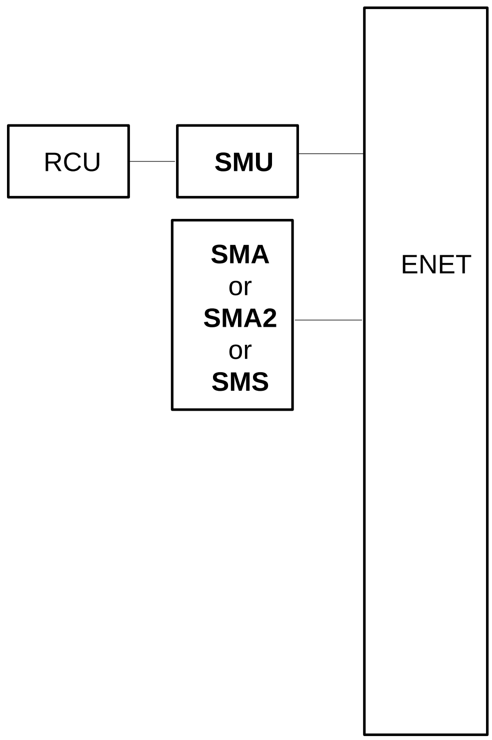
- Does the XPM processor firmware require updating?
- Does the CMR load require updating?
- What is the patch status of the new PM load?
  - — Does it have PRSUs?
  - — Is it a pre-patched load?
  - — Do the PRSUs have to applied during this procedure, or were they applied as part of a previous update procedure?

For assistance, refer to “Overview of release” and “Overview of update process” in this document.

Update sequence

The following figure illustrates possible node configurations for the SMA, SMA2, SMS, SMSR, and SMU. Subtending PMs must be updated prior to the SMA, SMA2, SMS, SMSR, or SMU. Serving PMs must be updated after the SMA, SMA2, SMS, SMSR, or SMU.

Node configurations for SMA, SMA2, SMS, SMSR, and SMU

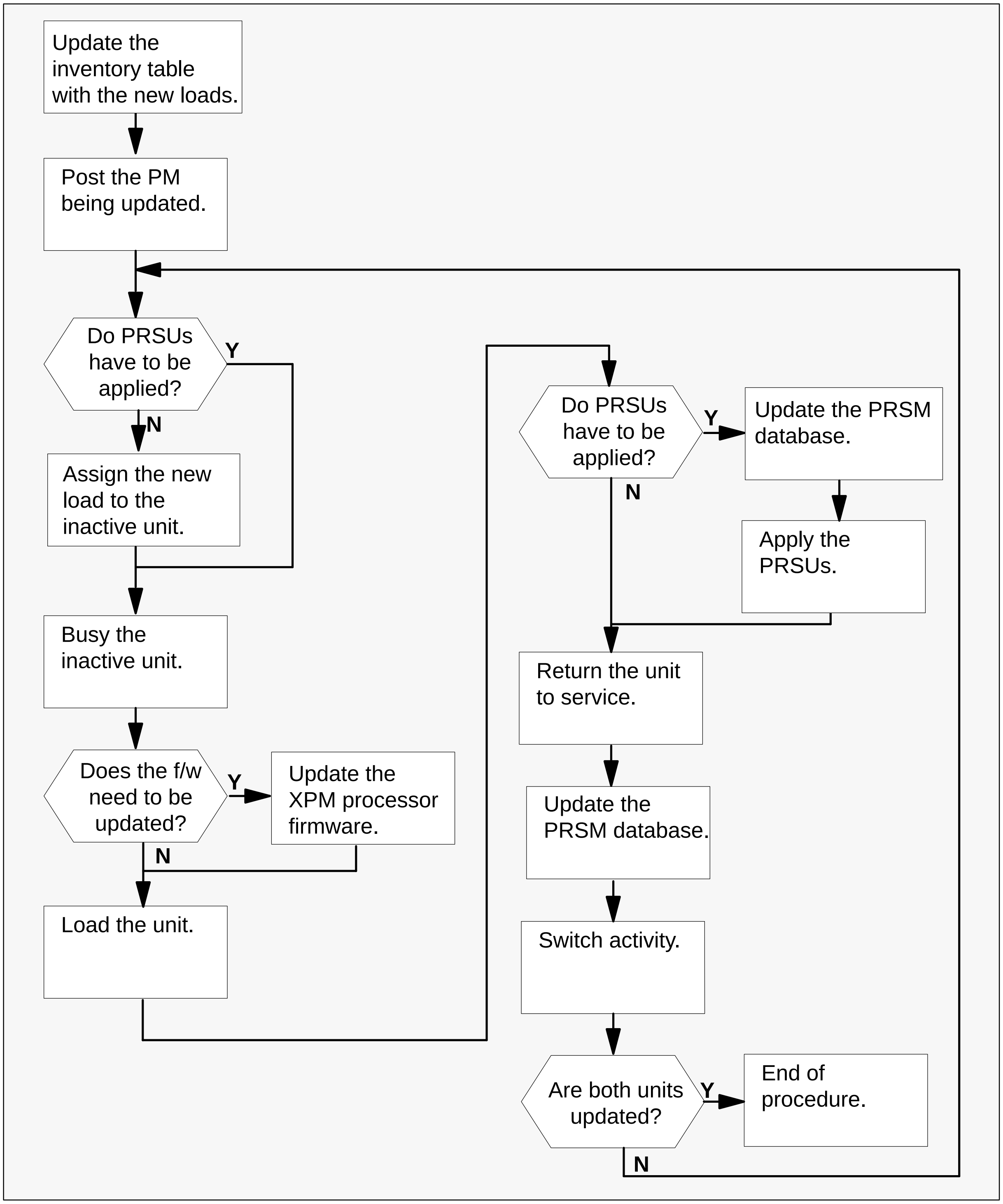


Note**:** The DCH circuit card may be updatd prior to update of other subtending PMs in the node, The DCH circuit must be updated before its serving PM.. Refer to DCH updates in “Overview of update process” in this document.

Notes

Special precautions may be required if the SMU supports E911 service, check office policy.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an SMA, SMA2, SMS, SMSR, or SMU to update.

2 Confirm all prerequisites for this procedure have been met.

3 Change the PM load in the inventory table by performing the following steps.

a. Access the PM inventory table by typing

>TABLE table_name
and pressing the Enter key.

where

table_name is LTCINV for an SMA, SMA2, SMS, or SMU
is LTCRINV for an SMSR

If you wish to view the tuples in	Do
a packed format	step 3b.
a regular or expanded format	step 3c.

b. Change the format of the display to a packed format by typing

>FORMAT PACK
and pressing the Enter key.

c. Position on the datafill tuple for the PM to be updated by typing

>POS pm_type pm_no
and pressing the Enter key.

where

pm_type is SMA, SMA2, SMS, SMSR, or SMU
pm_no is the number of the PM being updated

Example

>POS SMA 0

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched load. Do not datafill the date extension. Refer to "Overview of release" in this document for more information on date extensions and pre-patched loads.

Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load is the name of the new load

Example

>CHA LOAD XM208BC1

e. Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM will change state to in-service trouble (ISTb) due to the load mismatch with the inventory table. Continue with this procedure.

If the PM's XPM processor firmware	Do
must be updated	step 4
does not need to be updated	step 5

Note: Review the update schedules and checklists to determine if XPM processor firmware must be updated. The procedures "Preparing for a manual PM update" or "Preparing for a PM update using PMUPGRADE" determine the need for an update of XPM processor firmware.

4 Change the XPM firmware load in the inventory table by performing the following steps.

a. Change the firmware load name to the new firmware load name by typing

>CHA E2LOAD fw_load
and pressing the Enter key.

where

fw_load	is the name of the new XPM processor firmware load

Example

>CHA E2LOAD UPFWNJ03

b. Confirm the change by typing

>Y
and pressing the Enter key.

5 Determine if the PM has a CMR load to be updated.

If the CMR load	Do
must be updated	step 6
does not need to be updated	step 7

6 Update the CMR load name by performing the following steps.

a. Access the OPTCARD field by typing

>CHA OPTCARD
and pressing the Enter key.

b. Press the Enter key to scroll through the fields until prompted for the CMR load name.

c. Enter the new CMR load name by typing

>cmr_load
and pressing the Enter key.

where

cmr_load	is the name of the new CMR load

Example

>CMR07A

d. Press the Enter key to scroll through the fields until the blank OPTCARD prompt appears.

e. Exit the OPTCARD field by typing

>$
and pressing the Enter key.

f. Confirm the change by typing

>Y
and pressing the Enter key.

7 Exit the table by typing

>QUIT
and pressing the Enter key.

8 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

9 Post the PM by typing

>POST pm_type pm_no
and pressing the Enter key.

where

pm_type	is SMA, SMA2, SMS, SMSR, or SMU
pm_no	is the number of the PM being updated

Example

>POST SMA 0

Note: The PM is ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

10 Identify the inactive unit. This is the unit to be updated.

11 Review the update schedules for the office and determine if the inactive unit is the first unit in the office to use the new load.

If the inactive unit is	Do
the first unit in the office to use the new load	step 13
not the first unit in the office to use the new load	step 12

12 Use PRSM to assign the new load to the inactive unit by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b.

ATTENTION
After performing this step, do not use the DBAUDIT command unless the command is specified in this procedure. The use of the DBAUDIT command prior to the LOADPM command can link PRSUs from the previous load to the new PM load.

Assign the new load to the inactive unit by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no unit_no
and pressing the Enter key.

where

new_load	is the name of the new load
pm_type	is SMA, SMA2, SMS, SMSR, or SMU
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Examples

>ASSIGN UPGRADE_LD XM208BC1 IN DESTSET SMA 0 1

c. Exit the utility by typing

>QUIT
and pressing the Enter key.

13 Determine which software release the office is currently at.

If	Do
the office is at MSL08 or lower	steps 14 and 15
the office is at MSL09 or higher	steps 16 through 18

14 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 15
does not need to be updated	step 19

15 Load the firmware into the inactive unit by typing

LOADPM INACTIVE CC FIRMWARE
and pressing the Enter key.

Go to step 19.

16

ATTENTION

To ensure the new firmware is loaded, steps 16 through 18 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 16 through 18. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 16 and 18 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the inactive unit by typing

>LOADFW INACTIVE
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

17 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 18
does not need to be updated	step 19

18 Initialize the firmware in the inactive unit by typing

>LOADFW INACTIVE UPGRADE
and pressing the Enter key.

19

CAUTION
Possible service interruption
Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load the inactive unit by typing

>LOADPM INACTIVE
and pressing the Enter key.

If the inactive unit is	Do
the first unit in the office to use the new load	step 20
not the first unit in the office to use the new load	step 22

20 Review the PM update checklist for the office and determine the patch status for the new load.

If the new load	Do
has PRSUs to be manually applied	step 21
does not have PRSUs to be manually applied	step 22

21

CAUTION
Possible service interruption
Apply PRSUs immediately after updating the load. Failure to do so can increase administrative time and interrupt service.

Use PRSM to apply the PRSUs by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database with the new load name by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is SMA, SMA2, SMS, SMSR, or SMU
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>DBAUDIT SMA 0 1

c. Apply the PRSUs that need to be manually applied by typing

>APPLY ’prsu_id IN pm_type pm_no unit_no
and pressing the Enter key.

where

prsu_id	is the name of the PRSU (repeat variable as required)
pm_type	is SMA, SMA2, SMS, SMSR, or SMU
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example of single-line command

>APPLY ’XAJ13X08 l XRP29X08 l XBA45X08 IN SMA 0 1

Example of double-line command

>APPLY ’XAJ13X08 l XRP29X08 l XBA45X08 l XDJ02X08 l +
>’XD02908 l XJL87X08 l XAH13X08 IN SMA 0 1

Note: It is not necessary to apply the PRSUs in a particular order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility by typing

>QUIT
and pressing the Enter key.

22 Return the inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

23 Wait for the MAP display to show the unit as in-service. This ensures superframe sync and data sync are achieved.

24 Use PRSM to confirm the inactive unit has been properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according the PM’s current PRSU list by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is SMA, SMA2, SMS, SMSR, or SMU
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>DBAUDIT SMA 0 1

c. Display the PRSU list for the inactive unit by typing

>REPORT DEST pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is SMA, SMA2, SMS, SMSR, or SMU
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>REPORT DEST SMA 0 1

d. Confirm all PRSUs for the new load are applied to the inactive unit.

If	Do
all PRSUs for the new load are applied to the inactive unit	step 25
all PRSUs for the new load are not applied to the inactive unit	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 24b. If a DBAUDIT has been performed, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 25. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

25 Exit the utility by typing

>QUIT

and pressing the Enter key.

26 Switch activity between the units by typing

>SWACT

and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

27 Confirm the switch of activity by typing

>Y

28 Wait for the MAP display to show the new loaded unit as in-service. This ensures superframe sync and data sync are achieved. It may take two to three minutes for the MAP display to show the unit as in-service.

If	Do
one unit is updated	step 10
both units are updated	step 29

Note: If one unit is updated, the inactive unit will be in-service trouble due to the load mismatch between the unit and the PM inventory table. The node will remain in-service trouble until both units are updated with the new load.

29 You have successfully updated the SMA, SMA2, SMS, SMSR, or SMU and completed this procedure. Review the update schedule for the office.

If there are	Do
additional SMAs, SMA2s, SMSs, SMSRs, or SMUs to update during this shift	Repeat this procedure or follow the recommendations in “Overview of update process” and use broadcast mate loading or parallel loading on the remaining SMAs, SMA2s, SMSs, SMSRs, or SMUs.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Starting a PM update shift

Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to start a peripheral module (PM) update shift and verify the office and each PM meet the following conditions:

- An office image was taken in the last 24 hours.
- All PM logs are enabled.
- Each PM has successfully passed its last REX test in the last two weeks.
- All routine exercise (REX) testing in the office is suspended.
- PRSM automated processes do not start during the PM update shift.

Prerequisites

Perform the procedure “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” in this document.

> ***Note:*** WARMSWACT should be enabled in the office as part of normal office policy, and each PM to be updated should have WARMSWACT enabled.

Update sequence

Not applicable

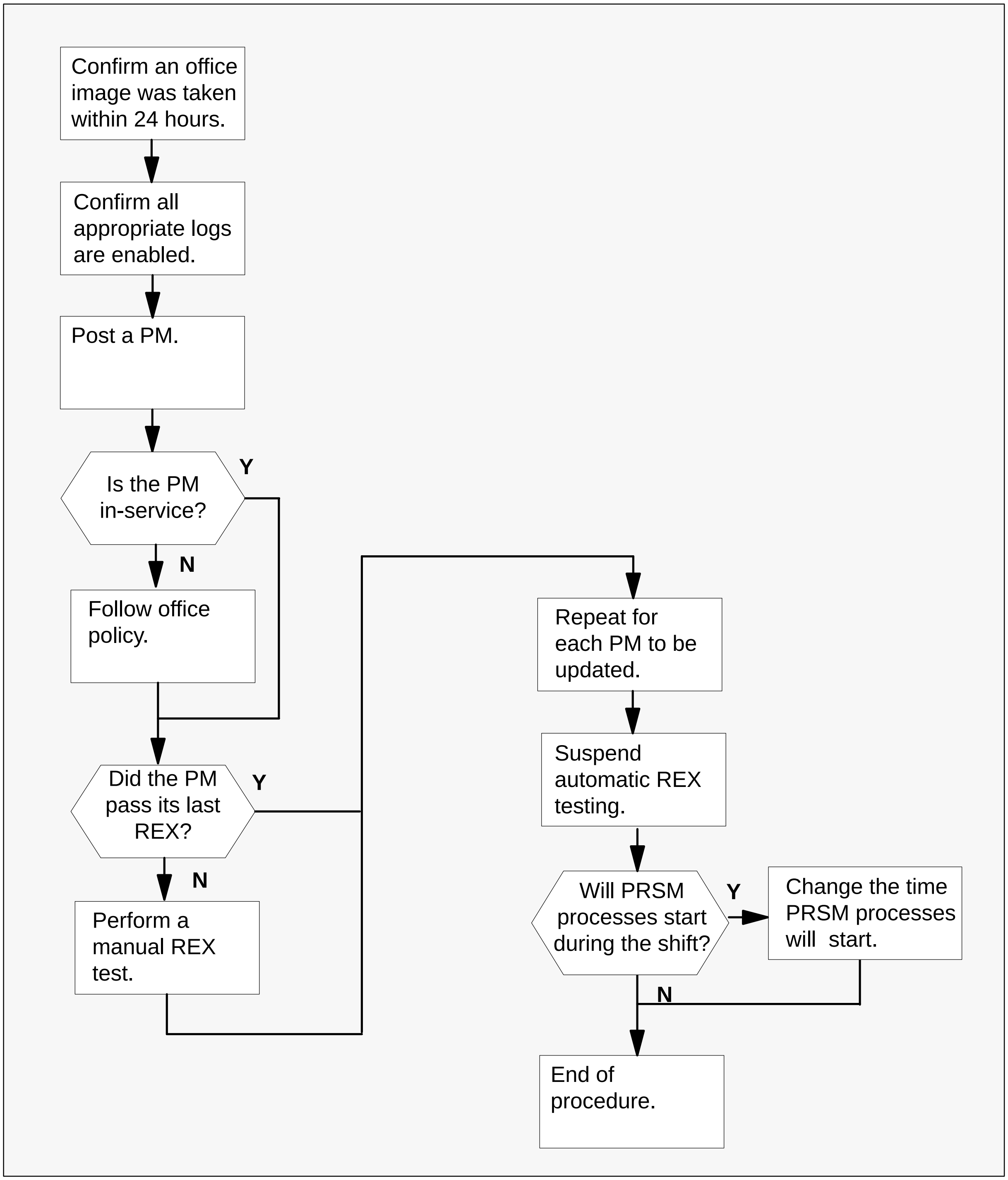
Required information

None

Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
>
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Confirm an office image has been taken within the last 24 hours.

a. Display a list of recent office images. Type

>AUTODUMP STATUS
and press the Enter key.

b. Review the list of successful images and determine if an office image has been successfully taken in the last 24 hours.

2 Confirm all PM logs are enabled.

Note: Modify and repeat this step as necessary, depending on the hardware types to be updated this shift. If updating a DPP, confirm all DPP logs are enabled. If updating an emergency stand alone (ESA), confirm all ESA logs are enabled. If updating the multi-protocol controller (MPC), confirm all MPC logs are enabled. If updating the enhanced network (ENET), confirm all ENET logs are enabled. If updating the MS bus port circuit card (NT9X17), confirm all MS logs are enabled.

a. Access LOGUTIL. Type

>LOGUTIL
and press the Enter key.

b. List all the log reports that are suspended or have thresholds. Type

>LISTREPS SPECIAL
and press the Enter key.

c. Record any PM log numbers that are suspended, and record the numbers and threshold values of any PM logs that have thresholds.

d. Resume any PM logs that are suspended. Type

>RESUME PM log_no
and press the Enter key.

where

log_no is the number of the log to be resumed

Note: Multiple logs can be resumed by telescoping the log numbers on the single RESUME command. All PM logs can be resumed with the command THRESHOLD PM and no log numbers.

Example

```
>RESUME  PM  129  181
```

e. Change the threshold to 0 for any logs that have thresholds. Type

>THRESHOLD 0 PM log_no
and press the Enter key.

where

log_no is the number of the log

Note: Multiple logs can be thresholded by telescoping the log numbers on the single THRESHOLD command. All PM logs can be thresholded with the command THRESHOLD PM and no log numbers.

f. Exit LOGUTIL. Type

>QUIT
and press the Enter key.

3 Access the PM level of the MAP display. Type

>MAPCI; MTC; PM
and press the Enter key.

4 Post one of the PMs to be updated. Type

>POST pm_type pm_no
and press the Enter key.

where

pm_type is the type of PM
pm_no is the number of the PM

If the PM is	Do
not in-service	step 5
in-service	step 7

5 Determine the fault condition of the PM. Type

>QUERYPM FLT
and press the Enter key.

6 The PM must be in-service to be updated. Refer to the ATTENTION box preceding the steps of this procedure for assistance. If you are able to return the PM to service, proceed to step 7.

7 Review the results of the last REX test on the PM. Type

>TST REX QUERY
and press the Enter key.

If the PM	**Do**
did not successfully pass its last REX test within the last two weeks	step 8
successfully passed its last REX test within the last two weeks	step 9

Note: Some offices may require a QUERYPM DIAGHIST command to verify the health of the PM. Check office policy. A QUERYPM DIAGHIST should be performed on PMs to be updated that are not supported by REX testing.

8 Perform a manual REX test on the PM. Type

>TST REX NOW
and press the Enter key.

If the PM	**Do**
does not successfully pass the REX test	This PM requires additional maintenance. Refer to the ATTENTION box at the beginning of this procedure.
successfully passes the REX test	step 9

Note: The TST REX NOW command cannot be issued when a SWUPGRADE PM shift has been started with the SET SHIFT STARTED command.

9 Repeat steps 4 to 7 for each PM to be updated this shift.

10 Return to the CI level. Type

>QUIT ALL
and press the Enter key.

11 Suspend all automatic REX testing. Type

>REXTEST SUSPEND ALL
and press the Enter key.

Note: Suspension of REX testing can cause a minor MS alarm at the MAP display. The alarm continues until REX testing is resumed at the end of the shift.

12 Confirm the start time of the AUTOAPP process does not conflict with the start time of the PM update.

a. Access table AUTOOPTS. Type

>TABLE AUTOOPTS
and press the Enter key.

b. Display the contents of the table. Type

>LIS
and press the Enter key.

c. Review the table and determine if PRSM automated processes are scheduled to start during the PM update shift.

If PRSM automated processes	Do
are scheduled to start during the PM update shift	step d.
are not scheduled to start during the PM update shift	step h.

d. Record the values in tuple AUTOOPTS.

e. Change the time the PRSM automated processes are scheduled to start. Type

>CHA week_day new_time
and press the Enter key.

where

week_day	is the day of the week of the PM update shift
new_time	is the new time for PRSM automated processes to start

Note: You can also delay automated processes one cycle, by entering the PRSM command level and executing the AUTOPROC ALL DELAY command.

f. Confirm the change. Type

>Y
and press the Enter key.

g. Display the table and confirm the change was made. Type

>LIS

and press the Enter key.

h. Exit the table. Type

>QUIT

and press the Enter key.

13 You have completed this procedure. Perform the appropriate update procedures in this document, based on the update schedule established for the office. When the shift is completed, perform the procedure “Finishing a PM update shift.”

Updating the TM8 Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update the trunk module with eight wire circuits (TM8).

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All peripheral module (PM) logs are enabled.
- The TM8 is in service.
- All automatic routine exercise (REX) tests are suspended.

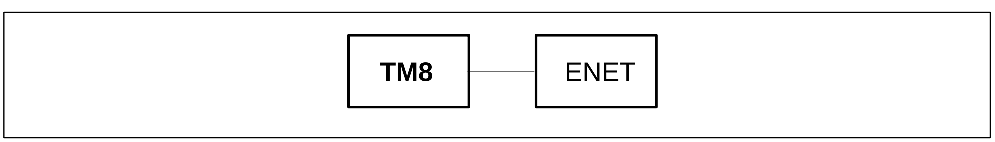
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the TM8. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

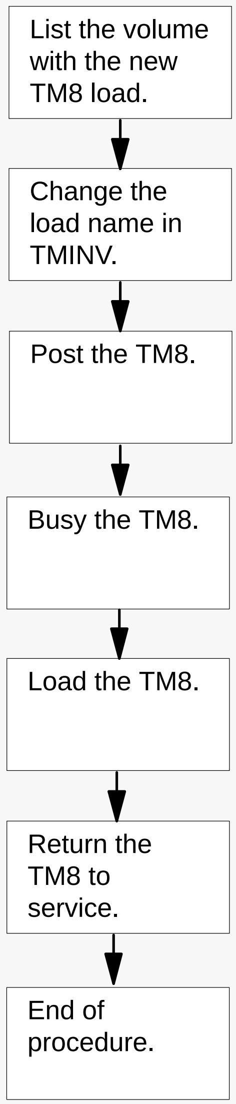
Node configuration for TM8



Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. For example, if an RTS command fails office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select a TM8 to update.

2 Review the prerequisites at the start of this procedure. Confirm that you meet these prerequisites.

If the load files are stored on a	Do
DDU device	step 3
SLM device	step 4

3 List the volume with the new load.

a. Enter the disk utility. Type

>DSKUT
and press the Enter key.

b. List the disk volume. Type

>LISTVOL vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LISTVOL  D000DPMLOADS
```

c. Skip step 4 and go to step 5.

4 List the volume with the new load.

a. Enter the disk utility. Type

>DISKUT
and press the Enter key.

b. List the disk volume. Type

>LF vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LF  S01DPMLOADS
```

5 Exit the disk utility. Type

>QUIT
and press the Enter key.

6 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE TMINV
and press the Enter key.

b. Position on the tuple for the TM8. Type

>POS TM8 tm8_no
and press the Enter key.

where

tm8_no is the number of the TM8

Example of command

```
>POS  TM8  11
```

c. Change the load name in the tuple to the new load name. Type

>CHA LOAD new_load
and press the Enter key.

where

new_load is the name of the new load

Example of command

```
>CHA  LOAD  BTMKA02
```

d. Confirm the change. Type

>Y
and press the Enter key.

e. Close the PM inventory table. Type

>QUIT
and press the Enter key.

7 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM
and press the Enter key.

8 Post the TM8. Type

>POST TM8 tm8_no
and press the Enter key.

where

tm8_no is the number of the TM8

Example of command

```
>POST  TM8  11
```

9 Busy the TM8. Type

>BSY
and press the Enter key.

10 Load the TM8. Type

>LOADPM
and press the Enter key.

11 Return the TM8 to service. Type

>RTS
and press the Enter key.

12 You have updated the TM8 and completed this procedure. Review the update schedule.

If you have	Do
other TM8s to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Using an exec to post a large set of XPMs

Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to use an exec to post a large set of XPMs.

Prerequisites

None

Required information

None

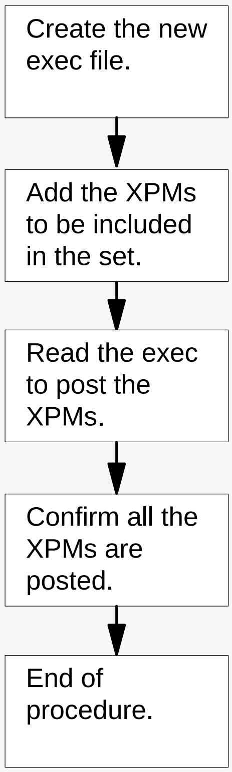
Update sequence

Not applicable

Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select the XPMs to update.

2 Create the new exec file by typing

>EDIT exec_name
and pressing the Enter key.

where

exec_name   is the name of the exec

Example of command

>EDIT DTC35

MAP response

```
NEW  FILE
EDIT:
```

3 Enter the input mode by typing

>INPUT
and pressing the Enter key.

MAP response

```
INPUT:
```

4 Enter the file input by typing

>POST pm_type pm_no pm_no pm_no pm_no +
pm_no pm_no pm_no pm_no pm_no pm_no
and pressing the Enter key twice.

where

pm_type   is the type of PM
pm_no   is the number of the PMs (repeat variable as required)

Example of command

>POST DTC 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 +
>22 23 24 25 26 27 28 29 30 31 32 33 34
>

EDIT

5 File the exec to the store file device by typing

>FILE SFDEV
and pressing the Enter key.

6

> **ATTENTION**
> If the MAP terminal used at this command is different from the one used when creating the exec, use the command LISTSF ALL.

Add the exec to the user directory by typing

>LISTSF
and pressing the Enter key.

7 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

8 Use the exec to post the set of XPMs by typing

>READ exec_name
and pressing the Enter key.

where

exec_name is the name of the exec

Example of command

>READ DTC35

9 Display the list of posted XPMs by typing

>LISTSET
and pressing the Enter key.

10 Review the list of posted XPMs and confirm that all XPMs in the set are posted.

11 You have successfully used an exec to post a large set of XPMs. Go the appropriate broadcast mate loading or parallel loading procedure in this document.

Using broadcast mate loading to update XPMs

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

ATTENTION
If the PM being updated is equipped with a peripheral/remote loader (PRL) circuit card, refer to the procedure "Using a PRL card to broadcast mate load an XPM" in this document.

Use this procedure to update a set of 11 to 35 XMS-based peripheral module (XPM). Broadcast mate loading allows a technician to load the inactive units of a set of PMs. Unlike parallel loading, broadcast mate loading requires only one loader resource for a set of like peripherals. An exception to this would be if the posted set consisted of more than one load type.

All inactive units of a set of XPMs can be updated using XPM broadcast mate loading. The computing module (CM) messages the active unit of the first XPM in the set. The active unit forwards the message to its inactive unit and the active unit of the second XPM in the set. The active unit in the second XPM forwards the message to its inactive unit and the third XPM in the set. This sequence continues until all XPMs in the set have received the message.

Prerequisites

Perform the procedures "Preparing for a manual PM update" or "Preparing for a PM update using PMUPGRADE" and "Starting a PM update shift" in this document to meet the following prerequisites for this procedure:

- The names of all new loads for the PM are datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The PMs are in-service.

- The PMs successfully passed their last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.
- The PRSM automated processes such as DBAUDIT and AUTOAPP must not run during the PM update shift.

  Note: Depending on the size of the set, it may be necessary to create an exec to post the set of XPMs. Refer to the procedure “Using an exec to post a large set of XPMs” in this document.

Required information

Refer to the update procedure in this document for the appropriate PM type to identify any required information.

Update sequence

Refer to the update procedure in this document for the appropriate PM type to identify the update sequence for the PMs being broadcast mate loaded.

Notes

Broadcast mate loading can only be used on XPMs that have one unit in-service and one unit manually busy.

This procedure assumes that any post release software units (PRSU)s to be applied to the load, have been applied. If this has not occurred, update one unit and apply any PRSUs The unit may be in one of the XPMs in the set to be updated using broadcast mate loading.

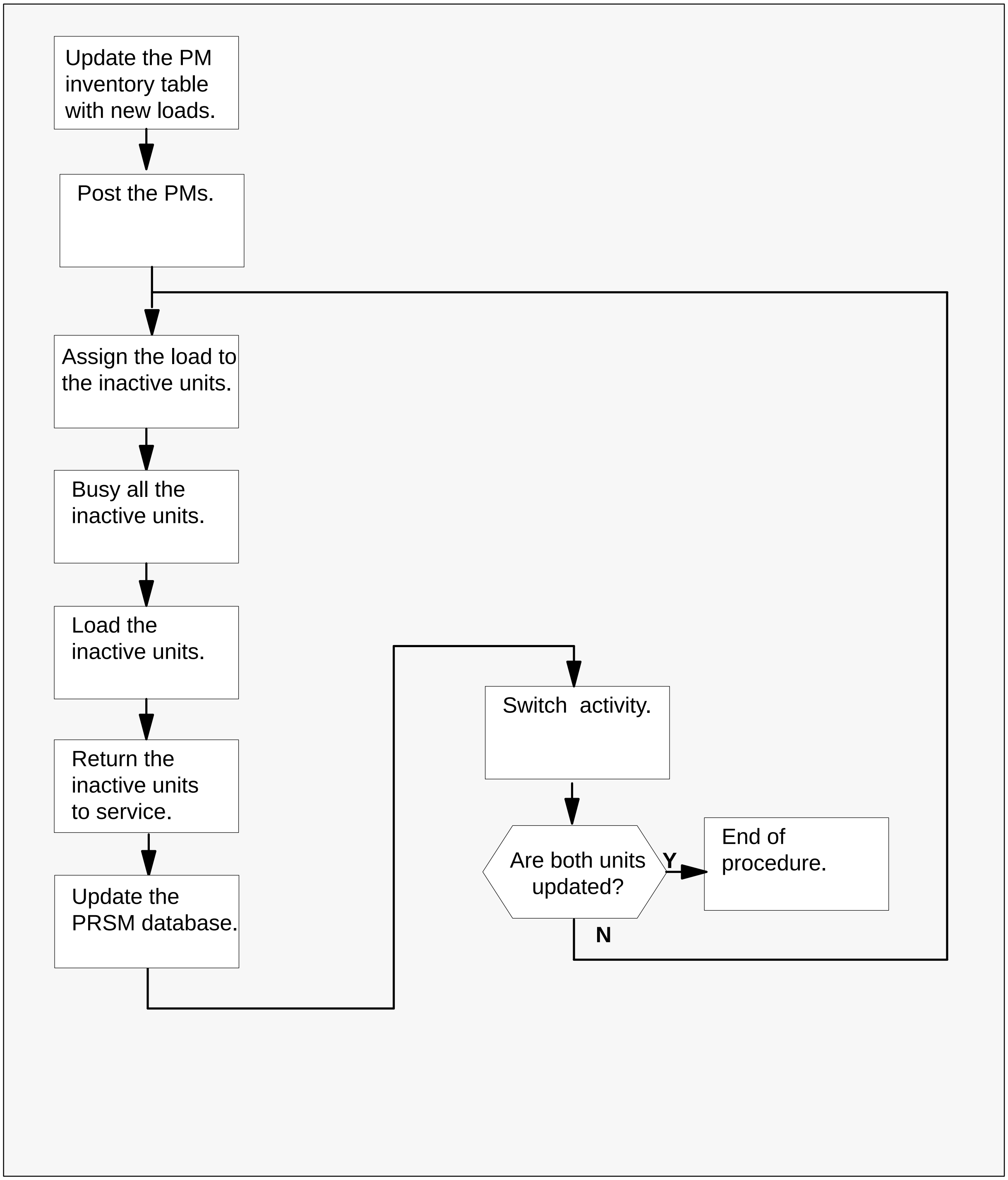
Do not use XPM broadcast mate loading to update remote XPMs such as the remote cluster controller (RCC). Update each PM individually.

Do not use XPM broadcast mate loading to update DTCs with timing links. To identify the timing source, type the command MAPCI;MTC;MS;CLOCK from the CI level of the MAP display. Offices may wish to use the DTC with timing links as the first DTC in the office to be updated with the new load.

Parallel loading may be used to update the XPM processor firmware in a set of up to four XPM units. The set can include up to ten XPMs, but a maximum of four XPM units per set is recommended for optimum performance.

Note: With the MSL08 software release, office parameter MAX_FIRMWARE_LOAD_MAIN_TASKS in table OFCOPT is deleted.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the MAP display

1 Select the PMs to update.

2 Confirm all prerequisites for this procedure have been met.

3 Change the PM load in the inventory table by performing the following steps.

a. Access the PM inventory table by typing

>TABLE pm_inv
and pressing the Enter key.

where

pm_inv is the name of the inventory table

Example

>TABLE LTCINV

If you wish to view the tuples in	Do
a packed format	step 3b.
a regular or expanded format	step 3c.

b. Change the format of the display to a packed format by typing

>FORMAT PACK
and pressing the Enter key.

c. Position on the datafill tuple for one of the PMs to be updated by typing

>POS pm_type pm_no
and pressing the Enter key.

where

pm_type is the type of PM
pm_no is the number of the PM

Example

>POS DTC 0

d.

> **ATTENTION**
> If the load name has a date extension, the load is a pre-patched load. Do not datafill the date extension. Refer to “Overview of release” in this document for more information on date extensions and pre-patched loads.

Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load is the name of the new load

Example

>CHA LOAD ECL08BC

e. Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM state changes to ISTb due to the load mismatch with the inventory table. Continue with this procedure.

If the XPM processor firmware	Do
must be updated	step 4
does not need to be updated	step 5

4 Change the XPM processor firmware load in the inventory table by performing the following steps.

a. Change the firmware load name by typing

>CHA E2LOAD fw_load
and pressing the Enter key.

where

fw_load is the name of the XPM processor firmware load

Example

>CHA E2LOAD UPFWNJ03

b. Confirm the change by typing

>Y
and pressing the Enter key.

5 Determine if the PM has a CMR load to be updated

If the CMR load	Do
needs to be updated	step 6
does not need to be updated	step 7

6 Change the CMR load in the inventory table by performing the following steps.

a. Access the OPTCARD field by typing

>CHA OPTCARD
and pressing the Enter key.

b. Press the Enter key to scroll through the fields until prompted for the CMR load name.

c. Enter the new CMR load name by typing

>cmr_load
and pressing the Enter key.

where

cmr_load is the name of the new CMR load

Example

>CMR07A

d. Press the Enter key to scroll through the fields until the blank OPTCARD prompt appears.

e. Exit the OPTCARD field by typing

>$
and pressing the Enter key.

f. Confirm the change by typing

>Y
and pressing the Enter key.

7 Repeat steps 3c. to 6 for each PM to be updated in the selected set.

8 Exit the table by typing

>QUIT
and pressing the Enter key.

9 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

10

> **ATTENTION**
> If parallel firmware loading will be used to update the XPM processor firmware, post four or less XPMs at this step.

Post the PMs by typing

>POST pm_type pm_set
and pressing the Enter key.

where

pm_type	is the type of PM being updated
pm_set	is the set of PMs being updated

Example

>POST DTC 0 1 2 3 4 5 6 7 8 9 10 11 12

Note: The PMs are ISTb due to the load mismatch with the inventory table. If necessary, wait for the PMs to change to ISTb before continuing with this procedure. If a PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

11 Identify the inactive unit in each PM in the set.

If the new load	Do
has PRSUs	step 12
does not have PRSUs	step 14

12

> **ATTENTION**
> Office policy may support the use of destination sets to simplify the broadcast mate loading of XPMs.

Assign the load to the inactive units by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b.

> **ATTENTION**
> After performing this step, do not use the DBAUDIT command unless the command is specified in this procedure. The use of the DBAUDIT command prior to the LOADPM command can link PRSUs from the previous load to the new PM load.

Assign the new load to the inactive units by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no unit_no
and pressing the Enter key.

where

new_load	is the name of the new load
pm_type	is the type of PM
pm_no	is the number of the PM being updated
unit_no	is the number of the PM unit

Examples

>ASSIGN UPGRADE_LD ECL08BC IN DESTSET DTC 0 1 l +
>'DTC 1 0 l DTC 2 0 l DTC 3 1 l DTC 4 0

13 Exit the utility by typing

>QUIT
and pressing the Enter key.

14 Determine which software release the office is currently at.

If	Do
the office is at NA009 or lower	steps 15 through 18
the office is at NA010 or higher	steps 19 through 23

15 Busy all the inactive units by typing

>BSY INACTIVE ALL
and pressing the Enter key.

Note: If a maintenance audit is running, the PM will not respond to this command. Wait a few seconds and re-enter the command. Do not use the FORCE parameter.

16 Confirm the command by typing

>Y
and pressing the Enter key.

If the XPM processor firmware	Do
must be updated	step 17
does not require updating	step 24

17

ATTENTION
If the set is larger than four XPMs, it may be necessary to load the firmware in each unit individually or create a smaller set. Refer to the notes at the start of this procedure.

Load the firmware into the inactive unit of one of the PMs in the set by typing

LOADPM INACTIVE CC FIRMWARE ALL
and pressing the Enter key.

18 Confirm the command by typing

>Y
and pressing the Enter key.

Go to step 24.

19 Busy all the inactive units by typing

>BSY INACTIVE ALL

and pressing the Enter key.

Note: If a maintenance audit is running, the PM will not respond to this command. Wait a few seconds and re-enter the command. Do not use the FORCE parameter.

20

ATTENTION

If the set is larger than four XPMs, it may be necessary to load the firmware in each unit individually or create a smaller set. Refer to the notes at the start of this procedure.

ATTENTION

To ensure the new firmware is loaded, steps 20 through 23 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 20 through 23. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE ALL command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 20 and 23 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the inactive unit of one of the PMs in the set by typing

>LOADFW INACTIVE ALL

and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

21 Confirm the command by typing

>Y
and pressing the Enter key.

If the XPM processor firmware	Do
must be updated	step 22
does not require updating	step 24

22 Activate the firmware into the inactive unit of one of the PMs in the set by typing

>LOADFW INACTIVE UPGRADE ALL
and pressing the Enter key.

23 Confirm the command by typing

>Y
and pressing the Enter key.

24

> **CAUTION**
> **Possible service interruption**
> Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load all the inactive units by typing

>LOADPM INACTIVE ALL
and pressing the Enter key.

25 Return all the inactive units to service by typing

>RTS INACTIVE ALL
and pressing the Enter key.

26 Confirm the command by typing

>Y
and pressing the Enter key.

27 Wait for the MAP display to show the new loaded units as in-service. This ensures superframe sync and data sync are achieved. It may take several minutes for the MAP display to show all the units as in-service.

If	Do
the new load has PRSUs	step 28
the load has no PRSUs	step 32

28 Confirm each inactive unit is properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according to the unit's current database by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where
pm_type is the type of PM
pm_no is the number of the PM being updated
unit_no is the number of the inactive unit

Example

>DBAUDIT 'DTC 0 1 l DTC 1 0 l DTC 2 0 l +
>'DTC 3 1 l DTC 4 0

c. Display the PRSU list for one inactive unit by typing

>REPORT DEST pm_type pm_no unit_no
and pressing the Enter key.

where
pm_type is the type of PM
pm_no is the number of the PM being updated
unit_no is the number of the inactive unit

Example

>REPORT DEST DTC 0 1

d. Repeat step 28c. for each inactive unit that has been updated.

e. Confirm all PRSUs for the new load are applied to each inactive unit.

If	Do
all PRSUs for the new load are applied to each inactive unit	step 29
all PRSUs for the new load are not applied to each inactive unit	Troubleshoot the problem or contact the next level of support.
any PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 28b. If a DBAUDIT has been performed, contact the next level of support.
any PRSUs from the previous load are listed at NV status	Go to step 29. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

29 Exit the utility by typing

>QUIT

and pressing the Enter key.

30 Switch activity between the units by typing

>SWACT ALL

and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

31 Confirm the switch of activity by typing

>Y

and pressing the Enter key.

If	Do
one unit in the set of PMs has been updated	step 11
both units in the set of PMs has been updated	step 32

32 You have successfully used broadcast mate loading to update a set of XPMs and have completed this procedure. Review the update schedule.

If there are	Do
additional XPMs to update during this shift	Follow the recommendations in “Overview of update process” in this document and repeat this procedure or go to the appropriate procedure in this document.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the STM Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to update one of the following types of peripheral modules (PM).

PM	Description
STM	Service trunk module (STM) STM on integrated services module (ISM) shelf

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The STM is in service.
- All automatic routine exercise (REX) tests are suspended.

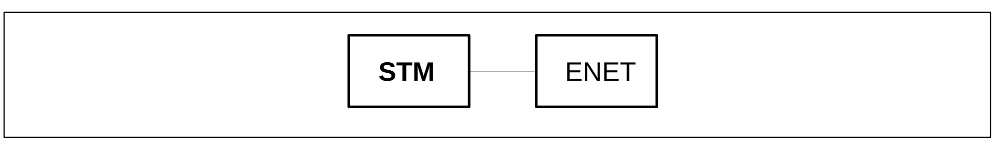
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the STM. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

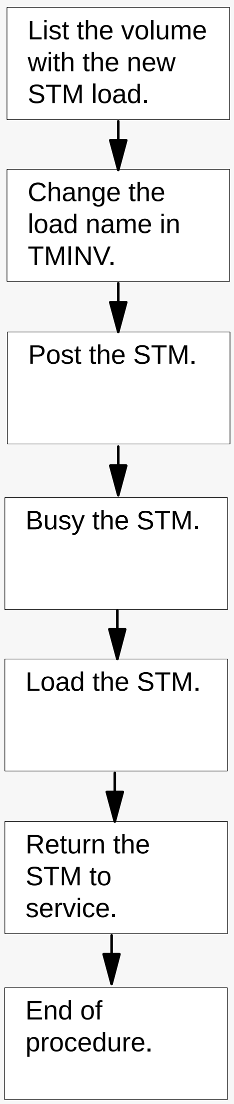
Node configuration for STM



Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. For example, if an RTS command fails office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select an STM to update.

2 Review the prerequisites at the start of this procedure. Confirm that you meet these prerequisites.

If the load files are stored on a	Do
DDU device	step 3
SLM device	step 4

3 List the volume with the new load.

a. Enter the disk utility. Type

>DSKUT
and press the Enter key.

b. List the disk volume. Type

>LISTVOL vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LISTVOL  D000DPMLOADS
```

c. Skip step 4 and go to step 5.

4 List the volume with the new load.

a. Enter the disk utility. Type

>DISKUT
and press the Enter key.

b. List the disk volume. Type

>LF vol_name
and press the Enter key.

where

vol_name is the name of the disk volume

Example of command

```
>LF  S01DPMLOADS
```

5 Exit the disk utility. Type

>QUIT
and press the Enter key.

6 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE TMINV
and press the Enter key.

b. Position on the tuple for the STM. Type

>POS STM stm_no
and press the Enter key.

where

stm_no is the number of the STM

Example of command

```
>POS  STM  11
```

c. Change the load name in the tuple to the new load name. Type

>CHA LOAD new_load
and press the Enter key.

where

new_load is the name of the new load

Example of command

```
>CHA  LOAD  MTMKA02
```

d. Confirm the change. Type

>Y
and press the Enter key.

e. Close the PM inventory table. Type

>QUIT
and press the Enter key.

7 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM
and press the Enter key.

8 Post the STM. Type

>POST STM stm_no
and press the Enter key.

where

stm_no	is the number of the STM

Example of command

```
>POST  STM  11
```

9 Busy the STM. Type

>BSY
and press the Enter key.

10 Load the STM. Type

>LOADPM
and press the Enter key.

11 Return the STM to service. Type

>RTS
and press the Enter key.

12 You have updated the STM and completed this procedure. Review the update schedule.

If you have	**Do**
other STMs to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Using a PRL card to parallel load XPMs

Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

> **ATTENTION**
> Do not use parallel loading to update remote PMs.

Use this procedure to update a set of two to ten XPMs using a PRL circuit card (NT7X05 or NTSX06). All units of the same number (0 or 1) can be updated with XPM parallel loading. Only inactive units may be updated, however, so activity may have to be switched in some XPMs to align all the units in the set. During XPM parallel loading, the CM messages directly to each inactive unit.

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The names of all new loads for the PM are datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The PMs are in-service.
- The PMs successfully passed their last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.
- The PRSM automated processes such as DBAUDIT and AUTOAPP must not run during the PM update shift.

Required information

Refer to the update procedure in this document for the appropriate PM type to identify any required information.

Update sequence

Refer to the update procedure in this document for the appropriate PM type to identify the update sequence for the PMs being parallel loaded.

Notes

This procedure assumes that any PRSUs to be applied to the load have been applied. If this has not occurred, update one unit and apply any PRSUs. The unit may be in one of the XPMs in the set to be updated.

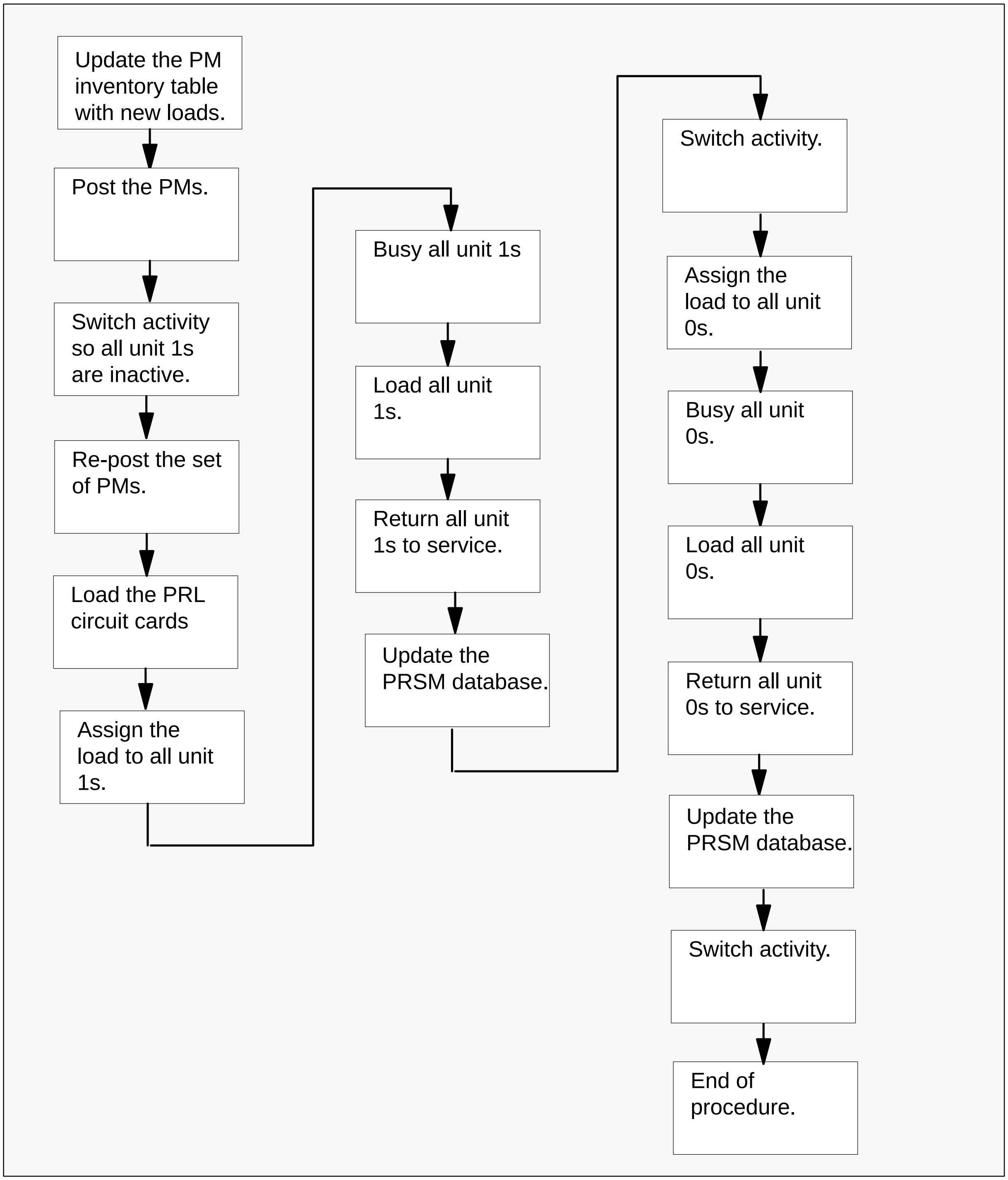
Do not use XPM parallel loading to update remote XPMs such as the remote cluster controller (RCC). Update each PM individually.

Do not use XPM parallel loading to update DTCs with timing links. To identify the timing source, type the command MAPCI;MTC;MS;CLOCK from the CI level of the MAP display. Offices may wish to use the DTC with timing links as the first DTC in the office to be updated with the new load.

Parallel loading may be used to update the XPM processor firmware in a set of up to four XPM units. The set can include up to ten XPMs, but a maximum of four XPM units per set is recommended for optimum performance.

Note: With the MSL08 software release, office parameter MAX_FIRMWARE_LOAD_MAIN_TASKS in table OFCOPT is deleted.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the MAP display

1 Select the PMs to update.

2 Confirm all prerequisites for this procedure have been met.

3 Change the PM load in the inventory table by performing the following steps.

a. Access the PM inventory table by typing

>TABLE pm_inv
and pressing the Enter key.

where

pm_inv is the name of the inventory table

Example

>TABLE LTCINV

If you wish to view the tuples in	Do
a packed format	step 3b.
a regular or expanded format	step 3c.

b. Change the format of the display to a packed format by typing

>FORMAT PACK
and pressing the Enter key.

c. Position on the datafill tuple for one of the PMs to be updated by typing

>POS pm_type pm_no
and pressing the Enter key.

where

pm_type is the type of PM
pm_no is the number of the PM

Example

>POS DTC 0

d.

> **ATTENTION**
> If the load name has a date extension, the load is a pre-patched load. Do not datafill the date extension. Refer to “Overview of release” in this document for more information on date extensions and pre-patched loads.

Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load is the name of the new load

Example

>CHA LOAD ECL08BC

e. Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM state changes to ISTb due to the load mismatch with the inventory table. Continue with this procedure.

If the XPM processor firmware	Do
must be updated	step 4
does not need to be updated	step 5

4 Change the XPM processor firmware load in the inventory table by performing the following steps.

a. Change the firmware load name by typing

>CHA E2LOAD fw_load
and pressing the Enter key.

where

fw_load is the name of the XPM processor firmware load

Example

>CHA E2LOAD UPFWNJ03

b. Confirm the change by typing

>Y
and pressing the Enter key.

5 Determine if the PM has a CMR load to be updated

If the CMR load	Do
needs to be updated	step 6
does not need to be updated	step 7

6 Change the CMR load in the inventory table by performing the following steps.

a. Access the OPTCARD field by typing

>CHA OPTCARD
and pressing the Enter key.

b. Press the Enter key to scroll through the fields until prompted for the CMR load name.

c. Enter the new CMR load name by typing

>cmr_load
and pressing the Enter key.

where

cmr_load is the name of the new CMR load

Example

>CMR07A

d. Press the Enter key to scroll through the fields until the blank OPTCARD prompt appears.

e. Exit the OPTCARD field by typing

>$
and pressing the Enter key.

f. Confirm the change by typing

>Y
and pressing the Enter key.

7 Repeat steps 3c. to 6 for each PM to be updated in the selected set.

8 Exit the table by typing

>QUIT
and pressing the Enter key.

9 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

10

> **ATTENTION**
>
> If parallel firmware loading will be used to update the XPM processor firmware, post four or less XPMs at this step.

Post the PMs by typing

>POST pm_type pm_set
and pressing the Enter key.

where

pm_type	is the type of PM
pm_set	is the set of PMs

Example

```
POST  DTC  0  1  2  3  4  5
```

Note: The PMs are ISTb due to the load mismatch with the inventory table. If necessary, wait for the PMs to change to ISTb before continuing with this procedure. If a PM does not change to ISTb, confirm the PM inventory table was correctly updated and the correct PM is posted.

11 Use the NEXT command to scroll through the posted set and identify any unit 1s that are active.

12 Post all the PMs with an active unit 1 by typing

>POST pm_type pm_set
and pressing the Enter key.

where

pm_type	is the type of PM
pm_set	is the number of the PM with an active unit 1

Example

```
POST  DTC  0  2  3  5
```

13 Switch activity in the PMs by typing

>SWACT ALL
and pressing the Enter key.

14 Re-post the entire PM set by typing

>POST pm_type pm_set
and pressing the Enter key.

where

pm_type	is the type of PM
pm_set	is the set of PMs

Example

```
POST  DTC  0  1  2  3  4  5
```

15

ATTENTION

This step loads both PRL circuit cards. This reduces loading time but may increase risks on ISDN XPMs if a recovery is required.

Load the PRL circuit cards by typing the following command.

>XPMSTOR PM ALL

and pressing the Enter key.

Note: The PMs remain ISTb due to the load mismatch between the PRL circuit card and the PMs. The PMs remain ISTb until the PMs are loaded with the new load. Continue with this procedure.

If the new load	Do
has PRSUs	step 16
does not have PRSUs	step 18

16

> **ATTENTION**
> Office policy may support the use of destination sets to simplify the parallel loading of XPMs.

Assign the load to all unit 1s in the posted set by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b.

> **ATTENTION**
> After performing this step, do not use the DBAUDIT command unless the command is specified in this procedure. The use of the DBAUDIT command prior to the LOADPM command can link PRSUs from the previous load to the new PM load.

Assign the new load to all unit 1s in the posted set by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no 1
and press the Enter key.

where

new_load	is the name of the new load
pm_type	is the type of PM
pm_no	is the number of the PM being updated

Examples

>ASSIGN 'UPGRADE_LD ECL08BC IN DESTSET DTC 0 1 I +
>'DTC 1 1 I DTC 2 1 I DTC 3 1 I DTC 4 1

17 Exit the utility by typing

>QUIT
and pressing the Enter key.

18 Determine which software release the office is currently at.

If	Do
the office is at MSL08 or lower	steps 19 through 22
the office is at MSL09 or higher	steps 23 through 26

19 Busy all unit 1s in the posted set by typing

>BSY UNIT 1 ALL
and pressing the Enter key.

Note: If a maintenance audit is running, the PM does not respond to this command. Wait a few seconds and re-enter the command. Do not use the FORCE parameter.

20 Confirm the command by typing

>Y
and pressing the Enter key.

If the XPM processor firmware	Do
must be updated	step 21
does not require updating	step 27

21

> **ATTENTION**
> If the set is larger than four XPMs, it may be necessary to load the firmware in each unit individually or create a smaller set. Refer to the notes at the start of this procedure.

Load the firmware into all unit 1s in the posted set by typing

>LOADPM UNIT 1 CC FIRMWARE ALL
and pressing the Enter key.

22 Confirm the command by typing

>Y
and pressing the Enter key.

Go to step 27.

23

ATTENTION

To ensure the new firmware is loaded, steps 23 through 26 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 23 through 26. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE ALL command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 23 and 26 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into all unit 1s in the posted set by typing

>LOADFW INACTIVE ALL
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

24 Busy all unit 1s in the posted set by typing

>BSY UNIT 1 ALL
and pressing the Enter key.

Note: If a maintenance audit is running, the PM does not respond to this command. Wait a few seconds and re-enter the command. Do not use the FORCE parameter.

25 Confirm the command by typing

>Y
and pressing the Enter key.

If the XPM processor firmware	Do
must be updated	step 26
does not require updating	step 27

26 Activate the firmware into all unit 1s in the posted set by typing

>LOADFW INACTIVE UPGRADE ALL
and pressing the Enter key.

27

CAUTION
Possible service interruption
Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load all unit 1s in the posted set by typing

>LOADPM UNIT 1 LOCAL LOADFILE ALL
and pressing the Enter key.

28 Confirm the command by typing

>Y
and pressing the Enter key.

29 Return all unit 1s in the posted set to service by typing

>RTS UNIT 1 ALL
and pressing the Enter key.

30 Confirm the command by typing

>Y
and pressing the Enter key.

31 Wait for the MAP display to show the new loaded units as in-service. This ensures superframe sync and data sync are achieved. It may take several minutes for the MAP display to show all the units as in-service.

If the new load	Do
has PRSUs	step 32
has no PRSUs	step 34

32 Confirm each unit 1 in the posted set is properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according to the unit's current database by typing

>DBAUDIT pm_type pm_no 1
and pressing the Enter key.

where

pm_type	is the type of PM
pm_no	is the number of the PM being updated

Example

>DBAUDIT 'DTC 0 1 l DTC 1 1 l DTC 2 1 l +
>'DTC 3 1 l DTC 4 1

c. Display the PRSU list for one unit 1 by typing

>REPORT DEST pm_type pm_no 1
and pressing the Enter key.

where

pm_type	is the type of PM
pm_no	is the number of the PM being updated

Example

>REPORT DEST DTC 0 1

d. Repeat step 32c. for each unit 1 that has been updated.

e. Confirm all PRSUs for the new load have been applied to each unit 1.

If	Do
all PRSUs for the new load are applied to each unit 1.	step 33
all PRSUs for the new load are not applied to each unit 1	Troubleshoot the problem or contact the next level of support.
any PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 32b. If a DBAUDIT has been performed, contact the next level of support.
any PRSUs from the previous load are listed at NV status	Go to step 33. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

33 Exit the utility by typing

>QUIT
and pressing the Enter key.

34 Switch activity between the units by typing

>SWACT ALL
and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

35 Confirm the switch of activity by typing

>Y
and pressing the Enter key.

If the new load	Do
has PRSUs	step 36
does not have PRSUs	step 38

36

> **ATTENTION**
> Office policy may support the use of destination sets to simplify the broadcast mate loading of XPMs.

Assign the load to all unit 0s in the posted set by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Assign the new load to all unit 0s in the posted set by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no 0
and press the Enter key.

where

new_load	is the name of the new load
pm_type	is the type of PM
pm_no	is the number of the PM being updated

Examples

>ASSIGN 'UPGRADE_LD ECL08BC IN DESTSET DTC 0 0 I +
>'DTC 1 0 I DTC 2 0 I DTC 3 0 I DTC 4 0

37 Exit the utility by typing

>QUIT
and pressing the Enter key.

38

If	Do
the office is at MSL08 or lower	steps 39 through 42
the office is at MSL09 or higher	steps 43 through 45

39 Busy all unit 0s in the posted set by typing

>BSY UNIT 0 ALL
and pressing the Enter key.

Note: If a maintenance audit is running, the PM will not respond to this command. Wait a few seconds and re-enter the command. Do not use the FORCE parameter.

40 Confirm the command by typing

>Y
and pressing the Enter key.

If the XPM processor firmware	Do
must be updated	step 41
does not require updating	step 46

41

ATTENTION
If the set is larger than four XPMs, it may necessary load the firmware in each unit individually or create a smaller set. Refer to the notes at the start of this procedure.

Load the firmware into all unit 0s in the posted set by typing

>LOADPM UNIT 0 CC FIRMWARE ALL
and pressing the Enter key.

42 Confirm the command by typing

>Y
and pressing the Enter key.

Go to step 46.

43

ATTENTION
To ensure the new firmware is loaded, steps 43 through 45 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 43 through 45. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE ALL command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 43 and 45 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into all unit 0s in the posted set by typing

>LOADFW INACTIVE ALL
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

44 Busy all unit 0s in the posted set by typing

>BSY UNIT 0 ALL
and pressing the Enter key.

Note: If a maintenance audit is running, the PM does not respond to this command. Wait a few seconds and re-enter the command. Do not use the FORCE parameter.

If the XPM processor firmware load	Do
must be updated	step 45
does not need to be updated	step 46

45 Activate the firmware into all unit 0s in the posted set by typing

>LOADFW INACTIVE UPGRADE ALL
and pressing the Enter key.

46

CAUTION
Possible service interruption
Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load all unit 0s in the posted set by typing

>LOADPM UNIT 0 LOCAL LOADFILE ALL
and pressing the Enter key.

47 Confirm the command by typing

>Y
and pressing the Enter key.

48 Return all unit 0s in the posted set to service by typing

>RTS UNIT 0 ALL
and pressing the Enter key.

49 Confirm the command by typing

>Y
and pressing the Enter key.

50 Wait for the MAP display to show the new loaded units as in-service. This ensures superframe sync and data sync are achieved. It may take several minutes for the MAP display to show all the units as in-service.

If the new load	Do
has PRSUs	step 51
has no PRSUs	step 53

51 Confirm each unit 0 in the posted set has been properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according to the unit's current database by typing

>DBAUDIT pm_type pm_no 0
and pressing the Enter key.

where
pm_type is the type of PM
pm_no is the number of the PM being updated

Example

>DBAUDIT 'DTC 0 0 l DTC 1 0 l DTC 2 0 0 l +
>'DTC 3 0 l DTC 4 0

c. Display the PRSU list for one unit 0 by typing

>REPORT DEST pm_type pm_no 0
and pressing the Enter key.

where
pm_type is the type of PM
pm_no is the number of the PM being updated

Example

>REPORT DEST DTC 0 0

d. Repeat step 51c. for each unit 0 that has been updated.

e. Confirm all PRSUs for the new load are applied to each unit 0.

If	**Do**
all PRSUs for the new load are applied to each unit 0.	step 52
all PRSUs for the new load are not applied to each unit 0	Troubleshoot the problem or contact the next level of support.
any PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 51b. If a DBAUDIT has been performed, contact the next level of support.
any PRSUs from the previous load are listed at NV status	Go to step 52. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

52 Exit the utility by typing

>QUIT
and pressing the Enter key.

53 Switch activity between the units by typing

>SWACT ALL
and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

54 Confirm the switch of activity by typing

>Y
and pressing the Enter key.

55 You have successfully used the PRL circuit card and parallel loading to update a set of XPMs and have completed this procedure. Review the update schedule.

If there are	Do
additional XPMs to update during this shift	Follow the recommendations in “Overview of update process” in this document and repeat this procedure or go to the appropriate procedure in this document.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Using a PRL circuit card to broadcast mate load XPMs

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

ATTENTION
Do not use broadcast mate loading to update remote PMs.

Use this procedure to use a PRL circuit card (NT7X05 or NTSX06) to update a set of 11 to 35 XPMs. Broadcast mate loading allows operating company personnel to load the inactive units of a set of PMs. Unlike parallel loading, broadcast mate loading requires only one loader resource for a set of like peripherals. An exception to this would be if the posted set consisted of more than one load type.

All inactive units of a set of XPMs can be updated using XPM broadcast mate loading. The CM messages the active unit of the first XPM in the set. The active unit forwards the message to its inactive unit and the active unit of the second XPM in the set. The active unit in the second XPM forwards the message to its inactive unit and the third XPM in the set. This sequence continues until all XPMs in the set have received the message.

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The names of all new loads for the PM are datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The PMs are in-service.

- The PMs successfully passed their last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.
- The PRSM automated processes such as DBAUDIT and AUTOAPP must not run during the PM update shift.

  Note: Depending on the size of the set, it may be necessary to create an exec to post the set of XPMs. Refer to the procedure “Using an exec to post a large set of XPMs” in this document.

Required information

Refer to the update procedure in this document for the appropriate PM type to identify any required information.

Update sequence

Refer to the update procedure in this document for the appropriate PM type to identify the update sequence for the PMs being broadcast mate loaded.

Notes

Broadcast mate loading can only be used on XPMs that have one unit in-service and one unit manually busy.

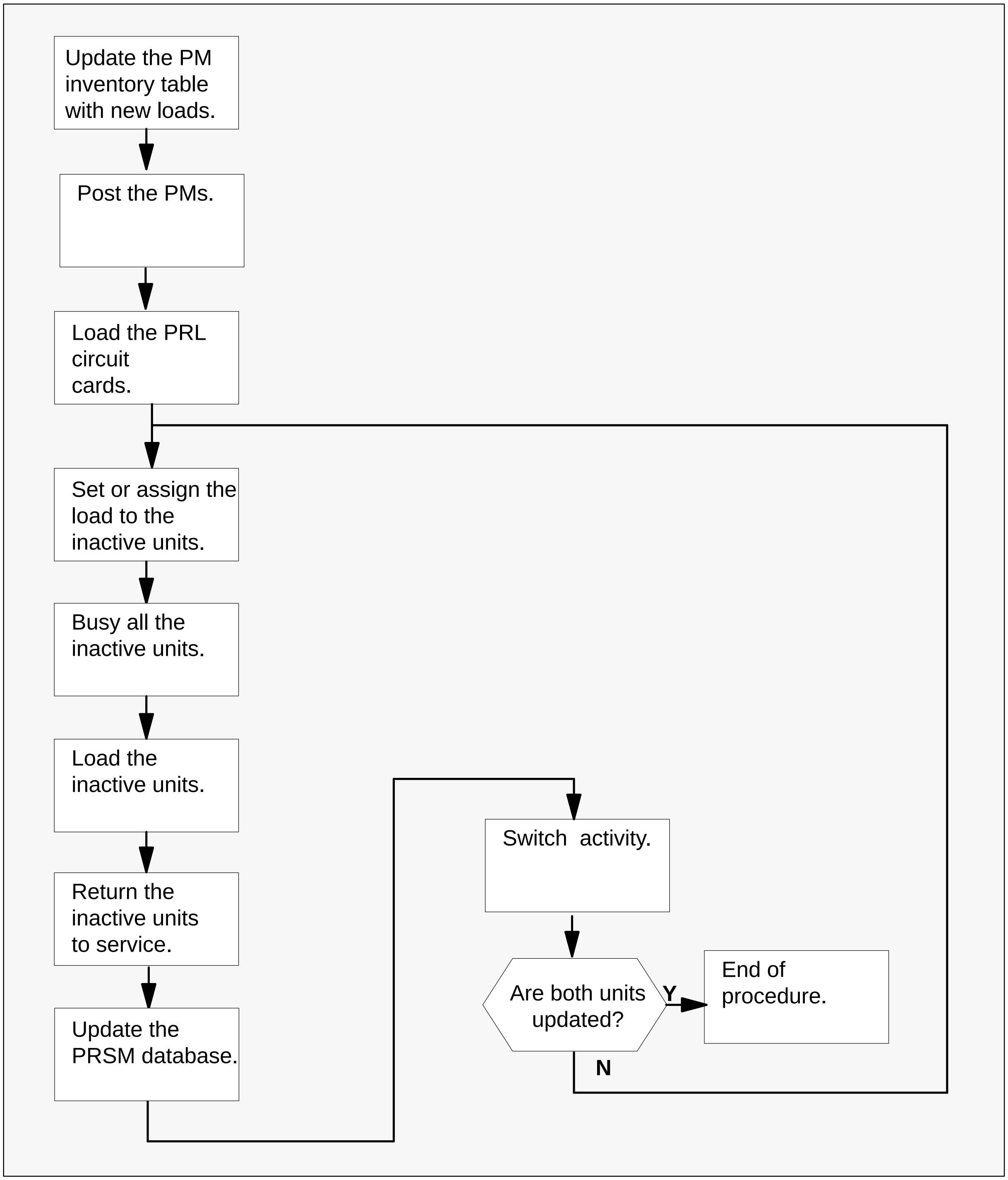
This procedure assumes that any PRSUs to be applied to the load have been applied. If this has not occurred, update one unit and apply any PRSUs. The unit may be in one of the XPMs in the set to be updated using broadcast mate loading.

Do not use XPM broadcast mate loading to update DTCs with timing links. To identify the timing source, type the command MAPCI;MTC;MS;CLOCK from the CI level of the MAP display. Offices may wish to use the DTC with timing links as the first DTC in the office to be updated with the new load.

Parallel loading may be used to update the XPM processor firmware in a set of up to four XPM units. The set can include up to ten XPMs, but a maximum of four XPM units per set is recommended for optimum performance.

Note: With the MSL08 software release, office parameter MAX_FIRMWARE_LOAD_MAIN_TASKS in table OFCOPT is deleted.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the MAP display

1 Select the PMs to update.

2 Confirm all prerequisites for this procedure have been met.

3 Change the PM load in the inventory table by performing the following steps.

a. Access the PM inventory table by typing

>TABLE pm_inv
and pressing the Enter key.

where

pm_inv   is the name of the inventory table

Example

>TABLE LTCINV

If you wish to view the tuples in	Do
a packed format	step 3b.
a regular or expanded format	step 3c.

b. Change the format of the display to a packed format by typing

>FORMAT PACK
and pressing the Enter key.

c. Position on the datafill tuple for one of the PMs to be updated by typing

>POS pm_type pm_no
and pressing the Enter key.

where

pm_type   is the type of PM
pm_no   is the number of the PM

Example

>POS DTC 0

d. **ATTENTION**

If the load name has a date extension, the load is a pre-patched load. Do not datafill the date extension. Refer to “Overview of release” in this document for more information on date extensions and pre-patched loads.

Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load is the name of the new load

Example

>CHA LOAD ECL08BC

e. Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM state changes to ISTb due to the load mismatch with the inventory table. Continue with this procedure.

If the XPM processor firmware	Do
must be updated	step 4
does not need to be updated	step 5

4 Change the XPM processor firmware load in the inventory table by performing the following steps.

a. Change the firmware load name by typing

>CHA E2LOAD fw_load
and pressing the Enter key.

where

fw_load is the name of the XPM processor firmware load

Example

>CHA E2LOAD UPFWNJ03

b. Confirm the change by typing

>Y
and pressing the Enter key.

5 Determine if the PM has a CMR load to be updated

If the CMR load	Do
needs to be updated	step 6
does not need to be updated	step 7

6 Change the CMR load in the inventory table by performing the following steps.

a. Access the OPTCARD field by typing

>CHA OPTCARD
and pressing the Enter key.

b. Press the Enter key to scroll through the fields until prompted for the CMR load name.

c. Enter the new CMR load name by typing

>cmr_load
and pressing the Enter key.

where

cmr_load is the name of the new CMR load

Example

>CMR07A

d. Press the Enter key to scroll through the fields until the blank OPTCARD prompt appears.

e. Exit the OPTCARD field by typing

>$
and pressing the Enter key.

f. Confirm the change by typing

>Y
and pressing the Enter key.

7 Repeat steps 3c. to 6 for each PM to be updated in the selected set.

8 Exit the table by typing

>QUIT
and pressing the Enter key.

9 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

10

> **ATTENTION**
> If parallel firmware loading will be used to update the XPM processor firmware, post four or less XPMs at this step.

Post the PMs by typing

>POST pm_type pm_set
and pressing the Enter key.

where

pm_type	is the type of PM being updated
pm_set	is the set of PMs being updated

Example

>POST DTC 0 1 2 3 4 5 6 7 8 9 10 11 12

Note: The PMs are ISTb due to the load mismatch with the inventory table. If necessary, wait for the PMs to change to ISTb before continuing with this procedure. If a PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

11

> **ATTENTION**
> This step loads both PRL circuit cards. This reduces loading time but may increase risks on ISDN XPMs if a recovery is required.

Load the PRL circuits cards by typing the following command.

>XPMSTOR PM ALL
and pressing the Enter key.

Note: The PMs remain ISTb due to the load mismatch between the PRL circuit card and the PMs. The PMs remain ISTb until the PMs are loaded with the new load. Continue with this procedure.

12 Identify the inactive unit in each PM in the set.

If the new load	Do
has PRSUs	step 13
does not have PRSUs	step 15

13

> **ATTENTION**
> Office policy may support the use of destination sets to simplify the broadcast mate loading of XPMs.

Assign the load to the inactive units by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b.

> **ATTENTION**
> After performing this step, do not use the DBAUDIT command unless the command is specified in this procedure. The use of the DBAUDIT command prior to the LOADPM command can link PRSUs from the previous load to the new PM load.

Assign the new load to the inactive units by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no unit_no
and press the Enter key.

where

new_load	is the name of the new load
pm_type	is the type of PM
pm_no	is the number of the PM being updated
unit_no	is the number of the PM unit

Examples

>ASSIGN UPGRADE_LD ECL08BC IN DESTSET DTC 0 1 l +
>'DTC 1 0 l DTC 2 0 l DTC 3 1 l DTC 4 0

14 Exit the utility by typing

>QUIT
and pressing the Enter key.

15 Determine which software release the office is currently at.

If	Do
the office is at MSL08 or lower	steps 16 through 19
the office is at MSL09 or higher	steps 20 through 22

16 Busy all the inactive units by typing

>BSY INACTIVE ALL
and pressing the Enter key.

Note: If a maintenance audit is running, the PM will not respond to this command. Wait a few seconds and re-enter the command. Do not use the FORCE parameter.

17 Confirm the command by typing

>Y
and pressing the Enter key.

If the XPM processor firmware	Do
must be updated	step 18
does not require updating	step 23

18

ATTENTION
If the set is larger than four XPMs, it may necessary load the firmware in each unit individually or create a smaller set. Refer to the notes at the start of this procedure.

Load the firmware into the inactive unit of one of the PMs in the set by typing

>LOADPM INACTIVE CC FIRMWARE ALL
and pressing the Enter key.

19 Confirm the command by typing

>Y
and pressing the Enter key.

Go to step 23.

20

ATTENTION

To ensure the new firmware is loaded, steps 20 through 22 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 20 through 22. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE ALL command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 20 and 22 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the inactive unit of one of the PMs in the set by typing

>LOADFW INACTIVE ALL
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

21 Busy all the inactive units by typing

>BSY INACTIVE ALL
and pressing the Enter key.

Note: If a maintenance audit is running, the PM will not respond to this command. Wait a few seconds and re-enter the command. Do not use the FORCE parameter.

22 Activate the firmware into the inactive unit of one of the PMs in the set by typing

>LOADFW INACTIVE UPGRADE ALL
and pressing the Enter key.

23

CAUTION
Possible service interruption
Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load all the inactive units by typing

>LOADPM INACTIVE LOCAL LOADFILE ALL
and pressing the Enter key.

24 Confirm the command by typing

>Y
and pressing the Enter key.

25 Return all the inactive units to service by typing

>RTS INACTIVE ALL
and pressing the Enter key.

26 Confirm the command by typing

>Y
and pressing the Enter key.

27 Wait for the MAP display to show the new loaded units as in-service. This ensures superframe sync and data sync are achieved. It may take several minutes for the MAP display to show all the units as in-service.

If the new load	Do
has PRSUs	step 28
has no PRSUs	step 32

28 Confirm each inactive unit is properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according to the unit's current database by typing

>DBAUDIT pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type is the type of PM
pm_no is the number of the PM being updated
unit_no is the number of the inactive unit

Example

>DBAUDIT 'DTC 0 1 l DTC 1 0 l DTC 2 0 l +
>'DTC 3 1 l DTC 4 0

c. Display the PRSU list for one inactive unit by typing

>REPORT DEST pm_type pm_no unit_no
and pressing the Enter key.

where

pm_type	is the type of PM
pm_no	is the number of the PM being updated
unit_no	is the number of the inactive unit

Example

>REPORT DEST DTC 0 1

d. Repeat step 28c. for each inactive unit that has been updated.

e. Confirm all PRSUs for the new load are applied to each inactive unit.

If	Do
all PRSUs for the new load are applied to each inactive unit	step 29
all PRSUs for the new load are not applied to each inactive unit	Troubleshoot the problem or contact the next level of support.
any PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 28b. If a DBAUDIT has been performed, contact the next level of support.
any PRSUs from the previous load are listed at NV status	Go to step 29. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

29 Exit the utility by typing

>QUIT
and pressing the Enter key.

30 Switch activity between the units by typing

>SWACT ALL
and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

31 Confirm the switch of activity by typing

>Y

and pressing the Enter key.

If	Do
one unit in the set of PMs has been updated	step 12
both units in the set of PMs has been updated	step 32

32 You have successfully used broadcast mate loading to update a set of XPMs and have completed this procedure. Review the update schedule.

If there are	Do
additional XPMs to update during this shift	Follow the recommendations in “Overview of update process” in this document and repeat this procedure or go to the appropriate procedure in this document.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Using parallel loading to update XPMs

Application

> **CAUTION**
> **Possible service interruption**
> Perform this procedure during a maintenance window or a period of low traffic.

> **ATTENTION**
> If the PM being updated is equipped with a peripheral/remote loader (PRL) circuit card, refer to the procedure “Using a PRL card to parallel load an XPM” in this document.

Use this procedure to update a set of 2 to 10 XPMs. All units of the same number (0 or 1) can be updated with XPM parallel loading. Only inactive units may be updated, however, so activity may have to be switched in some XPMs to align all the units in the set. During XPM parallel loading, the CM messages directly to each inactive unit.

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The names of all new loads for the PM are datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The PMs are in-service.
- The PMs successfully passed their last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.
- The PRSM automated processes such as DBAUDIT and AUTOAPP must not run during the PM update shift.

Required information

Refer to the update procedure in this document for the appropriate PM type to identify any required information.

Update sequence

Refer to the update procedure in this document for the appropriate PM type to identify the update sequence for the PMs being parallel loaded.

Notes

This procedure assumes that any PRSUs to be applied to the load, have been applied. If this has not occurred, update one unit and apply any PRSUs. The unit may be in one of the XPMs in the set to be updated.

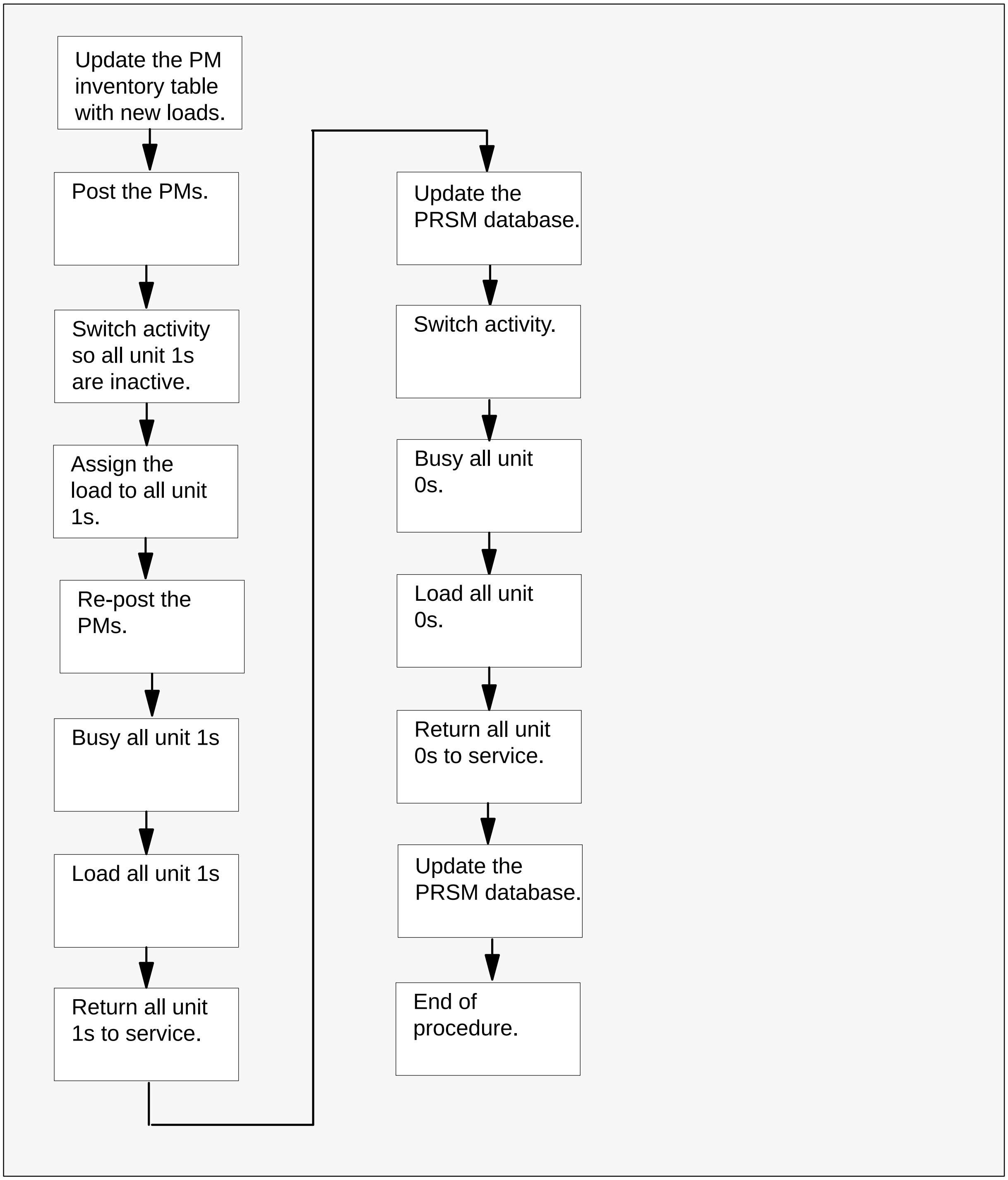
Do not use XPM parallel loading to update remote XPMs such as the remote cluster controller (RCC). Update each PM individually.

Do not use XPM parallel loading to update DTCs with timing links. To identify the timing source, type the command MAPCI;MTC;MS;CLOCK from the CI level of the MAP display. Offices may wish to use the DTC with timing links as the first DTC in the office to be updated with the new load.

Parallel loading may be used to update the XPM processor firmware in a set of up to four XPM units. The set can include up to ten XPMs, but a maximum of four XPM units per set is recommended for optimum performance.

Note: With the MSL08 software release, office parameter MAX_FIRMWARE_LOAD_MAIN_TASKS in table OFCOPT is deleted.

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails, for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the MAP display

1 Select the PMs to update.

2 Confirm all prerequisites for this procedure have been met.

3 Change the PM load in the inventory table by performing the following steps.

a. Access the PM inventory table by typing

>TABLE pm_inv
and pressing the Enter key.

where

pm_inv   is the name of the inventory table

Example

>TABLE LTCINV

If you wish to view the tuples in	Do
a packed format	step 3b.
a regular or expanded format	step 3c.

b. Change the format of the display to a packed format by typing

>FORMAT PACK
and pressing the Enter key.

c. Position on the datafill tuple for one of the PMs to be updated by typing

>POS pm_type pm_no
and pressing the Enter key.

where

pm_type   is the type of PM
pm_no   is the number of the PM

Example

>POS DTC 0

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched load. Do not datafill the date extension. Refer to “Overview of release” in this document for more information on date extensions and pre-patched loads.

Change the load name to the new load name by typing

>CHA LOAD new_load
and pressing the Enter key.

where

new_load is the name of the new load

Example

>CHA LOAD ECL08BC

e. Confirm the change by typing

>Y
and pressing the Enter key.

Note: The PM state changes to ISTb due to the load mismatch with the inventory table. Continue with this procedure.

If the XPM processor firmware	Do
must be updated	step 4
does not need to be updated	step 5

4 Change the XPM processor firmware load in the inventory table by performing the following steps.

a. Change the firmware load name by typing

>CHA E2LOAD fw_load
and pressing the Enter key.

where

fw_load is the name of the XPM processor firmware load

Example

>CHA E2LOAD UPFWNJ03

b. Confirm the change by typing

>Y
and pressing the Enter key.

5 Determine if the PM has a CMR load to be updated

If the CMR load	Do
needs to be updated	step 6
does not need to be updated	step 7

6 Change the CMR load in the inventory table by performing the following steps.

a. Access the OPTCARD field by typing

>CHA OPTCARD
and pressing the Enter key.

b. Press the Enter key to scroll through the fields until prompted for the CMR load name.

c. Enter the new CMR load name by typing

>cmr_load
and pressing the Enter key.

where

cmr_load is the name of the new CMR load

Example

>CMR07A

d. Press the Enter key to scroll through the fields until the blank OPTCARD prompt appears.

e. Exit the OPTCARD field by typing

>$
and pressing the Enter key.

f. Confirm the change by typing

>Y
and pressing the Enter key.

7 Repeat steps 3c. to 6 for each PM to be updated in the selected set.

8 Exit the table by typing

>QUIT
and pressing the Enter key.

9 Access the PM level of the MAP display by typing

>MAPCI; MTC; PM
and pressing the Enter key.

10

> **ATTENTION**
>
> If parallel firmware loading will be used to update the XPM processor firmware, post four or less XPMs at this step.

Post the PMs by typing

>POST pm_type pm_set
and pressing the Enter key.

where

pm_type	is the type of PM
pm_set	is the set of PMs

Example

```
POST  DTC  0  1  2  3  4  5
```

Note: The PMs are ISTb due to the load mismatch with the inventory table. If necessary, wait for the PMs to change to ISTb before continuing with this procedure. If a PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

11 Use the NEXT command to scroll through the posted set and identify any unit 1s that are active.

12 Post all the PMs with an active unit 1 by typing

>POST pm_type pm_set
and pressing the Enter key.

where

pm_type	is the type of PM
pm_set	is the number of the PM with an active unit 1

Example

```
POST  DTC  0  2  3  5
```

13 Switch activity in the PMs by typing

>SWACT ALL
and pressing the Enter key.

14 Re-post the entire PM set by typing

>POST pm_type pm_set
and pressing the Enter key.

where

pm_type	is the type of PM
pm_set	is the set of PMs

Example

```
POST  DTC  0  1  2  3  4  5
```

If the new load	Do
has PRSUs	step 15
does not have PRSUs	step 17

15

ATTENTION
Office policy may support the use of destination sets to simplify the parallel loading of XPMs.

Assign the load to all unit 1s in the posted set by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b.

ATTENTION
After performing this step, do not use the DBAUDIT command unless the command is specified in this procedure. The use of the DBAUDIT command prior to the LOADPM command can link PRSUs from the previous load to the new PM load.

Assign the new load to all unit 1s in the posted set by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no 1
and pressing the Enter key.

where

new_load	is the name of the new load
pm_type	is the type of PM
pm_no	is the number of the PM being updated

Examples

>ASSIGN 'UPGRADE_LD ECL08BC IN DESTSET DTC 0 1 l +
>'DTC 1 1 l DTC 2 1 l DTC 3 1 l DTC 4 1

16 Exit the utility by typing

>QUIT
and pressing the Enter key.

17 Determine which software release the office is currently at.

If	Do
the office is at NA009 or lower	steps 18 through 21
the office is at NA010 or higher	steps 22 through 24

18 Busy all unit 1s in the posted set by typing

>BSY UNIT 1 ALL
and pressing the Enter key.

Note: If a maintenance audit is running, the PM will not respond to this command. Wait a few seconds and re-enter the command. Do not use the FORCE parameter.

19 Confirm the command by typing

>Y
and pressing the Enter key.

If the XPM processor firmware	Do
must be updated	step 20
does not require updating	step 25

20

ATTENTION
If the set is larger than four XPMs, it may necessary load the firmware in each unit individually or create a smaller set. Refer to the notes at the start of this procedure.

Load the firmware into all unit 1s in the posted set by typing

>LOADPM UNIT 1 CC FIRMWARE ALL
and pressing the Enter key.

21 Confirm the command by typing

>Y
and pressing the Enter key.

Go to step 25.

22

ATTENTION

To ensure the new firmware is loaded, steps 22 through 24 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 22 through 24. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 22 and 24 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into all unit 1s in the posted set by typing

>LOADFW INACTIVE ALL
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

23 Busy all unit 1s in the posted set by typing

>BSY UNIT 1 ALL
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 24
does not need to be updated	step 25

24 Activate the firmware into all unit 1s in the posted set by typing

>LOADFW INACTIVE UPGRADE ALL
and pressing the Enter key.

25

> **CAUTION**
> **Possible service interruption**
> Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load all unit 1s in the posted set by typing

>LOADPM UNIT 1 ALL
and pressing the Enter key.

26 Return all unit 1s in the posted set to service by typing

>RTS UNIT 1 ALL
and pressing the Enter key.

27 Confirm the command by typing

>Y
and pressing the Enter key.

28 Wait for the MAP display to show the new loaded units as in-service. This ensures superframe sync and data sync are achieved. It may take several minutes for the MAP display to show all the units as in-service.

If	Do
the new load has PRSUs	step 29
the load has no PRSUs	step 31

29 Confirm each unit 1 in the posted set has been properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according to the unit’s current database by typing

>DBAUDIT pm_type pm_no 1
and pressing the Enter key.

where

pm_type	is the type of PM
pm_no	is the number of the PM being updated

Example

>DBAUDIT ’DTC 0 1 l DTC 1 1 l DTC 2 1 l +
>’DTC 3 1 l DTC 4 1

c. Display the PRSU list for one unit 1 by typing

>REPORT DEST pm_type pm_no 1
and pressing the Enter key.

where

pm_type	is the type of PM
pm_no	is the number of the PM being updated

Example

>REPORT DEST DTC 0 1

d. Repeat step 29c. for each unit 1 that has been updated.

e. Confirm all PRSUs for the new load are applied to each unit 1.

If	Do
all PRSUs for the new load are applied to each unit 1	step 30
all PRSUs for the new load are not applied to each unit 1	Troubleshoot the problem or contact the next level of support.
any PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 29b. If a DBAUDIT has been performed, contact the next level of support.
any PRSUs from the previous load are listed at NV status	Go to step 30. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

30 Exit the utility by typing

>QUIT
and pressing the Enter key.

31 Switch activity between the units by typing

>SWACT ALL
and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

32 Confirm the switch of activity by typing

>Y
and pressing the Enter key.

If the new load	Do
has PRSUs	step 33
does not have PRSUs	step 34

33

> **ATTENTION**
> Office policy may support the use of destination sets to simplify the broadcast mate loading of XPMs.

Assign the load to all unit 0s in the posted set by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Assign the new load to all unit 0s in the posted set by typing the following command.

>ASSIGN UPGRADE_LD new_load IN DESTSET pm_type pm_no 0
and press the Enter key.

where

new_load	is the name of the new load
pm_type	is the type of PM
pm_no	is the number of the PM being updated

Examples

>ASSIGN 'UPGRADE_LD ECL08BC IN DESTSET DTC 0 0 I +
>'DTC 1 0 I DTC 2 0 I DTC 3 0 I DTC 4 0

34 Exit the utility by typing

>QUIT
and pressing the Enter key.

35

If	Do
the office is at MSL08 or lower	steps 36 through 39
the office is at MSL09 or higher	steps 40 through 42

36 Busy all unit 0s in the posted set by typing

>BSY UNIT 0 ALL
and pressing the Enter key.

Note: If a maintenance audit is running, the PM will not respond to this command. Wait a few seconds and re-enter the command. Do not use the FORCE parameter.

37 Confirm the command by typing

>Y
and pressing the Enter key.

If the XPM processor firmware	Do
must be updated	step 38
does not require updating	step 43

38

> **ATTENTION**
> If the set is larger than four XPMs, it may necessary load the firmware in each unit individually or create a smaller set. Refer to the notes at the start of this procedure.

Load the firmware into all unit 0s in the posted set by typing

>LOADPM UNIT 0 CC FIRMWARE ALL
and pressing the Enter key.

39 Confirm the command by typing

>Y
and pressing the Enter key.

Go to step 43.

40

> **ATTENTION**
> To ensure the new firmware is loaded, steps 40 through 42 must be performed consecutively.
>
> Do not use the PMRESET or LOADPM command between steps 40 through 42. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE ALL command passing, but the firmware is not updated.
>
> If the PMRESET or LOADPM command is entered between steps 40 and 42 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into all unit 0s in the posted set by typing

>LOADFW INACTIVE ALL
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

41 Busy all unit 0s in the posted set by typing

>BSY UNIT 0 ALL
and pressing the Enter key.

If the XPM processor firmware load	Do
must be updated	step 42
does not need to be updated	step 43

42 Activate the firmware into all unit 0s in the posted set by typing

>LOADFW INACTIVE UPGRADE ALL
and pressing the Enter key.

43

CAUTION
Possible service interruption
Do not use the LOADPM CC command with the file name parameter when updating a PM with a PPXL. Obsolete PRSUs can be loaded, and PRSUs not included in the PPXL are not loaded.

Load all unit 0s in the posted set by typing

>LOADPM UNIT 0 ALL
and pressing the Enter key.

44 Confirm the command by typing

>Y
and pressing the Enter key.

45 Return all unit 0s in the posted set to service by typing

>RTS UNIT 0 ALL
and pressing the Enter key.

46 Confirm the command by typing

>Y
and pressing the Enter key.

47 Wait for the MAP display to show the new loaded units as in-service. This ensures superframe sync and data sync are achieved. It may take several minutes for the MAP display to show all the units as in-service.

If	Do
the new load has PRSUs	step 48
the load has no PRSUs	step 50

48 Confirm each unit 0 in the posted set has been properly patched by performing the following steps.

a. Access the PRSM utility by typing

>PRSM
and pressing the Enter key.

b. Update the PRSM database according to the unit's current database by typing

>DBAUDIT pm_type pm_no 0
and pressing the Enter key.

where
pm_type is the type of PM
pm_no is the number of the PM being updated

Example

>DBAUDIT 'DTC 0 0 I DTC 1 0 I DTC 2 0 0 I +
>'DTC 3 0 I DTC 4 0

c. Display the PRSU list for one unit 0 by typing

>REPORT DEST pm_type pm_no 0
and pressing the Enter key.

where
pm_type is the type of PM
pm_no is the number of the PM being updated

Example

>REPORT DEST DTC 0 0

d. Repeat step 48c. for each unit 0 that has been updated.

e. Confirm all PRSUs for the new load are applied to each unit 0.

If	Do
all PRSUs for the new load are applied to each unit 0	step 49
all PRSUs for the new load are not applied to each unit 0	Troubleshoot the problem or contact the next level of support.
any PRSUs from the previous load are listed at VA status	A DBAUDIT has not been performed. Return to step 48b. If a DBAUDIT has been performed, contact the next level of support.
any PRSUs from the previous load are listed at NV status	Go to step 49. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

49 Exit the utility by typing

>QUIT

and pressing the Enter key.

50 Switch activity between the units by typing

>SWACT ALL

and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

51 Confirm the switch of activity by typing

>Y

and pressing the Enter key.

52 You have successfully used broadcast mate loading to update a set of XPMs and have completed this procedure. Review the update schedule.

If there are	**Do**
additional XPMs to update during this shift	Follow the recommendations in “Overview of update process” in this document and repeat this procedure or go to the appropriate procedure in this document.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Updating the XPM processor

Application

CAUTION
Possible service interruption
Perform this procedure during a maintenance window or a period of low traffic.

ATTENTION

Use this procedure only for a software upgrade. Do not use this procedure when upgrading the XPM processor from a NTMX77 to a NTAX74, from a NTAX74 to a NTSX05, or from a NTMX77 to a NTSX05.

The procedures for upgrading a XPM processor from a NTMX77 to a NTAX74, from a NTAX74 to a NTSX05 or from a NTMX77 to a NTSX05 are installation methods, which are not included in this document.

Use this procedure to update the firmware on the XPM processor card (NTAX74, NTMX77 or NTSX05) when the serving peripheral module (PM) is not updated. Do not use this procedure when the serving PM is being updated; the firmware load will be updated when the serving PM is updated.

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for a PM update using PMUPGRADE” and “Starting a PM update shift” in this document to meet the following prerequisites for this procedure:

- The new load name is datafilled in table PMLOADS.
- An office image has been taken in the last 24 hours.
- All PM logs are enabled.
- The PM is in-service.
- The PM successfully passed its last REX test in the last two weeks.
- Automatic REX testing is suspended in the office.

Required information

None

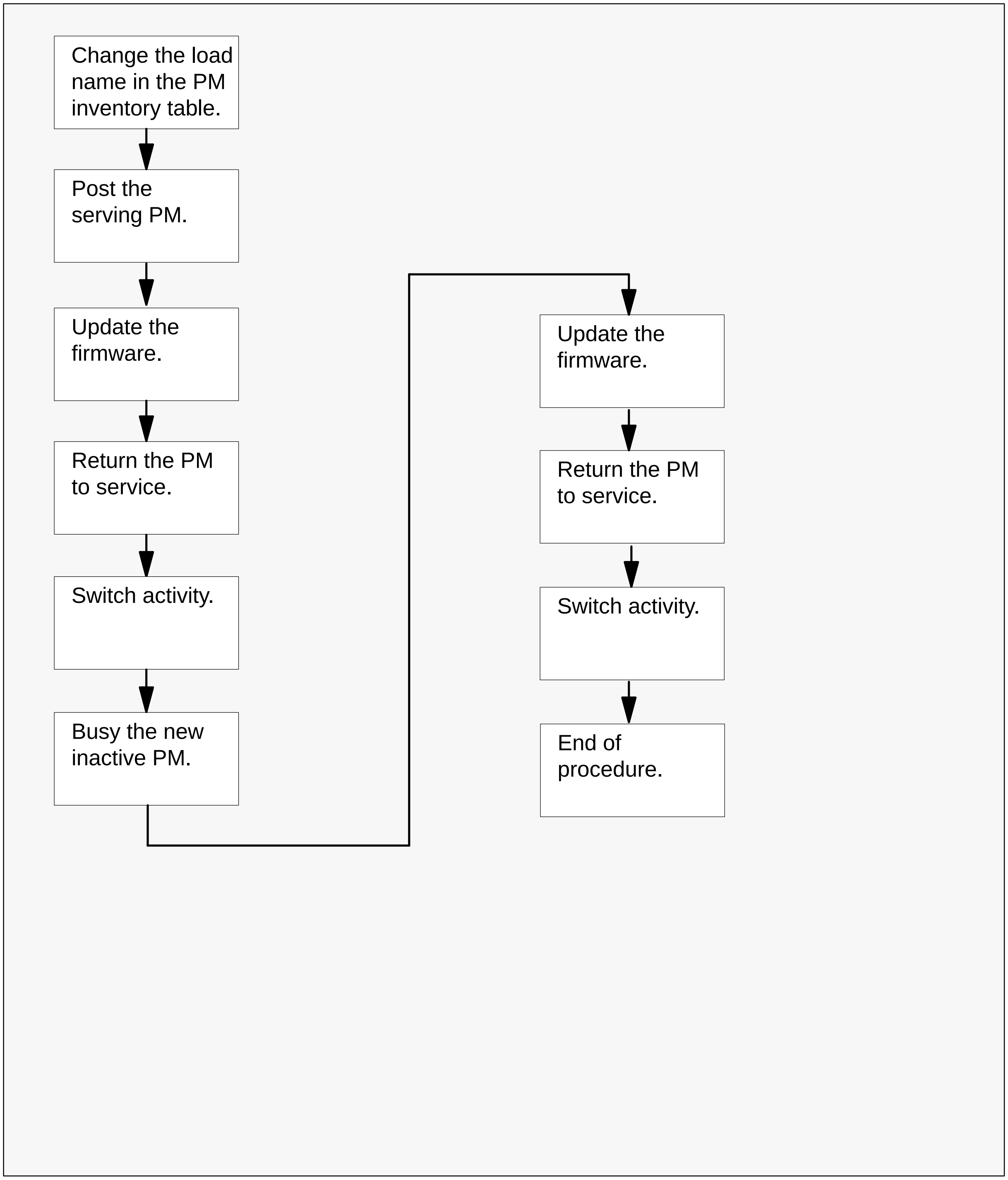
Update sequence

Not applicable

Notes

None

Summary of procedure



Steps of procedure

> **ATTENTION**
> Follow office policy if a command fails during this procedure. If an RTS command fails for example, office policy can require you to contact the next level of support, terminate all update activities for the shift, troubleshoot the problem, or select another PM to update.

At the CI level of the MAP display

1 Select a PM with XPM processor firmware to update.

2 Confirm all prerequisites for this procedure have been met.

3 Access the PM inventory table by typing

>TABLE pm_inv
and pressing the Enter key.

where

pm_inv   is the inventory table for the PM

4 Position on the datafill tuple for the PM by typing

>POS pm_type pm_no
and pressing the Enter key.

where

pm_type   is the type of PM
pm_no   is the number of the PM

Note: If you are updating an RCC or RCC2 position on the tuple by typing

>POS site_name pm_type pm_no
and pressing the Enter key.

where

site_name   is the name of the PM's site
pm_type   is RCC or RCC2
pm_no   is the number of the PM

5 Change the current firmware load name to the new load name by typing

>CHA E2LOAD fw_load
and pressing the Enter key.

where

fw_load   is the name of the new firmware load

6 Confirm the change by typing

>Y
and pressing the Enter key.

7 Exit the table by typing

>QUIT
and pressing the Enter key.

8 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

9 Post the PM by typing

>POST pm_type pm_no
and pressing the Enter key.

where

pm_type	is the type of PM
pm_no	is the number of the PM

Note: The PM is ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before continuing with this procedure. If the PM does not change to ISTb, confirm the PM inventory table is correctly updated and the correct PM is posted.

10 Determine which software release the office is currently at.

If	Do
the office is at MSL08 or lower	steps 11 and 12
the office is at MSL09 or higher	steps 13 through 15

11 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

12 Load the firmware into the inactive unit by typing

>LOADPM INACTIVE CC FIRMWARE
and pressing the Enter key.

Go to step 16.

13

> **ATTENTION**
>
> To ensure the new firmware is loaded, steps 13 through 15 must be performed consecutively.
>
> Do not use the PMRESET or LOADPM command between steps 13 through 15. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.
>
> If the PMRESET or LOADPM command is entered between steps 13 and 15 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware onto the PM by typing

>LOADFW PM
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

14 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

15 Upgrade the firmware in the inactive unit by typing

>LOADFW INACTIVE UPGRADE
and pressing the Enter key.

16 Return the inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

17 Wait for the MAP display to show the unit as in-service. This ensures superframe sync and data sync are achieved. It may take two to three minutes for the MAP display to show the unit as in-service.

18 Switch activity between the units by typing

>SWACT
and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

19 Confirm the switch of activity by typing

>Y
and pressing the Enter key.

20

If	Do
the office is at MSL08 or lower	steps 21 and 22
the office is at MSL09 or higher	steps 23 through 25

21 Busy the new inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

22 Load the firmware into the inactive unit by typing

>LOADPM INACTIVE CC FIRMWARE
and pressing the Enter key.

Go to step 26.

23

ATTENTION

To ensure the new firmware is loaded, steps 23 through 25 must be performed consecutively.

Do not use the PMRESET or LOADPM command between steps 23 through 25. Use of the PMRESET command results in the LOADFW INACTIVE UPGRADE command passing, but the firmware is not updated.

If the PMRESET or LOADPM command is entered between steps 23 and 25 verify which firmware load is functioning. If the firmware that is functioning is not the latest firmware, repeat the firmware download and upgrade processes. Ensure no PMRESET or LOADPM command is performed between the steps.

Load the firmware into the inactive unit by typing

>LOADFW PM
and pressing the Enter key.

Note: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file datafilled in the appropriate inventory table.

24 Busy the inactive unit by typing

>BSY INACTIVE
and pressing the Enter key.

25 Upgrade the firmware in the inactive unit by typing

>LOADFW INACTIVE UPGRADE
and pressing the Enter key.

26 Return the inactive unit to service by typing

>RTS INACTIVE
and pressing the Enter key.

27 Wait for the MAP display to show the unit as in-service (InSv). This ensures superframe sync and data sync are achieved. It may take two to three minutes for the MAP display to show the unit as in-service.

28 Switch activity between the units and return them to their original service states by typing

>SWACT
and pressing the Enter key.

Note: If the MSL-100 switch is unable to perform a warm SWACT, do not continue with this procedure. The MSL-100 switch may have detected a fault unrelated to the software update. Troubleshoot the condition or contact the next level of support.

29 Confirm the switch of activity by typing

>Y
and pressing the Enter key.

30 You have successfully updated the XPM processor and completed this procedure. Review the update schedule.

If there are	Do
additional XPM processor cards to update during this shift	Repeat this procedure.
other PMs or hardware types to update during this shift	Go to the appropriate procedure in this document.
no additional PMs or hardware types to update during this shift	Go to “Finishing a PM update shift” in this document.

Appendix A
PM terminal types and EXECs

Introduction

Some peripheral modules (PM) have EXECs and TRMTYPs. An EXEC is a set of basic operating instructions to the PM. A TRMTYP supports a single EXEC and is coded to a trunk. A Series I PM, such as an MTM, has a single EXEC and no TRMTYP. A Series II PM or XPM, such as a DTC, has multiple TRMTYPs, with a single EXEC for each TRMTYP. Some PMs, such as Series III or ISN PMs, do not have EXECs or TRMTYPs.

PM-to-EXEC cross-reference

The following table lists terminal types and EXECs for most peripheral modules (PM). It is not necessary to confirm this information during a software update. It is provided in this document to assist in troubleshooting update or datafill errors.

PM terminal types and execs

PM	Functionality	Trunk type	Term type	Exec
ATM	AUTOVON interswitch trunks	AVINSW		ATMEX
	AUTOVON interswitch No. 5 crossbar trunks	AVNO5		ATMEX
	AUTOVON overseas trunks	AVOVS		ATMEX
	AUTOVON tandem trunks	AVTNDM		ATMEX
DCM	Digital trunks			DCMEX
	Regular, FX, DS1FXSLS trunks			FXODCM
	PX and FX trunks			PFXEX
	AUTOVON interswitch trunks (MF)	AVINSW		ADCMIX
	AUTOVON four-wire line trunks	AVLN		ADCMIX

—continued—

PM terminal types and execs (continued)

PM	Functionality	Trunk type	Term type	Exec
	AUTOVON interswitch No. 5 crossbar trunks	AVNO5		ADCMEX
	AUTOVON overseas trunks	AVOVS		ADCMEX
	AUTOVON PBX trunks (DP/DT)	AVPBX		ADCMIX
	AUTOVON PBX trunks (MF)	AVPBX		ADCMEX
	AUTOVON tandem trunks	AVTNDM		ADCMEX
DES	Digital echo suppressor		ESUP	DESEX
DLM /RDLM				
DTC	Enhanced DTC traffic			DTCTRFEX
	Regular, FX, DS1FXSLS trunks		ABTRK	DTCEX
	DTC with FX trunks		ABTRK	FXODTC
	DTC with IBN FXO trunks		ABTRK	DTCFX
	PX and FX trunks		ABTRK	PXFXEX
	AUTOVON automatic PBX trunks (DP/DT)	AVAPBX	AVACC	ADTCEX
	AUTOVON automatic PBX trunks (MF)	AVAPBX	AVTRK	ADTCIX
	AUTOVON interswitch trunks	AVINSW	AVTRK	ADTCIX
	AUTOVON four-wire line trunks	AVLN	AVACC	ADTCEX
	AUTOVON interswitch No. 5 crossbar trunks	AVNO5	AVTRK	ADTCIX
	AUTOVON overseas trunks	AVOVS	AVTRK	ADTCIX
	AUTOVON PBX trunks (DP/DT)	AVPBX	AVACC	ADTCEX
	AUTOVON PBX trunks (MF)	AVPBX	AVTRK	ADTCIX
	AUTOVON tandem trunks	AVTNDM	AVTRK	ADTCIX
	CCIS digital trunks		CCIS	DTCEX
	Standard digital trunks		ISDN_UP	DTCEX
DTCI	Enhanced DTC traffic			DTCTRFEX
	Regular, FX, DS1FXSLS trunks		ABTRK	DTCEX
	DTC with FX trunks		ABTRK	FXODTC

—continued—

PM terminal types and execs (continued)

PM	Functionality	Trunk type	Term type	Exec
	DTC with IBN FXO trunks		ABTRK	DTCFX
	PX and FX trunks		ABTRK	PXFXEX
	AUTOVON automatic PBX trunks (DP/DT)	AVAPBX	AVTRK	ADTCEX
	AUTOVON automatic PBX trunks (MF)	AVAPBX	AVTRK	ADTCIX
	AUTOVON interswitch trunks	AVINSW	AVTRK	ADTCIX
	AUTOVON four-wire line trunks	AVLN	AVACC	ADTCEX
	AUTOVON interswitch No. 5 crossbar trunks	AVNO5	AVTRK	ADTCIX
	AUTOVON overseas trunks	AVOVS	AVTRK	ADTCIX
	AUTOVON PBX trunks (DP/DT)	AVPBX	AVACC	ADTCEX
	AUTOVON PBX trunks (MF)	AVPBX	AVTRK	ADTCIX
	AUTOVON tandem trunks	AVTNDM	AVTRK	ADTCIX
	CCIS digital trunks		CCIS	DTCEX
	Standard digital trunks		ISDN_UP	DTCEX
EIU				
ENET				
ESA	ESA POTS lines and keyset		ESA_LINES	ESAEX
	PM serving an RMM		RMM_ TERM	RSMEX
FRIU				
IPE				
LCM /ELCM				
LCME				
LGC	PM serving an RMM		RMM_ TERM	RSMEX
	P-phone, data lines, IVD and IPE lines		KEYSET	KSETEX
	ESA POTS lines and keyset		ESA_LINES	ESAEX
	POTS for new PMs		POTS	POTSEX

—continued—

PM terminal types and execs (continued)

PM	Functionality	Trunk type	Term type	Exec
LIM				
LIU7				
LM	Line module			LMEX
LTC	Regular, FX, DS1FXSLS trunks		ABTRK	DTCEX
	DTC with FX trunks		ABTRK	FXODTC
	DTC with IBN FXO trunks		ABTRK	DTCFX
	AUTOVON automatic PBX trunks (DP/DT)	AVAPBX	AVACC	ADTCEX
	AUTOVON automatic PBX trunks (MF)	AVAPBX	AVTRK	ADTCIX
	AUTOVON interswitch trunks	AVINSW	AVTRK	ADTCIX
	AUTOVON 4-wire line trunks (MF)	AVLN	AVACC	ADTCEX
	AUTOVON interswitch No. 5 crossbar trunks	AVNO5	AVTRK	ADTCIX
	AUTOVON overseas trunks	AVOVS	AVTRK	ADTCIX
	AUTOVON PBX trunks (DP/DT)	AVPBX	AVACC	ADTCEX
	AUTOVON PBX trunks (MF)	AVPBX	AVTRK	ADTCIX
	AUTOVON tandem trunks	AVTNDM	AVTRK	ADTCIX
	CCIS digital trunks		CCIS	DTCEX
	Standard digital trunks		ISDN_UP	DTCEX
	ESA POTS lines and keyset		ESA_LINES	ESAEX
	P-phone, data lines, IVD and IPE lines		KEYSET	KSETEX
	POTS for new PMs		POTS	POTSEX
	PM serving an RMM		RMM_ TERM	RSMEX
LTCI	Regular, FX, DS1FXSLS trunks		ABTRK	DTCEX
	DTC with FX trunks		ABTRK	FXODTC
	DTC with IBN FXO trunks		ABTRK	DTCFX
	AUTOVON automatic PBX trunks (DP/DT)	AVAPBX	AVACC	ADTCEX
	AUTOVON automatic PBX trunks (MF)	AVAPBX	AVTRK	ADTCIX

—continued—

PM terminal types and execs (continued)

PM	Functionality	Trunk type	Term type	Exec
	AUTOVON interswitch trunks	AVINSW	AVTRK	ADTCIX
	AUTOVON 4-wire line trunks (MF)	AVLN	AVACC	ADTCEX
	AUTOVON interswitch No. 5 crossbar trunks	AVNO5	AVTRK	ADTCIX
	AUTOVON overseas trunks	AVOVS	AVTRK	ADTCIX
	AUTOVON PBX trunks (DP/DT)	AVPBX	AVACC	ADTCEX
	AUTOVON PBX trunks (MF)	AVPBX	AVTRK	ADTCIX
	AUTOVON tandem trunks	AVTNDM	AVTRK	ADTCIX
	CCIS digital trunks		CCIS	DTCEX
	Standard digital trunks		ISDN_UP	DTCEX
	ESA POTS lines and keyset		ESA_LINES	ESAEX
	P-phone, data lines, IVD and IPE lines		KEYSET	KSETEX
	POTS for new PMs		POTS	POTSEX
	PM serving an RMM		RMM_ TERM	RSMEX
MPC				
MTM /PTM	Basic MTM with TTT, LTU, POTS, SD, SC points, dead system alarms			MTMEX
	Basic MTM with DDLC			DDLCEX
	MTM packaged TM shelf			TM250P
	Basic MTM and audio tone detectors			MTMATD
	MTMs in co-located office			CMTMEX
	ATM			AMTMEX
	Basic MTM with TTT, LTU, POTS, SD, SC points, dead system alarms, DRAM, and EDTU			MTMDT
	AV101 test lines/basic MTM	AV101		AVTMEX
	NT3X68AB DTMF senders	SVDTMF		AMTMEX
MTM (ISM Cabinet)	Basic MTM with TTT, LTU, POTS, SD, SC points, dead system alarms, DRAM, and EDTU			MSLDT

—continued—

PM terminal types and execs (continued)

PM	Functionality	Trunk type	Term type	Exec
MTU				
NIU				
OAU	Basic MTM with TTT, LTU, POTS, SD, SC points, dead system alarms			MTMEX
	SD, SC points and dead system			OAUEX
PDTC	Non-FX trunks		ABTRK	DTCEX
	Non-FX trunks and IBN FXO trunks		ABTRK	FXODTC
	Non-FX trunks, IBN FXO trunks, and IBN FXS trunks		ABTRK	DTCFX
	PX FX trunks and non-FX trunks		ABTRK	DTCEX PXDTCX
	PX FX trunks and IBN FXO trunks (no IBN FXS trunks)		ABTRK	FXODTC PXDTCX
	PX FX trunks, IBN FXO trunks, and IBN FXS trunks		ABTRK	DTCFX
	Autovon 4WSUB/PBX		AVACC	ADTCEX
	Autovon interswitch trunks		AVTRK	ADTCIX
	ISDN for DTCs with non-FX trunks		ISDN_UP	DTCEX
	ISDN B channel for MDS-250 DTCs		PRAB	DTC250
	ISDN B channel for DTCs with non-FX trunks		PRAB	DTCEX
	ISDN B channel for DTCs with non-FX trunks and IBN FXO trunks		PRAB	FXODTC
	ISDN B channel for DMS-250 DTCs		PRAB	UTR250
	DMS-250 PDTC call processing		ABTRK	PDTCEX
RCC	Regular, FX, DS1FXSLS trunks		ABTRK	FXODCM
	DTC with FX trunks		ABTRK	FXODTC
	DTC with IBN FXO trunks		ABTRK	DTCFX
	PX FX trunks		ABTRK	PXFXEX
	Standard digital trunks			DTCEX
	CCIS digital trunks		CCIS	DTCEX

—continued—

PM terminal types and execs (continued)

PM	Functionality	Trunk type	Term type	Exec
	ESA POTS lines and keyset		ESA_LINES	ESAEX
	P-phone, data lines, IVD and IPE lines		KEYSET	KSETEX
			ISDN_UP	DTCEX
	POTS for new PMs		POTS	POTSEX
	PM serving an RMM		RMM_ TERM	RSMEX
RCC2	Standard digital trunks		ABTRK	DTCEX
	DTC with FX trunks		ABTRK	FXODTC
	DTC with IBN FXO trunks		ABTRK	DTCFX
	CCIS digital trunks		CCIS	DTCEX
	ESA POTS lines and keyset		ESA_LINES	ESAEX
	Standard digital trunks		ISDN_UP	DTCEX
	P-phone, data lines, IVD and IPE lines		KEYSET	KSETEX
	POTS for new PMs		POTS	POTSEX
	PM serving an RMM		RMM_ TERM	RSMEX
RLM				
RMM	PM serving an RMM		RMM_ TERM	RSMEX
SMA	P-phone, data lines, IVD and IPE lines		KEYSET	KSETEX
	ESA POTS lines and keyset		ESA_LINES	ESAEX
SMA2	P-phone, data lines, IVD and IPE lines		KEYSET	KSETEX
	ESA POTS lines and keyset		ESA_LINES	ESAEX
SMR	P-phone, data lines, IVD and IPE lines		KEYSET	KSETEX
	ESA POTS lines and keyset		ESA_LINES	ESAEX
SMS	P-phone, data lines, IVD and IPE lines		KEYSET	KSETEX
	ESA POTS lines and keyset		ESA_LINES	ESAEX
SMSR				
SMU	ESA POTS lines and keyset		ESA_LINES	ESAEX

—continued—

PM terminal types and execs (continued)

PM	Functionality	Trunk type	Term type	Exec
STM	Basic MTM with TTT, LTU, POTS, SD, SC points, dead system alarms			MTMEX
	Basic MTM with DDLC			DDLCEX
	T101 off MTM			MTMEX
	Basic MTM and audio tone detectors			MTMATD
	Basic MTM with TTT, LTU, POTS, SD, SC points, dead system alarms, DRAM, and EDTU			MTMDT
T8A		5X25	T8A	T8AEX
TM8		5X25	TM8	TM8EX
	Basic MTM with TTT, LTU, POTS, SD, SC points, dead system alarms			MTMEX
	SD, SC points and dead system			OAUEX
XLIU				

—end—

Appendix B
Loading times

This chapter provides sample loading times for peripheral modules (PM) and offices. This information is provided for reference only to assist in preparing the update schedule. Times were recorded in laboratories in a variety of office and traffic conditions, and they should not be used as standards in any office.

Loading time and simplex time

The length of time to load a PM will vary depending on traffic, central processing unit (CPU) occupancy, and office configuration. However, two factors must be considered when estimating the length of time to load a PM:

- loading time
- simplex time

Office policy determines which factor is more important.

Loading time

Loading time is the length of time to successfully load a PM with new software. Loading time begins when the PM is busied and ends when the PM is returned to service. It includes both loading and patching.

The next table lists several kinds of PMs and the sample loading time for each kind of PM. Loading times are based on loading a BCS36 load with no patches on a M68K SuperNode switch. Loading time for dual unit PMs include both units. Times are given as hours:minutes:seconds.

Sample PM loading times

PM type	Loading time
DTCI	00:22:34
FRIU	00:03:25
LCME	00:05:36
LGC	00:24:36
LIU7	00:04:25
LTC	00:19:32
NIU	00:03:17
RCC	00:28:42
XLIU	00:05:50

Simplex time

Simplex time is the length of time that a dual unit PM is in simplex mode while being updated. Total office simplex time is the time a set of PMs in an office is operating in simplex mode.

The following table lists typical PM set sizes with sample loading time and office simplex time for each set size. Times are based on loading both units of a digital trunk controller (DTC) with a BCS36 load with 42 patches on an M88K (BRISC) switch. Times are given as hours:minutes:seconds.

Comparison of sample loading and simplex times

	Individual loading		Broadcast mate loading		Parallel loading	
# PMs	Total loading time	Total office simplex time	Total loading time	Total office simplex time	Total loading time	Total office simplex time
2	01:39:40	01:39:40	01:08:32	02:15:24	00:50:40	01:39:40
5	04:09:10	04:09:10	01:11:03	05:47:19	00:51:35	04:09:59
10	08:18:20	08:18:20	01:17:44	12:40:32	00:53:18	08:36:12
35	29:04:10	29:04:10	01:31:50	51:54:26	02:34:48	31:19:36
126	104:39:00	104:39:00	01:29:22	171:00:12	11:15:12	107:10:00
128	106:18:40	106:18:40	01:29:00	172:56:00	12:04:12	108:48:00

CPU occupancy

CPU occupancy directly affects loading times. Loading times will increase with higher CPU occupancy. The following table lists sample CPU occupancy rates and sample loading times for each rate. Loading times are based on loading ED702CJ1 on a DTC with 42 patches on a junctored network (JNET). The loading time is for one DTC unit.

Comparison of CPU occupancy to load times

CM CPOCC	Parallel load of 10 DTCs	Broadcast mate load of 35 DTCs
3%	31 minutes	51 minutes
22%	34 minutes	56 minutes
30%	35 minutes	59 minutes
38%	37 minutes	62 minutes
49%	41 minutes	76 minutes
53%	Fail	Fail
64%	62 minutes (2 DTCs failed to load)	Fail

If CPU occupancy exceeds 38 percent, consider updating one PM at a time or rescheduling the PM update.

List of terms

CCS7

Common Channel Signaling 7. A digital message-based network signaling standard, defined by the CCITT, that separates call signaling information from voice channels so that interoffice signaling is exchanged over a separate signaling link.

channelized access

A method of providing direct access between a Common Channel Signaling 7 (CCS7) network and the application-specific units (ASU) in a link peripheral processor (LPP) without the need for channel banks. A network interface unit (NIU), with either a junctored network (JNET) module or an enhanced network (ENET) module, provides channelized access between the CCS7 network and ASUs.

CI level

Command interpreter level. Initial MAP level from where commands are entered.

CM

Computing module. The processor and memory of the dual-plane combined core (DPCC) used by MSL-100 switch. Each CM consists of a pair of central processing units (CPUs) with associated memory that operate in a synchronous matched mode on two separate planes. Only one plane is active; it maintains overall control of the system while the other plane is on standby.

CMR

CLASS modem resource. The CMR card is used by Custom Local Area Signaling Services (CLASS) features to transmit calling number and name information to customer premises equipment (CPE).

CI

A support operating system component that functions as the main interface between machine and user.

C-side
Central side. The side of a node that faces away from the peripheral modules (PM) and toward the central control (CC). Also known as control side. *See also* peripheral side (P-side).

CTM
Conference trunk module. The NT1X81 card in the maintenance trunk module (MTM) or service trunk module (STM).

datafill
A term that denotes:

- the entry of data into tables
- the data entered into tables

DCH
D-channel handler. A card in an ISDN line group controller (LGCI) or in an ISDN line trunk controller (LTCI) that provides the primary interface to all D-channels. The DCH also performs a Q.921 link access procedure on the D-channel (LAPD) layer 2 processing. The DCH is connected permanently to an ISDN loop and receives or sends messages on the signaling/packet data channel.

DCM
Digital carrier module. A peripheral module (PM), located in a digital carrier equipment (DCE) frame, that provides speech and signaling interfaces between a DS30 network port and digital trunks. A DCM is provisioned with up to five line cards.

DES
Digital echo suppressor. A voice-activated device that monitors the level of digital speech signals on the transmit and receive paths between interconnected trunk circuits. The DES automatically applies attenuation, when necessary, to reduce echo effects on long-haul trunk circuits.

DEST
A PRSM destination. A DEST is a single patchable entity in a MSL-100 system.

DESTID
The name of a DEST.

MSL-100
A member of a family of digital multiplexed switching systems. The MSL-100 is a local switch.

DTC
Digital trunk controller. A peripheral module (PM) that connects DS30 links from the network with digital trunk circuits.

DTCI
Digital trunk controller with ISDN. A peripheral module (PM) that connects DS30 links from the network with ISDN digital trunk circuits.

DTM
Digital trunk module. The NT1X80 card in the maintenance trunk module (MTM) or service trunk module (STM).

DTU
Digital test unit. A card in the maintenance trunk module (MTM) used to perform bit error rate tests (BERT) on trunk circuits.

EDCH
Enhanced D-channel handler. A card in an ISDN line group controller (LGCI) or in an ISDN line trunk controller (LTCI) that provides the primary interface to all D-channels. The EDCH also performs Q.921 LAPD layer 2 processing. It is connected permanently to an ISDN loop, and receives or sends messages on the signaling and packet data channel. Similar to the DCH, the EDCH has a memory upgrade from 1 Mbyte to 4 Mbyte, a clock speed upgrade from 16 MHz to 20 MHz, and a data bus upgrade from a 16-bit width to 32 bits. *See also* DCH.

EIU
Ethernet interface unit. The unit that connects the MSL-100 system to the local area network.

ENET
Enhanced network. A channel-matrixed time switch that provides pulse code modulated voice and data connections between peripheral modules (PM). ENET also provides message paths to the DMS-bus components.

ESA
Emergency stand-alone. An emergency service that permits local calling within a remote switching center (RSC) or remote line concentrating module (RLCM) in the event of loss of communication with the host office.

exec
A subprogram resident in software and made up of primitive instructions.

FRIU

A frame relay interface unit (FRIU) is the application-specific unit (ASU) for Dataspan frame relay service. It provides the physical connection for T1 carriers at the link peripheral processor (LPP).

ILD

ISDN line drawer. A drawer type that can be installed in MSL-100 remotes in the North America market. The ILD houses up to 28 BRI ISDN lines.

InSv

In service. Refers to the state of switching equipment when it is performing normal call processing functions (that is, providing subscriber service).

ISDN

Integrated services digital network. A set of standards proposed by the CCITT to establish compatibility between the telephone network and various data terminals and devices. ISDN is a communications network that provides access to voice, data, and imaging services from a single type of connector.

ISTb

In service trouble. This state is imposed on a unit that indicates trouble but that can still process calls.

LCM

Line concentrating module. A peripheral module (PM) that connects the line trunk controller (LTC) or line group controller (LGC) and up to 640 subscriber lines, using 2 to 6 DS30A links.

LCME

Enhanced line concentrating module with ISDN. A dual-unit peripheral module (PM) that terminates ISDN 2B1Q (two binary one quaternary) U-type (single slot) lines, ISDN S/T-type lines, plain old telephone service (POTS) lines, electronic business set (EBS) lines, and Datapath lines. The LCME also provides access to the ISDN B-, D-, and M-channels. The LCME supports 480 POTS or EBS lines, or 240 Datapath lines.

LGC

Line group controller. A peripheral module (PM) that connects DS30 links from the network to line concentrating modules (LCM).

LGCI

Line group controller with ISDN. A peripheral module (PM) that connects DS30 links from the network.

LIM
Link interface module. A peripheral module (PM) that controls messaging between link interface units (LIU) in a link peripheral processor (LPP). The LIM also controls messages between the LPP and the DMS-bus component. A LIM consists of two LIM units and two frame transport buses (F-bus). The two LIM units operate in a load-sharing mode with each other.

linkset
A term that denotes:

- a group of links related to one application instance
- a collection of links connecting two adjacent signaling points in CCITT no. 6 signaling (N6), common channel interoffice signaling no. 6 (CCIS6), and Common Channel Signaling 7 (CCS7)

LIU7
CCS7 link interface unit. A peripheral module (PM) that processes messages entering and leaving a link peripheral processor (LPP) through an individual signaling data link. Each LIU7 consists of a set of cards and a paddle board provisioned in one of the link interface shelves of the LPP.

LM
Line module. A peripheral module (PM) that provides speech and signaling interfaces for up to 640 subscriber lines. The LM consists of line drawers, a line module controller (LMC), and a frame supervisory panel (FSP).

LTC
Line trunk controller. A peripheral module (PM) that is a combination of the line group controller (LGC) and the digital trunk controller (DTC) and provides all the services offered by both. It supports line concentrating module (LCM) and AB trunks.

LTCI
Line trunk controller with ISDN. A peripheral module (PM) that combines the line group controller (LGC) and the digital trunk controller (DTC) and provides all the services offered by both. It also supports ISDN channeling.

MAP
Maintenance and administration position. A group of components that provides a user interface between switch personnel and the MSL-100 switch. The interface consists of a video display unit (VDU) and keyboard, a voice communications module, test facilities, and special furniture.

MTU
Magnetic tape unit. A general term used to describe the magnetic tape recording function as a maintenance tool. The MTU can be any type of magnetic tape drive that functions in this way. The MTU is also known as tape unit.

MTM
Maintenance trunk module. In a trunk module equipment (TME) frame, a peripheral module (PM) that is equipped with test and service circuit cards and contains special buses to accommodate test cards for maintenance. The MTM provides an interface between the MSL-100 switch digital network and the test and service circuits.

ManB
Manual busy. A busy state manually imposed on a trunk by operating a panel control or entering a command at the keyboard of a visual display unit.

MPC
Multiprotocol controller. A general-purpose card that allows data communications between an MSL-100 switch and an external computer (for example, between a billing computer and an MSL-100 switch). The MPC card resides on the I/O controller (IOC) shelf. MPC card protocol software is downloaded from the MSL-100 CPU and then used to support software routines for Data Packet Network (DPN) communications.

MS
Message switch. A high-capacity communications facility that functions as the messaging hub of the dual-plane combined core (DPCC) of an MSL-100 SuperNode processor. The MS controls messaging between the DMS-bus components by concentrating and distributing messages and by allowing other DMS-STP components to communicate directly with each other.

MTA
Metallic test access. A hardware device providing metallic connections between test access points (for example, in subscriber line circuits in a digital switching center) and various types of test equipment.

MTC
Maintenance level. A MAP level used to access several areas of the MSL-100 switch, such as central control (CC), peripheral modules (PM), the lines maintenance subsystem (LNS), and others.

NAV
An audio processor that uses Flexible Vocabulary Recognition to support telecommunications services, including operator services.

NIU
Network interface unit. An MSL-100 system application-specific unit (ASU) that provides channelized access for F-bus resident link interface units (LIU) using a channel bus (C-bus). The NIU resides in a link peripheral processor (LPP) frame.

OAU
Office alarm unit. A peripheral module (PM) located in a trunk module equipment (TME) frame. The OAU is similar to the maintenance trunk module (MTM), but is equipped with circuit cards that provide an interface with various types of office alarm circuits instead of test circuits.

ONP
One-night process. An eight-week process that culminates in the overnight application of software to the switch.

patch
An incremental change to software applied after the load has been compiled.

PCL
Product computing load. A compiled software load that replaces the batch change supplement (BCS). A PCL consists of features selected from the NA development stream intended for a particular MSL-100 system application in a particular market. Every PCL with the same name is the same in terms of software content.

PM
Peripheral module. Any hardware module in the MSL-100 switch that provides an interface between external line, trunk, or service facilities. A PM contains peripheral processors (PP) which perform local routines, thus relieving the load on the CPU.

PM firmware
The peripheral module (PM) operating system. Software residing in the PM consists of the following classes:

- software residing in read-only memory (ROM) that satisfies the customary definition of firmware
- Software loaded into random access memory (RAM) when the peripheral is put into service
- software that consists of execs, which are resident subprograms made up of primitive instructions

PMUPGRADE
PANTHER PM upgrade file copy and planning, CI super command.

PPXL
Pre-patched XPM load. An XPM load that has corrective PRSUs built into the files. Functionally, PPXLs are the same as base loads; they are incremental up-issues of their respective base loads.

PRL
Functionality that delivers update loads to peripheral modules.

PRSM
Post Release Software Manager. The tool that applies software updates after the milestone release of a load.

PRSU
Post release software unit. A software change distributed after the milestone release of a load.

PRSUID
The name of a PRSU.

P-side
P-side. The side of a node facing away from the central control (CC) and toward the peripheral modules (PM).

RCC
Remote cluster controller. A dual-shelf peripheral module (PM) that provides a master controller for all units at the remote switching center (RSC) and is, in turn, controlled by the host line trunk controller (LTC).

RCC2
Remote cluster controller 2. A remote cluster controller (RCC) for the remote switching center-SONET (RSC-S). The RCC2 is an enhanced RCC that provides the central control of the RSC-S. It is connected to the host by metallic or fiber connections. The RCC2 is a single-shelf peripheral module (PM) that provides the same functions for all units at the RSC.

RLCM
Remote line concentrating module. An equipment frame that provides an interface between two to six DS-1 links (from the line group controller (LGC) at the host office) and up to 640 subscriber lines (connected locally). An RLCM is equipped with one line concentrating module (LCM), a remote maintenance module (RMM), and a host interface equipment (HIE) shelf.

RLM
Remote line module. A pair of remotely located line modules that provide an interface (over two to eight DS-1 links) between a digital carrier module (DCM) at the host office and up to 1280 users.

RMM
Remote maintenance module. A peripheral module (PM) with a configuration similar to that of the maintenance trunk module (MTM). An RMM accommodates up to 12 service and test cards.

SCM-100
Subscriber carrier module-100. A family of four peripheral modules (PM) that connect three types of remote terminals with MSL-100 switches. The SCM-100 family consists of: subscriber carrier module-100 rural (SMR), subscriber carrier module-100S (SMS), subscriber carrier module-100S remote (SMSR), and subscriber carrier module-100 urban (SMU).

SFDEV
Store file device in the MSL-100 switch.

SLM
System load module. A mass storage system in a MSL-100 system processor that stores office images. From the SLM, new loads or stored images can be booted into the computing module (CM).

SMA
Subscriber carrier module-100 access. The LTC-based MSL-100 peripheral that provides common signaling channel/embedded operations channel (CSC/EOC) link management, DS-1 facility management, and the interface to the DMS-core component.

SMA2
Subscriber carrier module-100 access 2. A subscriber carrier module-100 access (SMA) that supports 28 DS-1 links.

SMS
Subscriber carrier module-100S A subscriber carrier module that provides an interface between the remote concentrator SLC-96 of an SLC-96 system and the MSL-100 switch.

SMSR
Subscriber carrier module-100S remote. A subscriber carrier module that provides an interface between the remote concentrator SLC-96 (RCS) and a remote switching center (RSC).

SMU
Subscriber carrier module-100 urban. A subscriber carrier module that provides an interface between the remote carrier urban (RCU) of a switch and the MSL-100 switch.

SPM
Spectrum Peripheral Module. The SPM is a multi-application high-speed Series III PM type and provides customized network access capabilities.

STM
Service trunk module. A peripheral module (PM) in the MSL-100 switch that consists of two compact maintenance trunk modules (MTM).

SWACT
Switch activity. A switch in an MSL-100 fault tolerant system that changes the states of two identical devices devoted to the same function. In other words, an SWACT makes an active device inactive and an inactive device active.

SWUPGRADE PM
PANTHER PM upgrade execution engine, CI super command.

SysB
System busy. A term that denotes

- a busy state that is automatically imposed by equipment in response to a fault condition
- the status of trunk circuits that have failed the tests performed by the automatic trunk testing facilities. Failed trunks are taken out of service and added to a list of SysB trunks that can be accessed by operating company personnel.
- the equipment state that occurs when the central control has removed equipment from normal service

TM
Trunk module. A peripheral module (PM) in a trunk module equipment (TME) frame that provides speech and signaling interfaces between a DS30 network port and analog trunks.

TM8
A trunk module (TM) with 120 pairs (eight-wire circuits) of conductors wired to the distribution frame.

unit
One of two parts of an extended multiprocessor system (XMS)-based peripheral module (XPM) or a line concentrating module (LCM). Each unit has independent processing capabilities. The peripheral module (PM) has an active unit and an inactive unit. The active unit does all the processing while the inactive unit is on standby.

X.25
A CCITT-defined network layer protocol that is used in packet switching to establish, maintain, and clear virtual circuit connections between an ISDN terminal and a destination in the packet switching network.

X.75
A CCITT-defined network layer protocol that is used in packet switching to establish, maintain, and clear virtual circuit connections between packet switching networks.

XLCM
A line concentrating module (LCM) with a large memory (256 kbyte) load.

XLIU
X.25-X.75 line interface unit. An X.25-X.75 link interface unit is the application-specific unit (ASU) for Dataspan frame relay service. It provides the physical connection for T1 carriers at the link peripheral processor (LPP).

XMS
Extended multiprocessor system. A workstation-based microcomputer with networking capabilities based on a Motorola 68000 microprocessor with system software written in Bell-Northern Research (BNR) Pascal.

XPM
XMS-based peripheral module. The generic name for peripheral modules (PM) that use the Motorola 68000 microprocessor. An XPM has two processors in a hot-standby configuration: a master processor (MP) and a signaling processor (SP).

XPM-PLUS
XMS-based peripheral module product life upgrade strategy. The integration of a new processor complex into the existing XPM architecture.

Meridian SuperNode

Meridian SL-100

Peripheral Module Release Document (PM RELDOC)

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