297-9051-599

DMS-100 Family

ISN08 Peripheral Module Software Release Document

PM Release Document

ISN08 (TDM) Standard 08.02 June 2005

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DMS-100 Family

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Publication history

June 2004 (02: Standard)

The Standard version/issue 02 is updated to reflect ISN08 load lineup information.

March 2005 (01: Preliminary)

A Preliminary version/issue 01 copy of the ISN08 (TDM) PM Rel Doc has been created from the STANDARD 03 copy of the ISN07 (TDM) PM Rel Doc, with applicable ISN08 updates made to the load lineup information.

About this document

When to use this document

Use this document to update the software in peripheral modules (PM) and hardware types to the ISN08 (TDM) release before a computing module CM software upgrade to ISN08 (TDM). CM software is delivered by the one night process (ONP). The *one night process (ONP) Software Delivery Procedure* (297-8991-303) describes this process.

This document provides load names, update procedures, and other release-specific information. Maintenance technicians who have experience in switching, PM software, and PM software updating and who have completed the DMS Maintenance Course Parts 1 and 2 can use this document.

How to use this document

After the maintenance technicians receive the PM Release Document and the PM load tape, perform the tasks that follow.

1. Review the chapter "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 the chapter "Overview of manual update process" in this document. This chapter summarizes the update process and describes when to use each procedure in this document.
3. Review the chapter "Overview of automated update process" in this document. This chapter summarizes PMUPGRADE, the 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. Follow the schedule and use the appropriate procedures in this document to update the PMs and hardware types. Perform the procedure "Starting a PM update shift" when you begin a PM update shift. Perform the procedure "Finishing a PM update shift" when you complete a PM update shift.

Compliance with local policies

The PM release document is written for all Nortel Networks DMS-100 family customers who update to ISN08 (TDM). However, many telephone companies have company-specific and office-specific policies for PM updates. Before the maintenance technicians start the PM upgrade process, they must review these policies, and resolve any differences between the policies and this document.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, such as 01.01 to indicate the version and issue of this PM Release Document. The first two digits indicate the version. This increases each time the document is updated to support a new software release. The second two digits indicate the issue. This increases each time the document is re-issued within the same software release.

References in this document

The documents that follow are referred to in the PM Release Document:

- *Post-Release Software Manager (PRSM) Reference Guide*
- *ADAS Peripheral Module Software Release Document*

What precautionary messages mean

Precautionary messages indicate possible risks. The precautionary messages used in Nortel Networks documentation are danger, warning, caution, and attention messages.

Danger message

A danger message indicates the possibility of personal injury.

Warning message

A warning message indicates the possibility of equipment damage.

Caution message

A caution message indicates the possibility of service interruption or degradation.

Attention message

An attention message alerts the reader to a special condition.

How commands, parameters, and responses are represented

Commands, parameters, and responses in the PM Release Document conform to the conventions that follow.

Input prompt (>)

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

```
>LOADPM
```

Commands and fixed parameters

Commands and fixed parameters entered at a MAP terminal display as uppercase letters.

```
>LOADPM INACTIVE
```

Variables

Variables display as lower case letters.

>LOADPM UNIT unit_no

You must enter the letters or numbers that the variable represents. A list that follows the command string explains each variable.

Responses

Responses match the MAP display and are shown in a different type.

```
LOADPM UNIT 1 LOADED
```

The example that follows illustrates the command syntax used in this document.

a. To load the unit, type:

>LOADPM UNIT unit_no

and press the Enter key.

where

unit_no is the number of the unit

Example of a MAP response

```
LOADPM UNIT 1 LOADED
```

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 to perform the procedures that follow

- Preparing for a PM update
- Preparing for a PM update using PMUPGRADE
- Scheduling the update of each PM and hardware type.

Changes in update process

This document reflects the changes that follow in the PM update process.

SLM tape cartridge contains PM load and PRSU files

Offices without 9-track tape drives require implementation of this new software delivery process. When the system load module (SLM) tape cartridge label says *Patches:Yes*, the tape contains PM load and post-release software update (PRSU) files. The tape also includes pre-patched load extended peripheral mode (XPM) load (PPXL) files. When the SLM tape cartridge says *Patches:No*, the office receives any applicable PRSUs through prior software delivery methods.

The satellite distribution centre (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 multifile 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: The terms PRSU and patch are used interchangeably in this document.

Integrated services node auto imaging

Integrated services node (ISN) auto imaging (IAI) is available on Digital

ATTENTION

Follow office-specific policy on imaging when you upgrade the nodes in the office for this release. Office policy can vary from the steps described in this document.

Multiplex Systems (DMS) upgrading from a BASE09 or higher product computing module (PCL), such as ABSM007.

With IAI, the DMS switch automatically takes an image of an ISN node when one of the actions that follow occur.

- table datafill changes
- post release software units (PRSU) are applied

If you update from a BAS12 or higher PCL, such as ABSM007, skip the steps in the update procedures that manually take an image of an ISN node. If you update from a BAS12 or lower PCL, such as ABSM006, follow the steps in the update procedures. Take an image of the first PM in the office to use the new load.

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. If an office updates from a BASE10 or higher PCL, such as ABSM009, use the administrative functionality of PMUPGRADE. If an office updates from a BASE11 or higher PCL, such as ABSM010, use the planning functionality of PMUPGRADE.

SWUPGRADE PM automates the update phase of the PM update. If an office updates from a BASE11 or higher PCL, such as ABSM010, use this functionality on some PMs in your office.

Refer to the chapter “Overview of automated update process” in this document for more information on automated PM updates.

Release notes

The notes that follow reflect issues found during previous release updates and during the verification of this release. These notes can help prevent or debug/ detect faults that occur during the PM update.

In-service firmware downloading

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 and NTAX74 processors and also SX05 processor for DTCO2/DTCO/GPP/DTCi

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 OOS.

The in-service firmware downloading 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 commands that follow. These commands 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: If the LOADFW command is used without the UPGRADE option, the firmware downloads to the DMS 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 that the LOADPM option is not supported and instructs you to use the LOADFW command instead.

Loadfile verification

Integrity checks on the firmware to check 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.

Other accuracy checks for the system performance are the 32-bit cyclic redundancy check (CRC) and the 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 command that follows at the MAP display terminal:

>QUERYPM CNTRS

Firmware upgrade

After loadfile verification, the XPM can upgrade to the new firmware. To upgrade the firmware use one of the command string sets that follow.

>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: By using the LOADFW command with the UPGRADE option, the firmware upgrades to the new firmware load.

When maintenance technicians perform this procedure on a by-unit basis, perform a switch of activity (SWACt) and then 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 provides 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 table that follows 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	peripheral module 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 peripheral module 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 peripheral modules. ALL is an optional parameter.
NOWAIT	N/A	returns the prompt before the command is finished, the on-screen status is not visible. NOWAIT is an optional parameter.

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

Enhanced dynamic data synchronization (EDDS)

Dynamic data describes state information in an XMS-based peripheral module (XPM) unit, such as link states and module states. These states are normally set through link changes and call processing. To return to service (RTS), an inactive unit must receive a snapshot of the state information to preserve warm swact functionality. Data-sync tables tied to the XPM data sync mechanism encapsulate this state information.

EDDS reports 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). The system generates SWERR in PMDEBUG with a PM189 log.

The data reported by the software error normally 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 higher, “xx" represents the unknown table-id. For PM upgrades this software error indicates a valid mismatch in functionality for specific table-ids. The next table lists these valid mismatches.

> ***Note:*** This SWERR reports no valid data for XPM07. Software release XPM07 only reports a table with this SWERRR. XPM07 only reports a table is skipped, it does not report any table-id information.

If any “tbl_skipped” SWERRs appear that do not match the pattern, report the SWERR to technical support.

The table that follows lists peripheral modules (PM)s and associated loads that can generate the “tble_skipped” SWERR. If the loads in this table or higher versions of these loads are in the active unit of an XPM, and you synchronise data to a lower load in the inactive unit, “tble_skipped” SWERRs can occur.

Tble_skipped software error peripheral modules

Peripheral module	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

Upgrades to ECL09 from ECL07 produce four “tbl_skipped” SWERRs with unintelligible words. This occurs because XPM07 only reports a table is being skipped. Upgrades to ECL09 from ECL08 produce only one “tbl_skipped 5A AB EF” SWERR. The table-id skipped is the #5A SPID.

LOADPM failures on ISDN XPMs

A faulty ISDN Signaling processor (NTBX01) circuit card can 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 responses that follow.

- The LOADPM fails at the same percentage of completion on each attempt.
- The LOADPM failure generates a PM181 log. The log indicates a load failure, for the reason that follows.

```
Failed to load.

Fail message received from PM.
```

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

PRSM notes

This section contains notes related to the post-release software manager (PRSM). This information can help prevent or debug/detect faults problems that occur during the PM update.

No corresponding load during PRSU application

During post release software update (PRSU) application PRSM can generate the warning that follows.

```
*WARNING:Though the loadname of the destination has been

*WARNING:changed in PRSM, there is not a corresponding

*WARNING:that the destination currently has:  EDH08BC
```

PRSM generates this warning if a new load is assigned to a unit before the PRSUs it needs are applied. Follow the update procedures in this document, apply PRSU before you assign the new load to a unit.

DBAUDIT during PM upgrade

If you perform a manual or automated DBAUDIT at the wrong time during a PM upgrade, PRSUs associated with the previous load are tied to the new PM load.

The examples that follow are of DBAUDITs performed at the wrong time during a PM upgrade.

- An automated DBAUDIT runs while a unit upgrades.
- A manual DBAUDIT runs after the new load is assigned to the unit, but before the new load is installed.
- A manual DBAUDIT runs on a subset of units upgrading with the same load.

To prevent a DBAUDIT from running at the wrong 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.

Continue with the PM update. The software errors stop when all the PMs are updated with the pre-patched XPM load (PPXL).

PRSU files for new ISN loads

You must keep a copy of the ISN PRSU files associated with the new loads for the one-night process (ONP). ISN files allow the DMS switch to populate the PRSM database with information on the new files. The PRSM database requires complete information to determine prerequisites for file removal action. Successfully completing the ONP can erase the ISN PRSU files.

PRSU files for old ISN loads

PRSUs associated with previous ISN loads can remain at a status of not validated (NV). Patches from previous ISN loads applied with PATCHER can cause a problem. These old patch files are not accessible by PRSM. This problem does not alter service. The previous patch files are not listed after the ONP. If you want to change the patch status manually, perform a VALIDATE with the patch file present. The validation changes the status to Not Needed (NN).

Old patch and PRSU files

A DMS switch can have computing module (CM), ISN, XPM, and D-channel handler (DCH) PRSU files no longer in use. Check office policy on the storage of these files. If you remove files that are no longer needed, storage space and the speed of PRSM automated processes increase. The PRSM File Audit process validates all PRSU files in specified directories to determine if

the files are applicable to the DMS switch. If these files are removed, the number of files that PRSM re-evaluates is decreased and the speed of the PRSM File Audit is increased.

Changing the CMR load name in field OPTCARD

> **CAUTION**
> **Possible service interruption**
> The section that follows, and the update procedures in this document, provide the steps to change the class modem resource (CMR) load name in the OPTCARD field. Use of other commands leads to service interruptions.

The procedures in this document provide the steps to change the CMR load name in the OPTCARD field of a PM inventory table. The list that follows summarizes these steps:

1. Access the OPTCARD field with the CHA OPTCARD command.
2. Press the Enter key to scroll through the fields until you display a prompt 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. Press $ to exit the OPTCARD field.

Do not use a chained command, such as CHA OPTCARD cmr_load. Do not use a $ while in the OPTCARD range. Both these commands delete all OPTCARD entries below the CMR load and can lead to service outages.

Central processing unit occupancy

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

LOADPM parameters

Do not use the central control (CC) parameter with the LOADPM command unless the update procedure in this document specifically includes the parameter. When a PM is loaded with the LOADPM command, it receives the new load from CC. This happens even though the MAP display can indicate that mate loading occurs. When the CC parameter is not used, the system routes the new load from the CC to the PM through the mate unit. When the CC parameter is used, the system routes the new load from the CC directly to the PM.

Do not use the FORCE parameter with the LOADPM command unless the parameter update procedure in this document specifically includes the parameter. The FORCE parameter forces the DMS switch to skip some functions, such as diagnostic tests, which can cause service interruptions. When a procedure includes the FORCE parameter, additional steps within the procedure perform any critical functions skipped by the parameter.

Non-CM software

Offices can update non computing module (non-CM) software as part of the PM software update. Nortel Networks supplies separate tapes and load specific documentation. For non-CM loads Non-CM this document provides non-CM information for reference only.

ADAS loads

ATTENTION

Follow your office policy on imaging when you upgrade the nodes in the office for this release. Office policy can vary from the steps this document describes.

Nortel Networks delivers the software for Automated Directory Assistance Service (ADAS) on separate tapes from the PM load tape. The *ADAS Peripheral Module Software Release Document* supports the ADAS loads. The *ADAS Peripheral Module Software Release Document* provides load names, update procedures, and other release-specific information for the ADAS release. Refer to the *ADAS Peripheral Module Software Release Document* for instructions on how to update ADAS software. This document also details how to coordinate an ADAS software update with the update of other PMs in the office.

BASE PCLs

Some of the update procedures in this document require the user to make a decision based on the office's current BASE product computing module load (PCL). The table that follows lists each BASE release its ABSM and EUR release.

BASE and ABSM and EUR releases

BASE release	ABSM release
BASE09	ABSM007
BASE10	ABSM009
BASE11	ABSM010
BASE09	EUR008
BASE10	EUR009
BASE11	EUR010

Types of loads and files

This release includes the types of files that follow:

- PM loads
- PM loads using PRL circuit card
- PPXLs
- PRSUs
- pre-patched ISN loads

PM load files

PM loads are the normal PM load files. The load name for a base load has two fields:

- load_type
- edition_code

The field load_type identifies the type of load. The field contains the first three to four characters of the load name. The field can include any

combination of letters or digits. The table that follows lists possible naming conventions for field load_type.

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 contains the remaining three to five characters of the load name. The table that follows lists possible naming conventions for the edition_code field.

Naming conventions for PM edition_code

Syntax	Example
nnn	D1T*005*
nnx	LCM*01D*
nnxx	LCME*06BH*
nnxxn	ETC*04BF1*
nnxxx	ECL*06GBH*
xxnn	MTM*KA02*

Note: The character *x* represents a letter. The character *n* represents a digit. The character *z* represents a letter or digit.

PPXL files

Pre-patched XPM loads (PPXL) are loads that have corrective PRSUs built into the files. PPXLs do not reduce the number of PRSUs against a given load. However, they reduce the number of PRSUs applied manually to the load.

Date extensions to the base load name identify PPXLs. For example, ECL05BX_950215 is the pre-patched load for base load ECL05BX.

CAUTION
Possible service interruption
Do not use the LOADPM central control (CC) command with the file name parameter when you update a PM with a PPXL. If you use the LOADPM CC command when you perform this type of update, PRSM applies all the patches built into the PPXL. Obsolete patches are not removed. Patches not built into the PPXL are not applied.

CAUTION
Possible service interruption
PPXLs automate the process of patching the load. Use the ASSIGN command to set the load to each PM unit. Failure to use the ASSIGN command can result in PM loading from the BKPFILE listed in table PMLOADS.

Requirements

Offices must maintain the requirements that follow to use PPXLs.

- Use PPXLs with only BCS36 or higher CM loads.
- Use the PATCHLIST command at the command interface (CI) level to display the list of patches built into the PPXL.

  >XPMLFP

  >PATCHLIST FILE <PPXL file_name>

  Note: You must list the volume before you use this command.

- You only need to datafill the base load name in the associated PM inventory table. To determine the full PPXL file name to load, the PM loader software uses the base load name in the inventory table. The base

load name indexes the ACTFILE held in PMLOADS table. The sample tuple that follows is from the PMLOADS table.

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

- Download or copy the PRSUs for the PPXL to the same disk volume that contains the PPXL. A PPXL reduces the number of PRSUs applied manually to the load. However, the PRSUs for the PPXL must reside on the DMS switch before you can datafill table PMLOADS. If the PRSUs for the PPXL are not on the DMS switch, problems develop later in the PM loading process. For security, duplicate this volume on another disk.

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

- Once loaded, you can apply or remove additional PRSUs from the XPM by the same processes used in previous loads. You can remove only PRSU built into the PPXL from the load, as long as it is on the disk.

PRSU files

A post-release software unit (PRSU) is software created as one of the following:

- a procedure replacement to correct software deficiencies. This software is delivered to all affected sites
- an enhancement to the original design. This software is delivered to all affected sites and activated on an office by office basis.
- a fix for a data corruption deliverable. This software is delivered only to the affected office.
- a delivery mechanism for early feature deployment that contains new features. This software is delivered to all sites and is activated on a site by site basis by a controlled password.

  Note: For naming conventions and additional patching information, refer to *Post-Release Software Manager (PRSM) Reference Guide* (297-8991-540).

Pre-patched ISN load files

Pre-patched ISN loads are loads that have corrective PRSUs built into the files. Pre-patched ISN loads do not reduce the number of PRSUs load required. However, they do reduce the number of PRSUs you need to apply manually to the load. Pre-patched ISN loads have the same internal load name as their base load.

You can identify pre-patched ISN load by a date extension to its base load name, such as ARS06BV_961119. You can identify each pre-patched ISN load and its PRSUs in the PM-to-load cross-reference table later in this chapter.

Requirements

An office that uses post-release software manager (PRSM) must meet the requirements that follow to update and use the pre-patched ISN loads.

- The PRSUs in the pre-patched ISN load must be in the store file device (SFDEV) or on a device data filled in table PADNDEV.
- You only need to datafill the base load name in the associated PM inventory table. To determine the full PPXL file name to load, the PM loader software uses the base load name in the inventory table. The base load name indexes the field ACTFILE held in the PMLOADS table. The sample tuple that follows is from the PMLOADS table.

```
                LOADNAME
                 ACTFILE          ACTVOL
                 BKPFILE          BKPVOL          UPDACT
-------------------------------------------------------------------------------------------------
                 ECL07BI
          ARS06BV_961119      S00DPMLOADS
          ARS06BV_961119      S01DPMLOADS            N
```

XPM processor (NTMX77 (UP) and AX74 (CAP) firmware

Each XMS-based peripheral module (XMP) has a unified processor (NTMX77) circuit card. This processor has a firmware load that can need updates for this release. This release includes the firmware load that follows for the XPM processor.

- UPFWNV03

UPFWNV03

UPFWNV03 is the current firmware load for this release so UPFWNV03 exceeds the baseline firmware load. You can upgrade the XPM processors in your office to UPFWNV03, but it is not essential. This release loads without the XPM processor upgrade. Some offices choose to upgrade to the current firmware load to maintain the same firmware load across all XPMs. Some offices upgrade only to the baseline to reduce loading and simplex time in the office.

XPM processor (NTMX77) firmware

Each XMS-based peripheral module (XMP) has a unified processor (NTMX77) circuit card. This processor has a firmware load that can need updates for this release. This release includes the firmware load that follows for the XPM processor.

- UPFWQN03

UPFWQN03

UPFWQN03 is the current firmware load for this release.

XPM processor (SX05) firmware

CAUTION
Caution advised for SX05 upgrades on LGCOI which may affect Pside RCO2s (MMP15).

Each XMS-based peripheral module (XMP) has a unified processor (NTSX05) circuit card. This processor has a firmware load that can need updates for this release. This release includes the firmware load that follows for the XPM (SX05) processor.

- SXFWAK02

SXFWAK02

SXFWAK02 is the current firmware load for this release.

Loads and files with this release

The section that follows describes the PM load files required for the ISN08 (TDM) release. This section also identifies any PRSUs that are pre-patched into the PM load.

PM-to-load cross-reference

The PM-to-load cross-reference table cross-references each peripheral module (PM) and hardware type this release supports. Only loads that changed from the current release need updating in the office.

The column PM or hardware type lists the name of the PM or other hardware type the MAP display indicates. The column Hardware description describes the service provided by the PM. The next three columns list the PM loads for recent releases. The last column provides comments on product engineering codes (PEC) for some cards in some PMs. These may be helpful in identifying the type of PM in the switch or the type of load for that PM.

Note: ISN05 is not available for deployment as a DMS (TDM) or hybrid solution but peripheral load data has been included for completeness. Some peripheral loads are applicable to Succession solutions.

Note: DTC, LGC, LTC, and other XPM-based loads are unchanged from SN07 to SN08.

PM-to-load cross-reference

PM or hardware type	Hardware description	ISN05	ISN06	ISN07/ GSPISN07	ISN08	Description or comment
PM load tape	Tape	PSNW0005	PSNW0006	PSNW0007	PSNW0007	
XPM processor firmware	NTSX05AA	With Firmware: SXFWAJ02	With Firmware: SXFWAJ02	With Firmware: SXFWAK02	With Firmware: SXFWAK02	Unified processor FW load supports HDLC protocol Q.703
XPM processor firmware	NTAX74AA or NTMX77AA	With Firmware: UPFWNU01	With Firmware: UPFWNU01	With Firmware: UPFWNV03	With Firmware: UPFWNV03	Unified processor FW load supports HDLC protocol Q.703
XPM processor firmware	NTMX77AA	With Firmware: UPFWQM01	With Firmware: UPFWQM01	With Firmware: UPFWQN03	With Firmware: UPFWQN03	Unified processor FW load supports HDLC/ LAPD protocol Q.921
XPM processor firmware	NTMX77AA	With Firmware: ILDRAF04	With Firmware: ILDRAF04	With Firmware: ILDRAG01	With Firmware: ILDRAG01	FW for ISDN Line Drawer
XPM processor firmware	NTMX77	BNK0SI05	BNK0SI05	BNK0SI05	BNK0SI05	Supports SCPM

PM or hardware type	Hardware description	ISN05	ISN06	ISN07/ GSPISN07	ISN08	Description or comment
XA-Core PE	NTLX02CA	XAPE01AG	XAPE01AG	XAPE01AG	XAPE01AG	Rhino processor firmware
XA-Core PE-ROM	NTLX02DA	XAPE02AB_ 39.6	XAPE02AB_ 39.6	XAPE02AB_ 39.6	XAPE02AB_ 39.6	Atlas processor firmware
XA-Core IOP firmware	NTLX03AA NTLX03AB NTLX03BA NTLX03BB	XAIO01AK	XAIO01AK	XAIO01AK	XAIO01AK	I/O Processor
XA-Core HIOP - ROM	NTLX04AA	XHIO02AA_ 224_UPGR	XHIO02AA_ 224_UPGR	XHIO02AA_ 224_UPGR	XHIO02AA_ 224_UPGR	High speed I/O processor
XA-Core HIOP - DLL	NTLX04AA	XHIO02AE_ 361_LDLL	XHIO02AK_ 508_LDLL	XHIO03AC_ 143_LDLL	XHIO03BB_ 493_LDLL	High speed I/O processor
XA-Core HIOP - ROM	NTLX04BA	XHIO02AA_ 224_UPGR	XHIO02AA_ 224_UPGR	XHIO02AA_ 224_UPGR	XHIO02AA_ 224_UPGR	High speed I/O processor
XA-Core HIOP - DLL	NTLX04BA	XHIO02AE_ 361_LDLL	XHIO02AK_ 508_LDLL	XHIO03AC_ 143_LDLL	XHIO03BB_ 493_LDLL	High speed I/O processor
XA-Core HIOP - ROM	NTLX04CA		XHIO02AH_ 484_UPGR	XHIO02AH_ 484_UPGR	XHIO02AH_ 484_UPGR	High speed I/O processor
XA-Core HIOP - DLL	NTLX04CA		XHIO02AK_ 508_LDLL	XHIO03AC_ 143_LDLL	XHIO03BB_ 493_LDLL	High speed I/O processor
XA-Core CMIC Packlet firmware	NTLX05AB	PK12CE12	PK12CE12	PK12CE12	PK12CE12	Computing Module Interface Card Packet
XA-Core AMDI Packlet (MSH) firmware	NTLX05BA	PK12CE12	PK12CE12	PK12CE12	PK12CE12	ATM Multi-Node Data Interface Packet

PM or hardware type	Hardware description	ISN05	ISN06	ISN07/ GSPISN07	ISN08	Description or comment
XA-Core EIOP	NTLX09AA	EP14DO03	EP14DO03	EP14DO03	EP14DO03	(Ethernet Packlet Firmware) Succession specific
XA-Core HCMIC	NTLX17AA			XREC01DE_203_PKG	XREC01EG_04493_PKG	Computing Module Initerface Card (HCMIC)
CMR	NT6X78AA/ AB	CMT17B	CMR17B	CMR17B	CMR17B	Class Modem Resource Bell 202
CMR	NT6X78BA	CMRJ17A	CMRJ17A	CMRJ17A	CMRJ17A	CLASS Modem Resource V23 (Japan)
CMR	NT6X78BA	CMRJ10A	CMRJ10A	CMRJ10A	CMRJ10A	CLASS Modem Resource V23 (all non-Japan markets)
CTM	CTM	MTMKA02	MTMKA02	MTMKA02	MTMKA02	Conference Trunk Module (CTM) on ISM shelf (standard load)
CTM on ISM	CTM	MTSR0400	MTSR0400	MTSR0400	MTSR0400	Conference Trunk Module (CTM) on ISM shelf (load variant adopted from TMX100)
DCH	NTBX02AA or NTBX02BA	DCH05A	DCH05A	DCH05A	DCH05A	D-Channel Handler ISDN line PMS
DTU	NT4X23AA	DTUBAD01	DTUBAD01	DTUBAD01	DTUBAD01	Digital Test Unit for BERT Tests
DTC	DTC with CCS7 MX77	ED714BC	ED714BC	ED714BC	ED714BC	Digital Trunk Controller
DTCI, LTC, LGCi	DTC with ISDN (DTCI) NTSXO5AA	QLI18BA	QLI19BE	QLI20CE_050307	QLI20CE_050307	ISDN peripheral
DTC	SX05	QD717AY1	QD717AY1	QD717AY1	QD717AY1	Digital Trunk Controller

PM or hardware type	Hardware description	ISN05	ISN06	ISN07/ GSPISN07	ISN08	Description or comment
EDRAM	NT1X80AA	EDRMAE10	EDRMAE11	EDRMAE11	EDRMAE11	Digital Recorded Announcement Machine - 4 minute
EDRAM	NT1X80BA	ED16AA06	ED16AA07	ED16AA07	ED16AA07	Enhanced Digital Recorded Announcement Machine -16 minute
EDCH	NTBX02BA	EDH18BA	EDH19BE	EDH20CE	EDH20CE	Enhanced D-Channel Handler
EDTU	NT4X45AA	DTUIAA01	DTUIAA01	DTUIAA01	DTUIAA01	Enhanced Digital Test Unit for BERT/TTT/ TTU Tests
EIU	NT9X84AA, NTEX22BA	ETG18BK	ETG19CD	ETG20CU	ETG21BM	Ethernet Interface Unit 8MB EIU load
EIU	NT9X84AA, NTEX22CA	ETT18BK	ETT19CD	ETT20CU	ETT21BM	Ethernet Interface Unit 32MB EIU load
ELIU		ELS18BK	ELS19BT	ELS20CU	ELS21BM	EIU/LIU supports connection to service builder v4 using C7 over TCP/IP. Uses standard EIU h/w
ENET	NT9X13	ENC18BI	ENC19BO	ENC20CQ	ENC21BK	Enhanced Network
ESA	6X45AF	PES10AQ	PES10AQ	PES10AQ	PES10AQ	International Emergency Stand Alone (standard load)
ESA	6X45AF	ISESAAG	ISESAAG	ISESAAG	ISESAAG	Load is used with TRLE.
ETMS	NTBX02BA	EXC13BB	EXC13BB	EXC13BB	EXC13BB	Enhanced TOPS message switch
GPP	with SX05AA	QPO18BA	QPO19BE3	QPO20CE_ 050222	QPO20CE_ 050222	Global Platform Peripheral (GPP)
GPP	with MX77AA	GPO18BA	GPO19BE3	GPO20CE	GPO20CE	Global Platform Peripheral (GPP)
HUB		HUBBAVBA	HUBBAVBA	HUBBAVBA	HUBBAVBA	Star Hub

PM or hardware type	Hardware description	ISN05	ISN06	ISN07/ GSPISN07	ISN08	Description or comment
ILCM	NT6X51AA	XM17AT	XM18AW	XM18AW	XM18AW	International Line Concentrating module (ILCM)
ILD		ILDRAF04	ILDRAF04	ILDRAG01	ILDRAG01	ISDN line drawer firmware
IRLCM	NT6X51AA	XM17AT	XM18AW	XM18AW	XM18AW	International Remote Line Concentrating Module (IRLCM)
ISM		MTMKA02	MTMKA02	MTMKA02	MTMKA02	Integrated Service Module (standard load)
ISM		MTSR0400	MTSR0400	MTSR0400	MTSR0400	Integrated Service Module (load variant adopted from TMX100)
IOM		IOMRBC01	IOMRBC01	IOMRBC01	IOMRBC01	I/O module
IOM		IOMEBC01	IOMEBC01	IOMEBC01	IOMEBC01	Upgraded I/O module support- ing 4 Gb DDU enhancement
IOM		IOM7BC01	IOM7BC01	IOM7BC01	IOM7BC01	Upgrade of I/O module for DAT FW SDT-7200 & NTFX32CA
IOM		IOM9BC01	IOM9BC01	IOM9BC01	IOM9BC01	Upgrade of I/O module for DAT FW SDT-9000 & NTFX32CA
IOM		IOMHAX01	IOMHAX01	IOMHAX01	IOMHAX01	Input/Output Module High-speed
LCM	6X04AA	LCSE1500	LCSE1500	LCSE1500	LCSE1500	Line Concentrating Module (load variant adopted from TMX100)
LCM	NT6X51	XM17AT	XM18AW	XM18AW	XM18AW	Line Concentrating Module (LCM)

PM or hardware type	Hardware description	ISN05	ISN06	ISN07/ GSPISN07	ISN08	Description or comment
XLCM	NT6X51AB	XLCM18AW	XLCM18AW	XLCM18AW	XLCM18AW	Extended memory. LCM (256 Kilobyte) OPM (256 Kilobyte)
LCME	NT6X51	SRU18AW	SRU18AW	SRU18AW	SRU18AW	Line Concentrating Module Enhanced (w/ ISDN) in SRU
LCME	BX34	LCME18AW	LCME18AW	LCME18AW	LCME18AW	Line Concentrating Module Enhanced (w/ ISDN)
LIM	NT9X13DD or NT9X13DB with NT9X14DB	LPC18BI	LPC19BO	LPC20CQ	LPC21BK	Line Interface Module
LIU7	NTEX26AA and NTEX22BA or NTEX22BB	CHJ18BK	CHJ19CD	CHJ20CU	CHJ21BM	8MB load Link Interface Unit for C7-channelized access for Japan
LIU7	NT9X76AA or NT9X77AB and NTEX22BA or NTEX22BB	NCJ18BK	NCJ19CD	NCJ20CU	NCJ21BM	8MB load Link Interface Unit for C7-non-channelized access for Japan
LIU7	NTEX26AA and NTEX22BA or NTEX22BB	CHA18BK	CHA19CD	CHA20CU	CHA21BM	8MB load Link Interface Unit for C7-channelized access
LIU7	NT9X76AA or NT9X77AB and NTEX22BA or NTEX22BB	NCH18BK	NCH19CD	NCH20CU	NCH21BM	8MB load Link Interface Unit for C7-non-channelized access

PM or hardware type	Hardware description	ISN05	ISN06	ISN07/ GSPISN07	ISN08	Description or comment
LIU7	NT9X76AA or NT9X77AB and NTEX22CA		CHT19CD	CHT20CU	CHT21BM	32MB Link Interface Unit for C7- channelized
LIU7	NT9X76AA or NT9X77AB and NTEX22CA	NCT18BK	NCT19CD	NCT20CU	NCT21BM	32MB Link Interface Unit for C7- non-channelized
LM	OR45AD					Load dropped after ISN04
LTC	NTMX77AA	ECL14BC	ECL14BC	ECL14BC	ECL14BC	Line Trunk Controller (LTC)
LTC	NTSX05	QLI18BA	QLI19BE	QLI20CE_050307	QLI20CE_050307	Line Trunk Controller (LTC)
LGCi	NTSX05	QLI18BA	QLI19BE	QLI20CE_050307	QLI20CE_050307	Line Group Controller with ISDN peripheral
LGCOi	NTMX77	TLG17TAC	TLG17TAC	TLG17TAC	TLG17TAC	Line Group Controller Overseas (load variant adopted from TMX100)
MLIU	NTEX76AA and NTEX22CA	CHM18BK	CHM19CD	CHM20CU	CHM21BM	Multiple Link Interface Unit (channelized)
MPC	NT1X89BA (Multi-Protocol Controller)	MPC003AC	MPC003AC	MPC003AC	MPC003AC	X.25 1980 CCITT
MPC	NT1X89BA	MPC403AC	MPC403AC	MPC403AC	MPC403AC	X.25 1984 CCITT
MPC	NT1X89BA	MPCA03AC	MPCA03AC	MPCA03AC	MPCA03AC	Asynchronous
MPC	NT1X89BA	MPCX33AB	MPCX33AB	MPCX33AB	MPCX33AB	X.25 &V.32 Synchronous dialup

PM or hardware type	Hardware description	ISN05	ISN06	ISN07/ GSPISN07	ISN08	Description or comment
MPC	NT1X89BA	MPC011P2	MPC011P2	MPC011P2	MPC011P2	Multi-Protocol Controller (load variant adopted from TMX100)
MS		MUC18BI	MUC19BO	MUC20CQ	MUC21BK	Basic Message Switch (MS)
MS (CC)	NT9X17BB or NT9X17CA or NT9X17DA	MPF18BI	MPF19BO	MPF20CQ	MPF21BK	Message Switch Chain Card (multi-port)
MSB7 (DPNSS)		MDP08BC	MDP08BC	MDP08BC	MDP08BC	Message Switch Buffer for DPNSS
MTM	NTFX42AA	MTMKA02	MTMKA02	MTMKA02	MTMKA02	Basic Maintenance Trunk Module (standard load)
MTM	2M58AC	MTSR0400	MTSR0400	MTSR0400	MTSR0400	Maintenance Trunk Module (load variant adopted from TMX100)
ITME	2X58AT	TKTKA02	TKMTKA02	TKMTKA02	TKMTKA02	ITME based MTM
MTU	NT2X10 NT2X11 NT4X97 NT4X98	MTULJ04	MTULJ04	MTULJ04	MTULJ04	Metallic Test Unit (MTU)
NIU	NTEX22BB , NTEX25AA , NTEX25BA , NTEX28AA	NRS18BI	NRS19BO	NRS20CQ	NRS21BK	Network Interface Unit
NLCM	6R91AA	NLCN1600	NLCN1600	NLCN1600	NLCN1600	New Line Concentrating Module (load variant adopted from TMX100)
OAU		MTMKA02	MTMKA02	MTMKA02	MTMKA02	Office Alarm Unit

PM or hardware type	Hardware description	ISN05	ISN06	ISN07/ GSPISN07	ISN08	Description or comment
PDTC and PDTCI+	DTCO+ with SX05AA	QDT18BA1	QDT19BE2	QDT20CE_ 050222	QDT20CE_ 050222	International Digital Trunk Controller w/ ISDN
PDTC+	DTCO+ with MX77AA	ODT18BA	ODT19BE	ODT20CE_ 040825	ODT20CE_ 040825	International Digital Controller PLUS
PDTC	DTCO2/ DTC02i with SX05AA	QCI18BA1	QCI19BE2	QCI20CE_0 50218	QCI20CE_0 50218	DTC Overseas based on CPM with ISDN
PDTC	DTCOi+ with MX77AA	ODI18BA	ODI19BE	ODI20CE_0 40825	ODI20CE_0 40825	International Digital Trunk Controller PLUS w/ISDN
PDTC+	DTCOi+ with SX05AA	QDI18BA	QDI19BE	QDI20CE_0 50222	QDI20CE_0 50222	SX05 International Digital Trunk Controller
PDTC	DTCO/ SCPM with MX77AA	DTS15TAM	DTS15TAM	DTS15TAM	DTS15TAM	DTC Overseas/Shrink CPM for ISUP (load variant adopted from TMX100)
PDTC	DTCO with MX77AA	TDO15TAM	TDO15TAM	TDO15TAM	TDO15TAM	PCM30 DTC, DTC Overseas for ISUP, CAS (load variant adopted from TMX100)
PLGC/ PLGC+	LGCO with MX77AA	OLG18BA	OLG19BE	OLG20CE1	OLG20CE1	International Line Group Controller/ Controller PLUS
PLGC	LGCOi with MX77AA BX02AA or BX02BA	OGI18BA	OGI19BE	OGI20CE1	OGI20CE1	International Line Group Controller with ISDN
PLGC+	LGCO/ LGCOi with SX05AA	QGI18BA	QGI19BE	QGI20CE1_ 050222	QGI20CE1_ 050222	SX05 International Line Group Controller PLUS with ISDN
PESA		PES10AQ	PES10AQ	PES10AQ	PES10AQ	
PRLCM	NT6X51AA	XM17AT	XM18AW	XM18AW	XM18AW	PCM30 Remote LCM

PM or hardware type	Hardware description	ISN05	ISN06	ISN07/ GSPISN07	ISN08	Description or comment
RCC	MX77	ESR14BC	ESR14BC	ESR14BC	ESR14BC	Remote Cluster Controller (RCC) with XPM PLUS
RCC2	NTAX74 (CAP)	XRI17AY	XRI17AY	XRI17AY	XRI17AY	Remote Cluster Controller - 2 (AX74 Domestic Cabinetized remote Cluster Controller w/ISDN)
RCO2, RSC-S, RSC-M	NTAX74AA	WRI18BA	WRI19BE	WRI20CE	WRI20CE	Remote Centre Offshore - 2, Remote Switch Centre - S, RSC - M
RLCM	NT6X51AA and up	EDC10BH	EDC10BH	EDC10BH	EDC10BH	Remote Line Concentrating Module with Extended Distance Capability
RMM		RMM10A	RMM10A	RMM10A	RMM10A	Remote Maintenance Module (RMM)
RMTM		RMTMKA01	RMTMKA01	RMTMKA01	RMTMKA01	Remote MTM
RLD		RLDBAVAY	RLDBAVAY	RLDBAVAY	RLDBAVAY	Star Hub (Remote Line Drawer)
SRU-60	60 line SRU	SRU60003	SRU60003	SRU60003	SRU60003	Small Remote Unit - 60 line
SRU-240	240 line SRU	SRUAH	SRUAH	SRUAH	SRUAH	Small Remote Unit - 240 line
STM		MTMKA02	MTMKA02	MTMKA02	MTMKA02	Service Trunk Module
ST MSB7	NT6X66CA	MSTDDB01	MSTDDB01	MSTDDB01	MSTDDB01	
T8A		TTMNA01	TTMNA01	TTMNA01	TTMNA01	Trunk Module (TM) with 8 wire circuits and MTA bus
TAN		MTMKA02	MTMKA02	MTMKA02	MTMKA02	
TM2		BTMKA02	BTMKA02	BTMKA02	BTMKA02	Trunk Module (TM) with 2 wire circuits

PM or hardware type	Hardware description	ISN05	ISN06	ISN07/ GSPISN07	ISN08	Description or comment
TM4		BTMKA02	BTMKA02	BTMKA02	BTMKA02	Trunk Module (TM) with 4 wire circuits
TM8		BTMKA02	BTMKA02	BTMKA02	BTMKA02	Trunk Module (TM) with 8 wire circuits (standard load)
TM8	2M52AG	BTSO0401	BTSO0401	BTSO0401	BTSO0401	Trunk Module (TM) with 8 wire (load variant adopted from TMX100)
TMS+	NTMX77AA and up	ETM13BB	ETM13BB	ETM13BB	ETM13BB	Universal TOPS Message Switch PLUS (PCM30)
TMS	NTMX77AA	EUT13BB	EUT13BB	EUT13BB	EUT13BB	Universal TOPS Message Switch PLUS (PCM30)
TOPS-IP		QTP18BA1	QTP19BE	QTP20CE_050307	QTP20CE_050307	DTC for TOPS-IP
TRLE DEKEL/ TAMAR	9R84AA	RSRD1600	RSRD1600	RSRD1600	RSRD1600	
UMP		UMPAQ11	UMPAQ11	UMPAQ11	UMPAQ11	
UNIREM		UR06BO01	UR06BO01	UR06BO01	UR06BO01	

Overview of manual update process

This chapter describes the peripheral module (PM) update process. This chapter provides sample checklists to help you schedule and record the PM update. It also includes Information on how to abort a PM update and troubleshooter update problems. Refer to the "Overview of automated update process" chapter for information on the command interpreter (CI) level utilities: PANTHER and SWUPGRADE.

Software delivery process

The software delivery process is the process that updates 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 enhanced network (ENET). This document focuses on the PM update process.

PM update process

The process of updating PMs and other hardware types with new software begins when you receive this document and the PM load tape. You must complete the process before you send the image tape to Nortel Networks for the front-end update.

The phases that follow are parts of the PM update process.

1. preparing for the PM update
2. planning the PM update
3. performing the PM update

Preparing for the PM update

ATTENTION

Maintenance technicians must prepare an office for a PM update. The technicians must understand the office and have experience of software updating and PM loading.

Preparing for a PM update involves the activities that follow:

- receive the tape and documentation
- check the PMs have gating hardware
- run the PMUPGRADE utility or perform the steps that follow:
  - — identify the loads and PMs to update in the office
  - — copy the necessary loads and post-release software updates (PRSU)

— update table PMLOADS

To perform all the necessary office preparation activities, refer to the “Update procedures" chapter of this document. The relevant sections in this chapter are “Preparing for a PM update” and “Preparing for a PM update using PMUPGRADE.

Office policy can require changes to this procedure. For example, some companies and offices have unique policies on how to copy and back up software loads.

This document does not include steps to delete antiquated load names from PMLOADS table or antiquated load files from the disk volume. Check office policy to determine how to delete antiquated load names or files. Available memory can determine when load files are deleted. Deletion can occur during a PM update shift, after a PM update shift, or after the office PM update completes. Office alarm clearing policy can determine when the system deletes antiquated load files from PMLOADS table.

To confirm completion of each activity, use a checklist like the sample that follows.

Office preparation checklist

Office:_____	**Completed by (initials)**	**Date**
Receive PM load tape and this document.	_____	_____
Receive post release software units (PRSU) from tape or C-SCAN.	_____	_____
Review the Overview of release and Overview of manual update process chapters in this document.	_____	_____
Determine if the PMs have any gating hardware.	_____	_____

Office preparation checklist

Office:_____	**Completed by (initials)**	**Date**
Run PMUPGRADE or perform the steps that follow:	_____	_____
• Print the PMLOADS table	_____	_____
• Print the PM inventory tables	_____	_____
• Identify the loads and PM types in the office to update	_____	_____
• Identify the PMs of each type in the office to update	_____	_____
• Identify which PMs have XMS-based peripheral module (XPM) processor firmware to update	_____	_____
• Copy the new loads that the office requires	_____	_____
• Identify the PRSUs that the office requires	_____	_____
• Copy the PRSUs	_____	_____
• Update the PMLOADS table	_____	_____

PM identification

The best way to identify the peripheral module (PM) in an office is to review the PM inventory tables. The table that follows lists the inventory tables that are available in an office. The table also details the PMs and hardware types supported by each inventory table. These tables print out as part of the “Preparing for a PM update" procedure in this document.

Inventory table to PM cross-reference

Inventory table	PMs the table supports
C7LINK	LIU7 linkset
DCHINV	DCH
ENINV	ENET
IOC	IOC (IOM)
IRLNKINV	Dual RCC configurations
LCMDRINV	ILD
LCMINV	ILCM, LCM, LCME, RLCM, SRU240, SRU60, TRLE, UNIREM
LIMINV	LIM
LIUINV	EIU, LIU7
LTCINV	CMR, DTC, GPP, PDTC, PLGC, SCPM, TMS
MPC	MPC
MSFWLOAD	MS bus port card
NIUINV	NIU
OFCVAR	MTU
RCCINV	RCO2
RMPCKT	UMP
RMMINV	RMM
TMINV	DTM (EDRAM), MTM, STM, T8A, TM2, TM4, TM8
XESAINV	ESA

Use the FORMAT PACK command to view tuple entries in a packed format.

The example that follows is of a tuple in an expanded format.

```
>POS  DTC  0

DTC   0          1001     DTE    0    18      1    E
30 6X02AA  ED7xxxx (       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
```

The example that follows is of a tuple in a packed format.

```
>FORMAT  PACK

>POS  DTC  0

DTC 0 1001 DTE 0 18 1 E 30 6X02AA ED7xxxx (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
```

PM 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 table that follows lists the PM circuit cards with separate loads.

PM circuit cards with separate loads

PEC	Description	Update method
NT1X61	input output controller (IOC) or input output module (IOM)	update separately
NT1X80	enhanced digital recorded announcement machine (EDRAM) card	update separately
NT6X78	CLASS modem resource (CMR) circuit card	update with the serving PM
NT9X17	message switch multiport circuit card	update separately

PM circuit cards with separate loads

PEC	Description	Update method
NTAX74	XPM PLUS processor circuit card	update with the serving PM
NTBX02	enhanced ISDN D-channel handler (DCH) circuit card	update separately
NTMX77	XPM+ processor circuit card	update with the serving PM
NT3X68BC	XPM+ processor circuit card	update with the serving PM

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

Planning the PM update

ATTENTION

Maintenance technicians must prepare an office for a PM update. The technicians must understand the office and have experience of software updating and PM loading.

Planning the PM update involves the activities that follow:

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

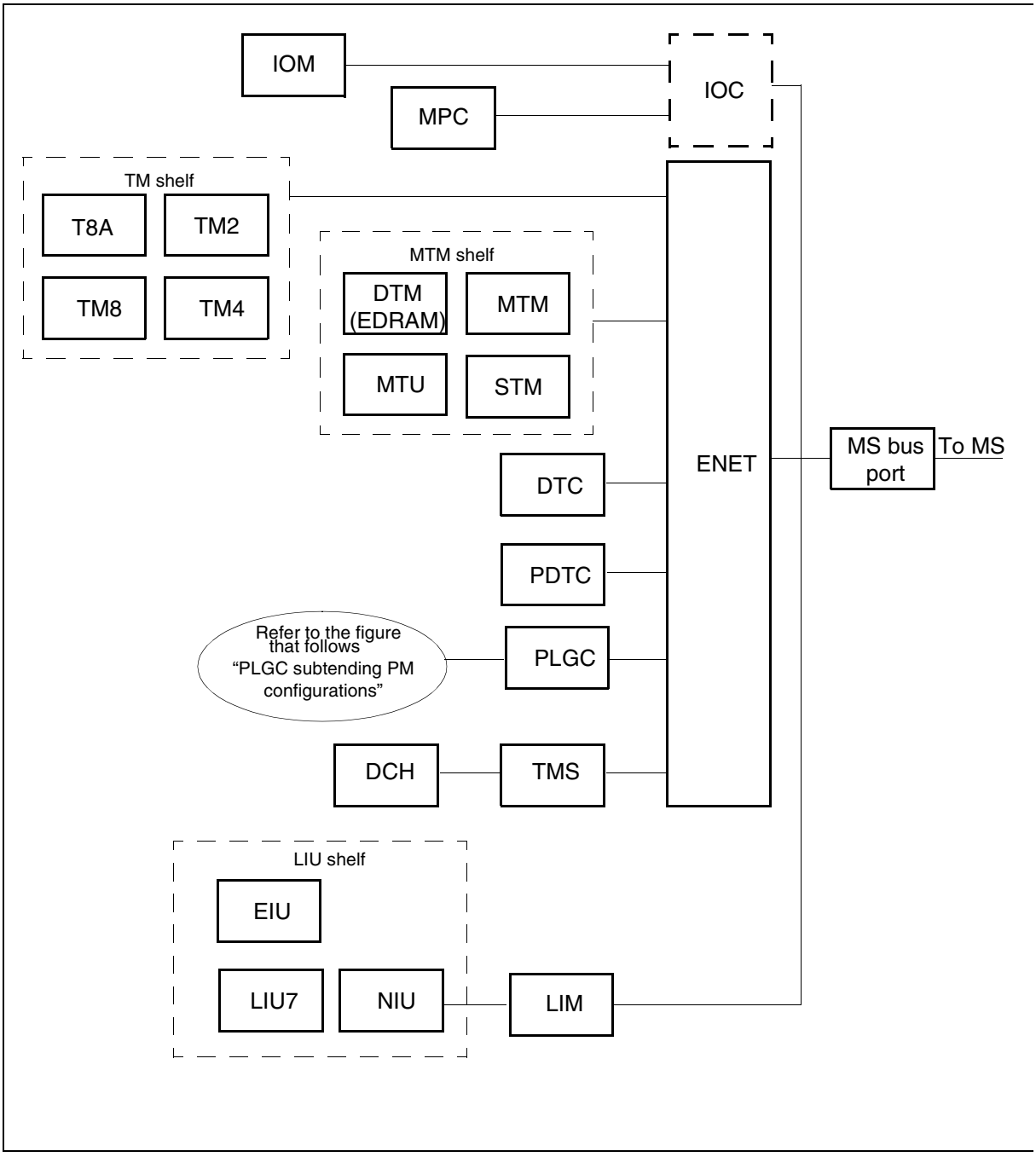
Update sequence

The sequence of PMs and hardware types to update varies with the configuration of the nodes in the office. Subtending nodes must be updated before serving nodes. A subtending node is any node that resides on the peripheral side (P-side) of the serving node. A subtending node can be one or more of the types that follow:

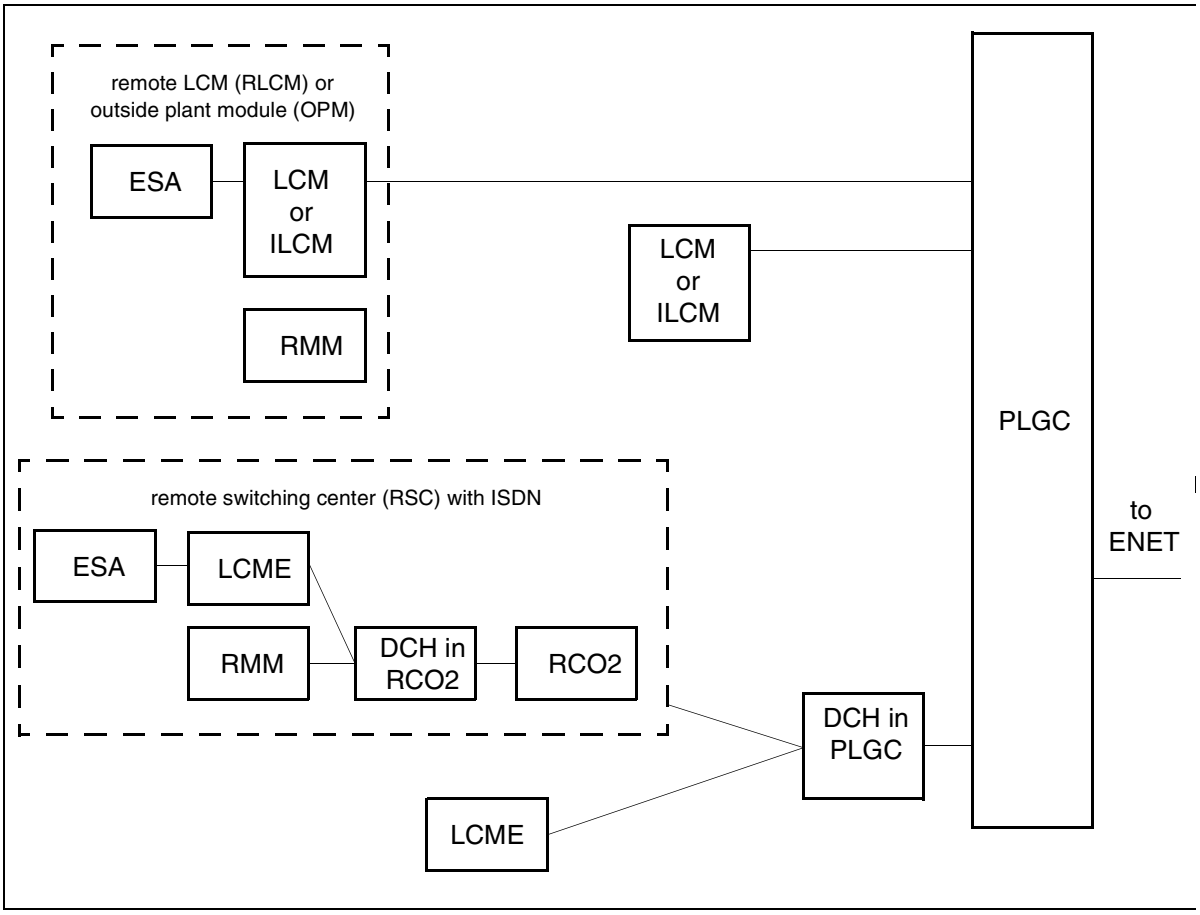
- a hardware type, such as the enhanced network (ENET). This acts as a subtending node to the message switch (MS).
- a PM, such as a line concentrating module (LCM). This acts as a subtending node to its line group controller (LGC).

The figures that follow illustrate possible PM node configurations and possible subtending/serving PM relationships.

PM configurations P-side to C-side



PLGC subtending PM configurations



It may help to sequence the PMs in a list. On the page that follows there is a sample update sequence list.

Checklists

Checklists like the samples on the pages that follow can help you to plan the PM update. Checklists also help you to confirm that the update includes all the PMs.

PM update checklist

PM type	PM #	Current loads	New loads	Patch status	Subtending PMs
Example:					
PLGC	*PLGC 02*	*OLG11BD MX77NB03*	*OLG13BB MX77NH09*	*PLGC patches applied w/ PLGC 01 update*	*LCME REM 01 01 LCME REM 02 01*
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

PM update checklist

PM type	PM #	Current loads	New loads	Patch status	Subtending PMs
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

DCH updates

The previous figure (PLGC subtending PM configurations) illustrates a node with a remote switching centre (RSC) that has ISDN. There are also two PMs with D-channel handler (DCH) circuit cards. You can update DCH circuit cards before the other PMs in the node, or with their serving PMs.

You must update ISDN DCH circuit card before its serving PM. However, you can update the ISDN DCH circuit card before the other subtending PMs on the serving PM. The previous figure (PLGC subtending PM configurations) illustrates an PLGC node with a subtending RCO2. In this figure there are DCHs in both PMs. Two possible update sequences are as follows:

- Update the DCHs in the node first, then the RCO2s, and finally the PLGC.
- Update the RCO2 DCHs first, then the RCO2s, and finally the PLGC.

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

ADAS updates

Automated directory assistance service (ADAS) software is delivered separately from PM software. The update of ADAS-related PMs must coordinate with the updates of other PMs in the office.

If the ADAS PM update is performed with the general office update, update ADAS related PMs before other PMs in the node. ADAS-related PMs include: the application processor unit (APU), voice processor unit (VPU), and the ADAS OA&M position (HP 9000/712) workstation. These PMs update in the preceding order. Other PMs in the node include: the network interface unit (NIU), the ethernet interface unit (EIU), and link interface module (LIM).

The *ADAS Peripheral Module Software Release Document* that accompanies the ADAS PM load tape. Refer to this document for specific instructions on how to update the software in ADAS-related PMs.

Enhanced network and message switch updating

The PM load tape can include loads for the enhanced network (ENET) and the message switching (MS). The update plan for these hardware types is critical to the schedule for the PM and the office updates.

Enhanced network

The ENET updates as part of the PM update process. You must update the ENET after all the PMs and hardware types in the office update successfully.

9X17 firmware

While the MS multiport circuit card (NT9X17) is part of the MS, it updates as part of the PM update process. Update the MS multi-port circuit card one to two days after you update the ENET. Also, you must update the MS multiport circuit card at least two days before you update the MS.

Message switch

The MS is normally updated one to two days before the application date (AD) or one-night process (ONP) date.

Parallel and broadcast mate loading

You can use the parallel and broadcast mate loading methods that follow to load sets of some PMs.

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

Do not use broadcast mate loading or parallel loading to update remote PMs, such as the RCO2 or the RLCM. Update each PM separately.

Do not use XPM broadcast mate loading or XPM parallel loading to update digital trunk controllers (DTCs) with timing links. To identify the timing source, type the command **MAPCI;MTC;MS;CLOCK** at the command interface (CI) level of the MAP display. Offices can use the DTC with timing links as the first DTC to update with the new load.

LCM parallel loading

Manually busied units of line-concentrating module (LCM) sets can update with LCM parallel loading and the RTS FORCE command. The RTS FORCE command supports sets of up to 50 LCMs. This allows the office to reduce its total LCM update time. The procedure is detailed in “Using parallel loading to update LCM-type PMs” in this document.

The table that follows describes the time difference between the two LCM update methods.

LCM parallel loading times

Number of LCMs	Set size	Update method	Number of minutes per unit	total number of 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 XMS-based peripheral modules (XPM) can use XPM broadcast mate loading to update. The computing module (CM) send a message to 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 receive the message.

The command line at the MAP display restricts the number of PMs that the system can post in a set. The system can create a CI level exec 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

You can update all units of the same number (0 or 1) with XPM parallel loading. Only inactive units can update, so activity must switch in some XPMs to align all units in the set. During XPM parallel loading, the CM sends messages directly to each inactive unit.

Parallel firmware loading

Parallel loading can update the XPM processor firmware in a set of up to four XPM units. The set can include up to 10 XPMs. For optimum performance, Nortel Networks recommend a maximum of four XPM units per set. Office parameter MAX_FIRMWARE_LOAD_MAIN_TASK in the OFCOPT table determines the maximum number of XPMs in the set. The default value is 10, the range is 1 to a maximum of 128.

Optimal set size

Laboratory tests show that these are optimal set sizes for each type of method. The table that follows 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 prepatched extended peripheral module PPXL	individual
one PM with a base load	individual
one PM with a 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. This 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 can require one PM of each type to soak after it updates before the remaining PMs update.

Sets that are larger than the optimal set sizes can be used. However, larger sets do not significantly reduce the loading time. Also, larger sets can cause the update to fail (this depends on factors such as CPU occupancy levels). Refer to the “Loading times" section later in this document for more information. Appendix A of this document provides details on laboratory testing and additional information on loading times and CPU occupancy. Refer to Appendix A for assistance on how to determine the time to update individual PMs and the office.

Note: All PMs in a set must have identical CLASS modem resource (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, check that the office and the PMs to be updated meet the conditions that follow:

- an office image was taken in the last 24 hours
- all the PM logs
- each PM has successfully completed its last REX test within the last two weeks
- all REX tests in the office are suspended
- the post release software manager (PRSM) automated process is not scheduled to start during the shift

Note: You must enable WARMSWACT in the office as part of normal office policy. Each updating PM must have WARMSWACT enabled.

Meeting these conditions can be part of the office standard maintenance program, or it can require additional activities. The section "Starting a PM update shift" appears later in this document. Use the procedure in this section to confirm that the office and PMs updating meet these conditions. To confirm each activity completes, use a checklist similar to the sample that follows.

Update shift checklist

Office:_____ **Activities for _____ (date of shift)**	**Completed by (initials)**
At the start of the shift	
Confirm an office image was taken in the last 24 hours.	_____
Confirm all PM logs are enabled.	_____
Confirm each PM updating is in service.	_____
Confirm each PM updating has passed its last REX test within the last two weeks.	_____
Suspend all automatic REX tests in the office.	_____
Confirm the PRSM automated process is not scheduled to run during the shift.	_____
At the end of a shift	
Resume all automatic REX tests in the office.	_____
Return all PM logs to their original states.	_____

Update shift checklist

Office:_____ **Activities for _____ (date of shift)**	**Completed by (initials)**
Review recent logs and check that the PMs updated during this shift remain healthy and in service.	_____
If required, change the start time of the PRSM automated process to its original value.	_____

PM updates

Update the PMs during a maintenance window or a period of low traffic. If updating from a BASE08 or higher product computing-module load (PCL), the SWUPGRADE PM utility can automate updates on some PMs.

Finishing the update

At the completion of each update shift, operating company personnel must return the office to its original state. Check that updates remain in service. Perform the procedure "Finishing a PM update shift" in this document.

Troubleshooting update problems

Occasionally problems can occur during a PM update. This section provides information on fixing update problems and aborting a PM update.

NET LOAD and PM PMLOAD alarms after ONP

NET LOAD and PM PMLOAD alarms can appear in the MAP display after completing the one-night process (ONP). These alarms indicate a load mismatch between the NET LOAD and PMLOAD tables, and the load residing in the enhanced network (ENET).

Solution

Review the PMLOAD and ENINV tables to confirm that both tables have the name of the new ENET load. If both tables contain the new load name, check the PMLOAD table for the old load name too. Delete the old load name if it is still present. This stops the digital Multiplex Switch (DMS) using the old ENET load from the PMLOAD table to reboot the ENET after the ONP SWACT.

XPM RTS failure after MX77 update

If the MX77 firmware load updates in an XMS based peripheral module (XPM), it must load before the base load. If the MX77 firmware is loaded after the base load, the unit can fail to return to service (RTS).

Solution

The procedures in this document reflect the correct sequence for updating the MX77 firmware and the base load. The summary that follows describes the correct sequence of steps.

1. load the firmware on the inactive unit
2. busy the inactive unit
3. load the firmware upgrade on inactive unit
4. return the inactive unit to service
5. switch activity
6. repeat these steps for the new inactive unit

You must reload if any 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 remote cluster controller (RCC) can fail to RTS during the PM update.

Solution

Check the ESAPXLA table that corresponds to the RCC. Mismatches can occur between table RCCINV and table ESAPXLA.

Changes in posted set

A posted set of PMs changes during a update procedure. The set can be 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, can change state to central-side busy (CBsy) and drop from the set. If a posted set of PMs changes during the update procedure, repost the set bya number.

Data mismatch

Data mismatches can occur during XPM loading. A mismatch can occur between XPM units or between the computing module (CM) and an XPM. PM logs and MAP responses identify the type of data mismatch.

The table that follows identifies the types of XPM data that can mismatch during XPM loading.

Types of XPM data

Type	Description
derived data	application-specific data derived from configuration data
dynamic data	status data, that constantly changes call states and link states. XPM applications create the data and pass it from the active unit to the inactive unit continuously.
exec data	office parameters
static data	configuration data, that is constant. This includes node data, terminal types, and port data. The CM sends the data to the XPM or the XPM unit during an RTS.

Solution

Use the methods in the table that follows to solve data mismatch problems. 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.	This automatic approach reduces the risk of error.	Corrupted dynamic data can pass from the active side.
1. Busy the inactive unit. 2. Load the central control (CC) data. 3. Return the unit to service. 4. Perform a warm SWACT. 5. Repeat for a new inactive unit.	The double warm SWACT method does not cause an outage.	Corrupted dynamic data and derived data can pass from the active side.

Data mismatch recovery

Method	Benefits	Risks
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.	This automated approach reduces the risk of error. Corrupt dynamic data cannot pass from the active unit.	This method 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.	This process guarantees all the data originates from the CC.	This method causes an outage.

Backing out of a PM update

ATTENTION

Check the office policy before backing out of a peripheral module 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 action allows the DMS 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 you must cancel a PM update, 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 Also, you must reverse the old_load_name and new_load_name parameters.

ATTENTION

The DMS switch can generate a warning about compatible software releases and improper load sequences. Follow the instructions included in this document about the reload order for the PMs, then continue with the appropriate PM procedure.

The instructions that follow are 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 the original PM update includes a CLASS modem resource (CMR) load, change the CMR load name in the inventory table to the previous CMR load name.
2. Post the PM.
3. Busy the PM or the inactive PM unit.
4. Load the PM or inactive unit. If the XMS-based peripheral module (XPM) processor firmware must be reloaded, follow the PM update procedure. You must reload it before loading the base load.

   Note: It is not always necessary to reload the MX77 firmware. This depends on the PM and the XPM processor firmware load. MX77 firmware is backwards compatible with three releases.

5. Review the post release software manager (PRSM) database. If necessary update the PRSM database.

6. Return the PM or the inactive unit to service. Use the NODATASYNC parameter for most PMs. This parameter permits new static data to download to the PM.

CAUTION
Possible service interruption
The command that follows causes the PM and all its subtending PMs to become system busy (SysB). This leads to service interruptions.

The syntax that follows is an example of the command.

```
>RTS  UNIT  1  NODATASYNC  FORCE
```

The outage will be less than 30 seconds.

Dual unit PM

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

CAUTION
Possible service interruption
The command that follows causes the PM and all its subtending PMs to become SysB. This leads to service interruptions.

The syntax that follows is an example of the command.

```
>SWACT  COLD
```

The outage will be less than 30 seconds.

1. Set the load to the inactive unit.
2. Busy the inactive unit.
3. Load the inactive unit.
4. Use the NODATASYNC parameter to return the inactive unit to service.
5. Use the COLD parameter to switch activity and return the PM to its original operating state.

Multiple PMs

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

Overview of PMUPGRADE

General Information

Peripheral software **must** be upgraded to the ISN07 (TDM) release before the CM software delivery can be performed. CM Software is delivered by the One Night Process (ONP) and this is described in the O*ne Night Process (ONP) Software Delivery Procedures Document (NTP 297-8991-303).*

This document describes how to upgrade peripheral software to the ISN07 (TDM) release before a CM software upgrade to ISN07 (TDM).

This document only supports upgrades from ISN04 (TDM) to ISN07 (TDM) and ISN05 to ISN07 (TDM) for CS2K.

It contains:

- Information for Series-I, II and III peripherals and also for other peripheral hardware with software or firmware loads.
- Hardware requirements and restrictions.
- A cross-reference of supported peripheral types and the new software loadnames.
- Instructions on how to upgrade each peripheral type.
- Critical tests to be performed on the newly applied software loads.
- Warnings about problems that were found during the verification of the PMUPGRADE procedures.

To assist the user in the upgrade procedures, a glossary of terms is available in *Glossary of Terms - Abbreviations Reference Manual (NTP 297-1001-825).*

Notes

The following notes should be observed and understood before attempting a PM Upgrade or CM ONP. Some of these issues may be action items to be included as part of the countdown to the ONP. Consult your Nortel software delivery prime for advice that it is particular to your configuration and to your software delivery.

- All ISN07 (TDM) loads are backwards compatible with ISN04/ GSPISN04 loads. All PMs should be completely upgraded at least one week in advance of the CM software delivery.
- All peripheral hardware requirements must have been met before upgrading the PMs to the ISN07 (TDM) loads. This document outlines specific hardware requirements but does include the procedures for such upgrades. All required hardware DCD/DCAs must have been applied to the peripherals.

- All ISN07 (TDM) CM baseline/hardware requirements **must** be applied before attempting to upgrade the CM.

PM Upgrade Order

Check all of your peripherals to see if the load is changing with this release. Plan to upgrade your peripherals in the following order.

1. Upgrade all Series-I peripherals.
2. Upgrade all the STs in a MSB7 and then the MSB7 hosting the STs. Ensure all MSB7s are upgraded.
3. Upgrade all EDCHs then all PESAs.
4. Upgrade all LCM type PMs.
5. Upgrade all RSCS/RSCMs.
6. Upgrade all GPPs.
7. Upgrade all PLGCs (applicable to LTC).
8. Upgrade all EIUs, then all LIU7s, then all NIUs, and then all LIMs.
9. Upgrade all the PDTCs (applicable to LTC).
10. Upgrade all the ENET.
11. Upgrade the MS 9X17 firmware for the MS CHAIN CARD
12. The MS is the final peripheral to be upgraded before the CM software is delivered by the ONP.

    Note: If the INACTIVE UNITS of any XPM fails to reload, fails out-of-service tests, fails to RTS, or fails in-service tests then the BSY-LOADPM-RTS steps should be repeated on the failed units. If there is still a failure the above procedure should be to reload the previous load release to determine whether it is a hardware problem, or the load is corrupt or incompatible with the CC load. In the former case, the INACTIVE UNIT will have to be man-busied, in the latter case, the CC/PM loading application may have to be aborted manually.

Further Upgrade Rules

The correct procedure for loading XPMs is to begin with those peripherals which are furthest from the CM and upgrade in such a manner that all P-side peripherals are upgraded before upgrading the serving peripheral.

Example

LCMs connected to an RCC connected to a PLGC

1. Upgrade all LCMs associated with the RCC.
2. Upgrade the RCC.
3. Upgrade additional PMs which may be connected to the PLGC using the rules described in steps 1 and 2.
4. Upgrade the PLGC.

PMs of the same level

If two P-side peripherals are at the same level from the serving XPM then they may be loaded in parallel.

Example

Two LCMs subtending from the same LGC may be loaded in parallel.

ISDN Sites

For ISDN sites with DTCOi, LGCOi, or RSCS/RSCM; the EDCH load should be loaded before upgrading that PM.

CCS7 Sites

The EIUs, LIU7s, NIUs, and LIMs must be upgraded before the DTCs and in the following order.

1. EIU
2. LIU7
3. NIU
4. LIM
5. DTC

Soak Interval

Between the loading of the first and second PM of the same type allow for a "reasonable" (15 to 30 minute) soak-period before proceeding. A basic set of calls should be made using this new load to ensure basic sanity before proceeding with further upgrades. All remaining PMs (of that type) can then be loaded. It is recommended that only a group of

ILCMs be loaded then the LGC above them loaded in one night, such that not all the peripherals are converted on the same night.

ENET, MS firmware, and MS

All subtending peripherals **must** be loaded before loading ENET software and the MS 9X17 firmware. Once all subtending peripherals have been upgraded a minimum soak-period of 1 business day should be observed before attempting to load the ENET.

In a case where ENET software, 9X17 firmware, and MS software are all to be upgraded in the same time frame, the order of progression.

1. ENET
2. 9X17 firmware
3. MS

Completion Date

This MOP should be done at least 3 days before CC application. Refer to the ONP checklist supplied by ETAS.

PM Loading Warnings

Problems reported during testing of the upgrade procedures will be described here.

PRSU Application Procedures

PRSM - Post Release Software Manager

If the DMS-100 has a ISN07 (TDM) CM load then you **must** use PRSM to apply software fixes (PRSUs) to the peripherals. This document only supports upgrades from ISN05 (TDM) to ISN07 (TDM) and ISN06 to ISN07 (TDM) for CS2K.

For a full description of PRSM refer to the *Post Release Software Manager (PRSM) Reference Manual.*

Administration information for a PRSU

Application

Use this procedure to obtain a hard copy of the administration information for a PRSU. The admin. information should be studied for any special application instructions.

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The loadname to which the PRSU applies has been datafilled in Table PMLOADS and the load file has been copied to the datafilled device.
- The required PRSUs have been copied to a known device.

Required information

To perform this procedure the following information may be required.

- Obtain a list of the PRSUs to be applied. The list may be supplied with the load tape or may be supplied by your software delivery support group.
- The device where the PRSUs are stored must be known.

Notes

There are no special notes for this procedure.

Steps of Procedure

At the CI level of the MAP display

1 Enter the DSKUT tool by typing

>DSKUT

2 List the device or volume where the PRSUs are stored by typing and start sending info. to the printer by typing

>LISTVOLS <device_id>

>RECORD START ONTO <printer_id>

3 Enter the PRSM tool by typing

>PRSM

4 Generate a hard copy of the admin. information for each PRSU by typing

>DISADMIN <prsu_id>

5 If you have a list of PRSUs to check, Repeat Step 4 to obtain a hard copy of the admin. information for each PRSU.

6 Stop the sending information to the printer by typing

>RECORD STOP ONTO <printer_id>

7 Return to the CI level of the MAP by typing

>QUIT ALL

8 Study the hard copy of the admin. information for each PRSU and note any PRSUs which have special application procedures or warnings.

9 You have completed this procedure.

Find out which PRSUs are already applied

Application

Use this procedure to find out which PRSUs are applied to a PM or UNIT.

Notes

This step should also be completed after the peripheral has had all its software fixes (PRSUs) applied and before the PRSUs have been ASSIGNED.

Steps of Procedure

At the CI level of the MAP display

1 Enter the PRSM tool by typing

>PRSM

2 Query the CM to find out which PRSUs are applied to a PM or PM unit.

>REPORT DEST <pm_type>

3 Return to the CI level of the MAP by typing

>QUIT ALL

4 You have completed this procedure.

VALIDATE any V status PRSU before applying

Application

Use this procedure to validate any V status patch before application.

Notes

There are no special notes for this procedure.

Steps of Procedure

At the CI level of the MAP display

1 For every PRSU at V status, a VALIDATE must be done.

2 Enter the PRSM tool by typing

>PRSM

3 VALIDATE the PRSU by typing

>VALIDATE <prsu_id>

4 If you have a list of PRSUs to check; repeat Step 3 for each required PRSU.

5 Return to the CI level of the MAP by typing

>QUIT ALL

6 Study the VALIDATE results for each PRSU. If the VALIDATE is successful then you can APPLY the PRSU.

7 You have completed this procedure.

Applying the PRSUs to the new load

Application

Use this procedure to apply PRSUs to a PM or UNIT.

Notes

Use this procedure to apply all required PRSUs when a new software load has been loaded.

Steps of Procedure

At the CI level of the MAP display

1 Enter the PRSM tool by typing

>PRSM

2 Apply the PRSU in accordance with any special application instructions.

>APPLY <prsu_id> IN <pm_type> <pm_number> <unit_number>

3 If you have a list of PRSUs to apply; repeat Step 2 for each PRSU.

4 Return to the CI level of the MAP by typing

>QUIT ALL

5 You have completed this procedure.

ASSIGN the new PRSUs to the target

Application

Use this procedure to ASSIGN PRSUs to a target loadname.

Steps of Procedure

At the CI level of the MAP display

Once the PM or UNIT is loaded with the new load and all software fixes (PRSUs) have been applied you **must** ASSIGN the new PRSUs to the target loadname.

1 Enter the PRSM tool by typing

>PRSM

2 Once the PM or UNIT is loaded with the new load and all software fixes (PRSUs) have been applied you **must**

3 ASSIGN the PRSU list against that PM or UNIT.

>ASSIGN UPGRADE_LD <new_loadname> IN DESTSET <pm_type> <pm_number> <unit_number>

4 If this peripheral is the first of its type to be loaded with a PPXL, ASSIGN the new loadname first, in order to pick up the PRSUs in the PPXL. Follow the rest of the procedure as normal, including the last ASSIGN command in the appropriate procedure.

5 You can RTS the PM or UNIT with the new load once the PRSUs have been ASSIGNed.

6 Return to the CI level of the MAP by typing

>QUIT ALL

7 You have completed this procedure.

Update the CM with the applied peripheral PRSUs

Application

Use this procedure to update the PRSM database in the CM with an up to date record of the PRSUs which have been applied to a particular PM or UNIT.T

Steps of Procedure

At the CI level of the MAP display

1 Enter the PRSM tool by typing

>PRSM

2 Once the PM or UNIT has been returned to service, update the CM with the PRSUs which are applied to this PM or UNIT:

>DBAUDIT <pm_type> <pm_number> <unit_number>

3 Return to the CI level of the MAP by typing

>QUIT ALL

4 You have completed this procedure.

Update the CM with all peripheral PRSUs

Application

Use this procedure to update the PRSM database in the CM with an up to date record of the PRSUs which have been applied to a peripheral type.

Once you have loaded all of the PM or UNIT of a certain PM type you must update the PRSU database in the CM with information about the peripheral type.

Steps of Procedure

At the CI level of the MAP display

1 Enter the PRSM tool by typing

>PRSM

2 Once the PM or UNIT has been returned to service, update the CM which PRSUs are used by this PM or UNIT:

>DBAUDIT <pm_type>

3 Return to the CI level of the MAP by typing

>QUIT ALL

4 You have completed this procedure.

PRSU Application Procedure For Series-III Peripherals

The ENET and MS are Series-III peripherals and these procedures for PRSUs are also applicable to the ENET and MS.

1 Complete the procedure “Administration information for a PRSU” on page 59.

2 Complete the procedure “Find out which PRSUs are already applied” on page 61.

3 Complete the procedure “VALIDATE any V status PRSU before applying” on page 62.

4 Complete the procedure “Applying the PRSUs to the new load” on page 63.

5 Complete the procedure “ASSIGN the new PRSUs to the target” on page 64.

6 Complete the procedure “Update the CM with the applied peripheral PRSUs” on page 65.

7 Repeat the previous step and then complete the procedure “Find out which PRSUs are already applied” on page 61.

8 You **must** now take an image of the new Series-III load which includes all the PRSUs . First rename the current load file, or move it to another device.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

Example

>RENAMEFL ERS05BB ERS05BB_OLD

9 Take an image of the Series-III PM node

>DUMP <file_name> <device_id> <dump_type> <route_type> <scope> NODE <node_name> <device_number>

Example

>DUMP ERS05BB D000PMLOADS ACTIVE RETAIN NODE EIU 1

10 When the IMAGE has successfully completed then rename the new Series-III load file.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

Example

>RENAMEFL ERS05BB_EIU ERS05BB

11 Use the CI command, PMLOADER to bind in the new location of the image file. Audit the PM load volumes.This task may take a number of minutes to complete depending on volume configuration and other switch activity:

>PMLOADER AUDIT ALL

12 Query the alarm condition to confirm the audit has not contributed to any alarm condition:

>PMLOADER QUERY ALARM

Confirm that the response is:

```
Table PMLOADS is not contributing to any alarm.
```

13 A copy of the original Series-III load (without manually applied PRSUs) should always be kept along with a record of all current PRSUs contained in the updated version of the Series-III load.

14 Complete the procedure “Update the CM with all peripheral PRSUs” on page 66.

15 You have completed this procedure.

Series-II (XPM) PRSU Application

Steps of Procedure

1 Complete the procedure “Administration information for a PRSU” on page 59.

2 Complete the procedure “Find out which PRSUs are already applied” on page 61.

3 Complete the procedure “VALIDATE any V status PRSU before applying” on page 62.

4 Complete the procedure “Applying the PRSUs to the new load” on page 63.

5 Complete the procedure “ASSIGN the new PRSUs to the target” on page 64.

6 Complete the procedure “Update the CM with the applied peripheral PRSUs” on page 65.

7 Complete the procedure “Update the CM with all peripheral PRSUs” on page 66.

8 You have completed this procedure.

XPM PRSU Application Procedure using a PPXL

Steps of Procedure

At the CI level of the MAP display

1 When upgrading a peripheral module using a PPXL, some (or all) of the required PRSUs will already have been built into the load. Before applying the required PRSUs, as listed on the PM PRSU tape, check which ones have already been built into the PPXL.

2 Enter the PRSM tool by typing

>PRSM

3 Load the peripheral module unit with the PPXL and then list the PRSUs currently applied to the load. This is the same as procedure “Find out which PRSUs are already applied” on page 61.

>REPORT DEST <pm_type> <pm_number> <unit_number>

4 Return to the CI level of the MAP by typing

>QUIT ALL

5 Compare the generated list of PRSUs with the list provided on the PRSU tape. Any PRSUs on the tape which have not been built into the PPXL will need to be applied manually. Use the procedure “Series-II (XPM) PRSU Application” on page 69 to apply the required PRSUs.

6 You have completed this procedure.

Example using a PPXL for a PDTC

In a PPXL, some PRSUs will already be packaged in the load, and some will still need to be applied.This example is for PDTC 0, using ODTO6BI,and is the first PDTC to be upgraded.

Steps of Procedure

At the CI level of the MAP display

1 See “Find out which PRSUs are already applied” on page 61.

2 List the disk volume containing the new load and add the new load to TABLE PMLOADS with the following command:

>TABLE PMLOADS

>ADD ODTO6BI ODTO6BI_960815 S00DPMLOADS ODTO6BI S01DPMLOADS N

>Y

3 Update TABLE LTCINV with the new load

>TABLE LTCINV

>POS PDTC 0

>CHANGE LOAD ODTO6BI

>Y

The PDTC will go ISTB with the PMLOAD mismatch

4 BSY the INACTIVE UNIT

>MAPCI; MTC; PM; POST PDTC 0

>BSY UNIT <inactive_unit_number>

Note: Before performing the next step, refer to the CAUTION on page 32. Do not use the cc parameter for loading PPXL loads.

5 Load the new software.

>LOADPM UNIT <inactive_unit_number>

6 Update the new PM loadname in the CM

>PRSM

>DBAUDIT <pm_type> <pm_number> <unit_number>

7 Apply all PRSUs which are not yet in the PPXL.

>PRSM

>APPLY <prsu_id> IN <pm_type> <pm_number> <unit_number>

>APPLY <prsu_id> PM PDTC 0 0

8 RTS the PDTC unit

>RTS UNIT 0

9 First, SwAct the XPM to finish it.

>SWACT

Make sure a Warm SwAct is to be performed

>Y

10 BSY UNIT 1

>BSY UNIT 1

11 In PRSM, set the new loadname by using the following commands:

>PRSM

>ASSIGN UPGRADE_LD IN DESTSET PDTC 0 0

12 LOAD UNIT 1

>LOADPM UNIT 1 CC

13 Update the new PM loadname in the CM

>PRSM

>DBAUDIT <pm_type> <pm_number> <unit_number>

14 Return UNIT 1 to service

>RTS UNIT 1

15 Now check the PRSUs in the PPXL. Check that the PRSUs applied match the PRSUs shown in the PRSU list supplied with the tape.

>PRSM

>REPORT DEST <pm_type> <pm_number> <unit_id>

16 All other units of PDTCs can be upgraded using the normal process

17 You have completed this procedure.

Update Procedures

The procedures in this chapter describe how to update peripheral modules (PM) and other hardware types during the PM update process.

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

PM Upgrade Summary

In brief, the procedure is as follows:

1 Take an image.

2 Copy the ISN07 PM load files to disk.

3 Add the ISN07 loadnames in TABLE PMLOADS.

4 Change the loadname in the appropriate inventory table.

5 BSY, load, apply PRSUs and RTS the INACTIVE UNIT of the peripherals with the ISN07 load

6 Warm SwAct the peripheral, if necessary.

7 Test the ISN07 load.

8 BSY, LOAD, apply PRSUs and RTS the newly INACTIVE UNITS of all in-service peripherals with the ISN07 load.

9 Take an image to tape.

10 Monitor new PM loads for up to seven days.

This chapter describes the method-of-procedure (MOP) to upgrade each of the peripheral types.

Pre-upgrade Activities

Ensure these actions have been carried out before proceeding with a PM upgrade.

- Take an office image using the AUTODUMP MANUAL command.
- Mount/insert and list the new PMLOAD tape/cartridge.
  Copy the PM loads to the disk volume used for PM loads.
- DO NOT ERASE existing loads to make available disk space. Existing PM loads could still be required during the VO period. If disk space is at an absolute premium, ensure that old PM loads are available on tape before deleting.

- Monitor log output associated with the PMs to be upgraded, especially TRAPS and SWERRS. This can then be compared to the logs (type and volume) following the upgrade.
- Check OMs for lines and trunks to ensure similar levels following the upgrades.
- Ensure any alarms are understood before the upgrade. It is recommended that only a group of ILCMs be loaded then the PLGC above them loaded in one night, such that, not all the peripherals are converted on the same night.
- Ensure you have studied and understood “PM Upgrade Order” on page 55 and “PM update process” on page 32.

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 indicates *Patches:Yes*, the tape includes the required PRSUs for XPM and ISN load files.

Prerequisites

Meet the following prerequisites before using this procedure.

$XREF patch control file

The XPMxxRTP$XREF patch control file is included when PRSUs are delivered to the office on 9-track tape or a SLM tape cartridge labelled *Patches:Yes*. The patch control file is not included when PRSUs are downloaded directly to the office through the Customer Services Computerized Access Network (C-SCAN).

Required information

None

Update sequence

Not applicable

Notes

The following section provides additional 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 integrated services node (ISN) PRSU files associated with the new loads for the one-night process (ONP). The Digital Multiplex Switch (DMS) 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.

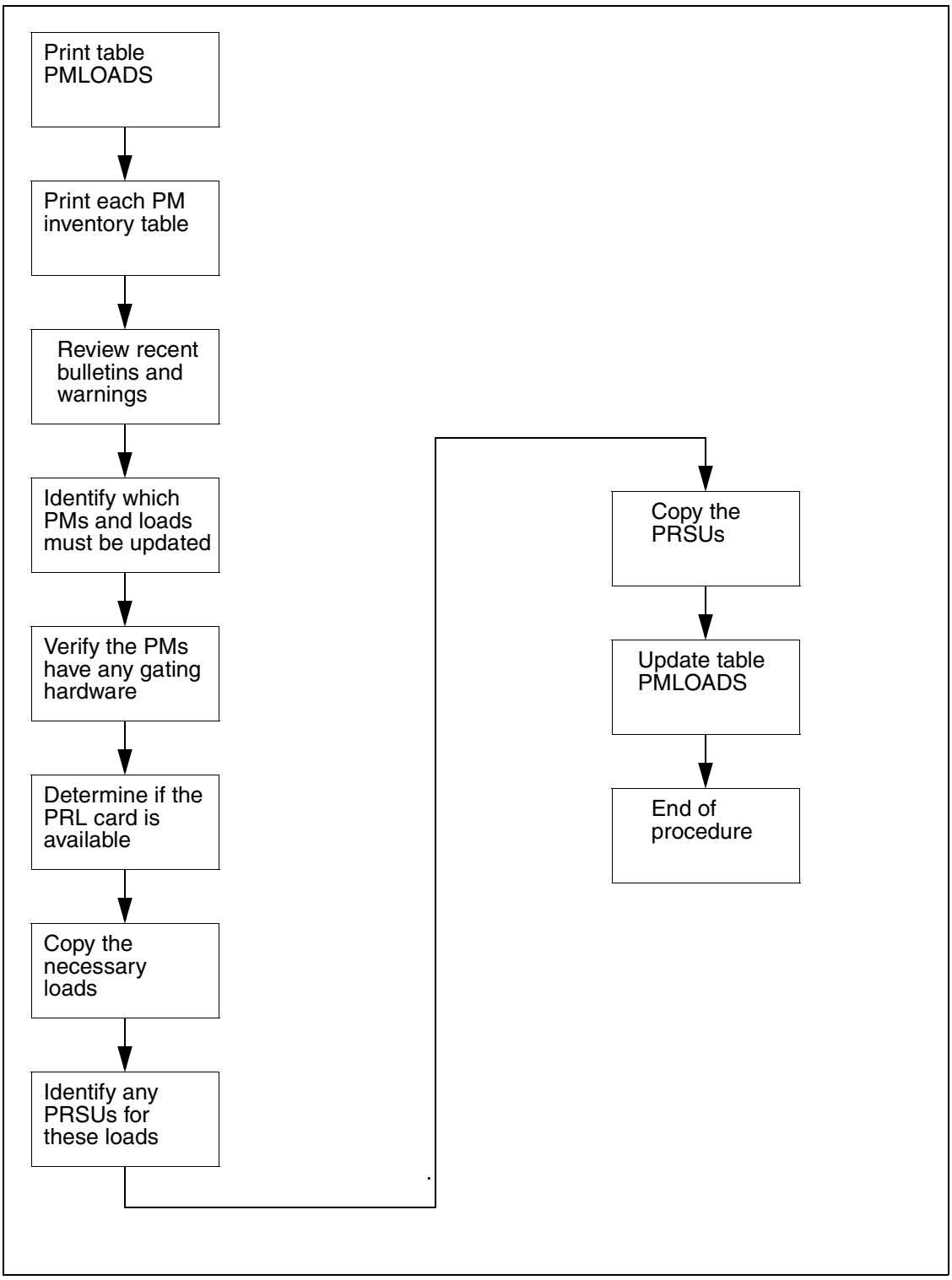
PRSU files for old ISN loads

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

PRSU files for pre-patched ISN loads 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 of command

```
>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 added 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 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 of command

```
>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 PLNA0010 XPM08RTP$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 XPM08RTP$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 PLNA0010 LPC08AX
```

Example of a command for a PPXL

```
>MFR STDVOL S00DPMLOADS S00T PLNA0010 ECL81AZ_980223
```

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 a 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 a 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 LPC08AX 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 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 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 PLNA0010 XBV19X8A
```

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_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 XPM08RTP$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 XPM08RTP$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 XBV19X8A 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 S00DPMLOADS
```

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 XBV19X8A 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.

14 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 14b.
a regular or expanded format	step 14c.

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

Steps of procedure

ATTENTION

Follow office policy is 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

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 of command for a base load

>ADD LPC08AX LPC08AX S00DPMLOADS LPC08AX S00DPMLOADS N

Example command for a PPXL

>ADD ELI81AZ ELI81AZ_980223 S00DPMLOADS ELI81AZ_980223 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.

a. Confirm the addition by typing

>Y

and press the Enter key.

b. Repeat step 14c. and 14d. for each load to be updated.

c. Exit table PMLOADS by typing

>QUIT

and press the Enter key.

2 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
```

3 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.

Preparing for a PM update using the PRL circuit card

The PRL circuit card is an optional circuit card for an XPM unit that reduces XPM update simplex time. The PRL circuit card is loaded with the new PM load while the XPM unit is in-service (InSv). The XPM unit is updated from the local PRL circuit card.

Imaging is available with PRL circuit cards for XPMs that do not support Integrated Services Digital Network (ISDN). The local image is the 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).

Overview of update process

Offices can load the PRL circuit cards during business hours of low traffic periods since circuit card loading is a background task. Pre-loading the PRL can cause the PM to change status to ISTb because of the load mismatch between the PRL circuit card and the PM. The same load mismatch occurs when the PM inventory table is updated with the new PM load name prior to the PM update.

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

Recommended resource levels for XPMSTOR

The recommended resource levels are as follows:

- Resource Single PM unit Set of PMs
- CPOCC 50% or less 50% or less
- Active XPM unit real-time less thgan 60% less than 50%
- NOWAIT parameter can be used to load a single PRL circuit card

PRL supported XPMs

The PRL circuit card is optional in the following XPMs:

ATTENTION

XPMs with an NTAX74 XPM processor do not support the PRL.

XPMs with optional PRL circuit card support

Type	Description
DTC	Digital Trunk Controller
DTC	Digital Trunk Controller with CCS7 (DTC7)
DTCI	Digital Trunk Controller with ISDN (DTCI)
DTCO2	Digital Trunk Controller Offshore # 2 (hardware can be configured with PRL card)
GPP	Global Platform Peripheral (hardware can be configured with PRL card
LGC	Line Group Controller (LGC)
LGC	Line Group Controller (LGC) with subtending RCC
LGC	Line Group Controller (LGC) with subtending RCC2
LGC	Line Group Controller with ISDN (LGCI)
LGCI	Line Group Controller with subtending RCC
LGCI	Line Group Controller with subtending RCC2
LTC	Line Trunk Controller
LTC	Line Trunk Controller with subtending RCC
LTC	Line Trunk Controller with subtending RCC2
LTC	Line Trunk Controller with ISDN (LTCI)

Type	Description
LTCI	Line Trunk Controller with subtending RCC
LTCI	Line Trunk Controller with subtending RCC2
RCC	Remote Cluster Controller (RCC)
RCC2	Remote Cluster Controller 2 (RCC2) with ISDN
RCC2	Remote Cluster Controller 2 (RCC2) with ISDN and subtending RCC2
TMS	TOPS Message Switch

Sample datafill

Datafill for the PRL circuit card is entered in field OPTCARD in the appropriate PM inventory table. Review the PM inventory tables to identify PMs with a PRL circuit card.

Examples of a tuple in table LTCINV with PRL circuit card assignments are as follows:

Sample datafill for NTMX77

```
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
```

Sample datafill for NTSX06

```
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
SXFWAE09 $
6X40FA N
```

Overview for Non-ISDN XPMs

The procedure “Use the PRL circuit card to update an XPM” in this document provides step-by -step instructions on to how to use the PRL circuit card. The PRL allows operating company personnel to load a PM with the least amount of central processing unit (CPU) resources and the least simplex time. The PRL specific commands are summarized in the following table:

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 PRSU application.

PRL specific commands

Command	Activity	Maintenance state
>XPMSTOR PM	Loads the PRL circuit cards in both InSv units with the new PM load.	Actice unit InSv Inactive unit InSv
>BSY INACTIVE	Makes the inactive unit busy.	Actice unit InSv Inactive unit is manually busy (ManB)
>LOADPM INACTIVE LOCAL LOADFILE	Loads the Bsy PM unit with the new PM load.	Actice unit InSv Inactive unit is (ManB)
>RTS INACTIVE	Returns the Bsy PM unit to service and takes an image.	Actice unit InSv Inactive unit InSv
>SWACT	Switches activity between the two units.	Inactive unit InSv Active unit InSv
>BSY INACTIVE	Makes the inactive unit busy.	Inactive unit ManB Active unit InSv
>LOADPM INACTIVE LOCAL LOADFILE	Loads the Bsy PM unit with the new PM load.	Inactive unit ManB Active unit InSv
>RTS INACTIVE	Returns the Bsy PM unit to service and takes an image.	Actice unit InSv Inactive unit InSv

Overview for ISDN XPMs

Offices can change the steps in procedure “Use the PRL circuit card to update an XPM” in this document to update an ISDN XPM. The PRL does not suppport imaging for ISDN XPMs. If both PRL circuit cards are loaded, problems could develop during the PM update if a load is corrupted or if the active unit fails. Individual loading of the PRL circuit card for each unit reduces the potential for a problem but increase elapsed loading time and the impact on CPU resources for XPMSTOR.

The PRL specific commands are summarized in the following table:

RL specific commands

Command	Activity	Maintenance state
>XPMSTOR INACTIVE	Loads the PRL circuit card in the inactive unit with the new PM load while both units are InSV.	Actice unit InSv Inactive unit InSv
>BSY INACTIVE	Makes the inactive unit busy.	Actice unit InSv Inactive unit is manually busy (ManB)
>LOADPM INACTIVE LOCAL LOADFILE	Loads the Bsy PM unit with the new PM load.	Actice unit InSv Inactive unit is (ManB)
>RTS INACTIVE	Returns the Bsy PM unit to service.	Actice unit InSv Inactive unit InSv
>SWACT	Switches activity between the two units.	Inactive unit InSv Active unit InSv
>BSY INACTIVE	Makes the inactive unit busy.	Inactive unit ManB Active unit InSv
>LOADPM INACTIVE LOCAL LOADFILE	Loads the Bsy PM unit with the new PM load.	Inactive unit ManB Active unit InSv
>RTS INACTIVE	Returns the Bsy PM unit to service and takes an image.	Actice unit InSv Inactive unit InSv

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.

- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- Each PM passed its last routine exercise (REX) test in the last two weeks.
- Each PM is in-service.
- All automatic REX tests in the office are suspended.
- No post-release software manager (PRSM) automated process, such as DBAUDIT and AUTOAPP, are scheduled to run during the PM update shift.

Prerequisites

Perform the procedure “Preparing for a 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. Each PM that you will update should have WARMSWACT enabled.

Required information

None

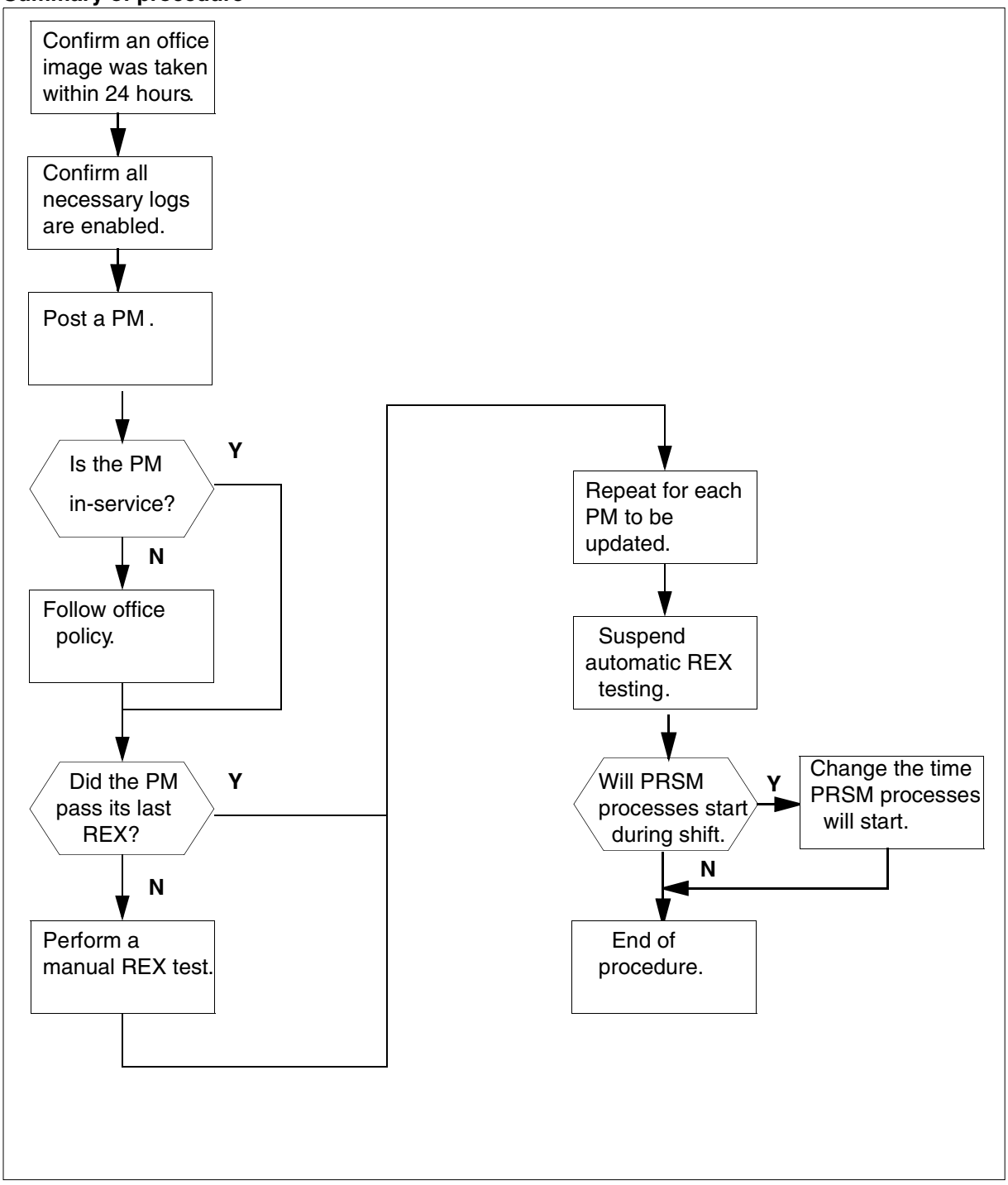
Update sequence

Not applicable

Notes

None

Summary of procedure



Steps of procedure

ATTENTION

Follow office policy is 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 recorded an image 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. Confirm that the office recorded an office image 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 you will update during this shift. If you will update an emergency stand alone (ESA), confirm all ESA logs are enabled. If you will update a multi-protocol controller (MPC), confirm all MPC logs are enabled. If you will update the enhanced network (ENET), confirm all ENET logs are enabled. If you will update any of the MS bus port circuit cards (NT9X17), confirm all MS logs are enabled.

a. Enter 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.

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

Note: To resume multiple logs, combine the log numbers on a single RESUME command.

Example

```
>RESUME PM 129 181
```

e. Record the numbers and threshold values of any PM logs that have thresholds.

f. Change the threshold to 0 for any logs with thresholds. Type

>THRESHOLD 0 PM log_no

and press the Enter key.

where

log_no is the number of the log

Note: To change the threshold value of multiple logs, combine the log numbers on a single THRESHOLD command.

g. Exit LOGUTIL. Type

>QUIT

and press the Enter key.

3 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

4 Post one of the PMs that you will update. 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 require a QUERYPM DIAGHIST command to verify the health of the PM. Check office policy. Perform a QUERYPM DIAGHIST on PMs that you will update 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.

9 Repeat steps 4 to 7 for each PM shift to be updated.

10 Return to the C1 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: This command will cause minor MS alarm. Continue this procedure. The alarm will continue until you resume automatic REX testing 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. Open 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 processors are scheduled to start during the PM update shift.

If PRSM automated processes	Do
are scheduled to start during the PM update shift	step 12d.
are not scheduled to start during the PM update shift	step 12h.

d. record the values in tuple AUTOOPTS.

e. Change the time the PRSM automated processors 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. Type

Note: You can delay automated processes one cycle with 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. Close the table. Type

>QUIT

and press the Enter key.

13 You have completed this procedure. Perform the 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”

Series-I Peripherals and Other Hardware Types

ST (DPNSS) Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in the signalling terminal (ST) in a DPNSS MSB7 peripheral.

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The ST and its serving MSB7 are in-service.
- The serving MSB7 has successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Notes

There are no special notes for this procedure.

Steps of Procedure

At the CI level of the MAP display

1 Change the STCLOAD in TABLE MSBINV and TABLE STINV. Then update the MSB to contain the new ST load.

```
>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file>
<backup_volume> n

>QUIT

>TABLE MSBINV

>POS MSB7 <pm_number>

>CHA STCLOADS <new_st_loadname>

>QUIT
```

>TABLE STINV

position on the selected ST

>POS <pm_name> <pm_number>

>CHANGE LOAD <new_loadname>

>QUIT

>MAPCI; MTC; PM; POST MSB7 <pm_number>

>STCLOAD PM QUERY

2 If the response shows the old ST load in the PM then perform the following command:

>STCLOAD PM DELETE <old_st_loadname>

>STCLOAD PM ADD <new_st_loadname>

Note: The STCLOAD command does not load the ST. The command only allows a copy of the ST load to be stored in the MSB. As a result, the LOADPM PM command may be executed from the STC level of the MAP to load the ST with the copy of the load in the MSB rather than loading it directly from the CC.

3 Obtain a hard copy of TABLE STINV and TABLE DPNSSLK.

4 Upgrade one ST.

5 Select one in-service ST to be upgraded.

6 At the DPNSS level of the MAP, POST the link that appears in TABLE DPNSSLK for that ST.

For in-service links

7 Note the link state so that you can match the state of all links to the condition that you found them.

>MAPCI; MTC; CCS; DPNSS; POST ALL

>NEXT

Note the link state so you can restore it back to the state you found it

8 After consulting the local maintenance personnel, BSY the DPNSS link at the CCS;DPNSS level

>MAPCI; MTC; CCS; DPNSS

>POST ST <st_number>

>BSY

The sync state of the link should change from 'INSV' to 'MANB'.

9 At the PM level of the MAP, POST the ST associated with the OFFL links. BSY and RTS the ST to confirm that it will pass an out-of-service test fault free and RTS.

>MAPCI; MTC; PM

>POST MSB7 <pm_number>; STC

>POST <stc_number>

>BSY

>RTS

Note: It is HIGHLY recommended that the ST be RTSed before upgrading to ensure there are no hardware issues.

10 Once successful BSY, LOADPM and RTS.

>MAPCI; MTC; PM

>POST MSB7 <pm_number>; STC

>POST <stc_number>

>BSY

>LOADPM CC

>RTS

>QUIT

11 Return the DPNSS link to service and make your critical test calls.

>MAPCI; MTC; CCS; DPNSS

>POST ST <st_number>

>RTS

The sync state of the link should change from 'MANB' to 'INSV'.

12 Match the state of all links to the condition that you found them

>MAPCI; MTC; CCS; DPNSS; POST ALL

>NEXT

Check the link state and restore it back to the state you found it.

For off-line links

13 This step can be performed to upgrade all non-in-service STs before proceeding with those in-service. Upon successful upgrade of one ST in the previous step, at CI level, enter:

>TABLE STINV; LIS ALL; QUIT

>TABLE DPNSSLK; LIS ALL; QUIT

14 At the DPNSS level, POST each link that has OFFL links and return them to service.

>MAPCI; MTC; CCS; DPNSS; POST S OFFL

>BSY ALL; RTS All

Each link should return to the traffic state of INSV.

Note: The exceptions would be those links not INSV before starting this procedure, or links that require an RTS at the far end.

15 Determine which STs are not assigned to links in TABLE DPNSSLK as these may be upgraded without potential service interruption. At the PM MAP level, POST each ST not assigned to links in TABLE STINV. BSY and RTS each ST to confirm they will pass an out-of-service test and RTS. Then BSY, LOADPM CC and RTS each ST.

>MAPCI; MTC; PM; POST MSB7 ALL

>STC; POST OFFL

>BSY ALL; LOADPM ALL; RTS ALL

Note: remember that CCS7 MSB7s are not supported in EUR004

Repeat this procedure for all unassigned links in the next MSB7

16 INSV STs can now be upgraded one at a time as shown “For in-service links” on page 108

17 At the DPNSS level, POST each link that you found OFFL and restore it back to the OFFL state.

>MAPCI; MTC; CCS; DPNSS; POST ST <st_number>

>BSY;OFFL

18 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

MTU Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in the Metallic Test Unit (MTU).

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM and TRK logs are enabled.
- The the MTU is in-service.
- Automatic REX testing is suspended in the office.

Notes

The MTU will perform all functions currently supported by the existing LTU, but with greater speed and accuracy. In addition, the MTU may be used to test Electronic Business Set (EBS) lines and may also be used for OPM battery maintenance.

The MTU consists of two circuit packs, NT4X97 and NT4X98, which will be used to replace the existing LTU circuits, NT2X10 and NT2X11. The NT4X98 MTU Analog board will be provisioned on an odd numbered slot to the left of the NT4X97 MTU Controller board. The NT4X97 circuit pack will be provisioned on an even numbered slot to the right of the NT4X98 circuit pack. Currently, the MTU cannot be supported in slots 11 and 12 of the MTM and in slots 9 and 10 of the RMM.

Steps of Procedure

At the CI level of the MAP display

1 Insert the cartridge provided containing the firmware required for MTU and copy the software module onto disk as follows:

>DISKUT; IT <slm_tape>

>LF <slm_tape>

>RESTORE FILE <disk_volume> <tape_device> <file_name>

2 Now change TUPLE MTULDINFO in TABLE OFCVAR to reflect the new loadname.

>TABLE OFCVAR

>POS MTULDINFO

>CHA PARMVAL <loadname>

3 Seize both circuits associated with the MTU card to be loaded with the firmware.

>TRKS;TTP

>POST G MTU <mtu_number_1>

>BSY; SEIZE

If both circuits are provisioned on the MTU card then hold the current circuit and seize the other circuit by using the following commands:

>HOLD

>BSY; SEIZE

4 LOAD the firmware required for the MTU circuit.

Note: This may take approximately 20 minutes

>LOADFW CC <loadname>

Note: if TUPLE had already been changed in TABLE OFCVAR to reflect the new load name, the <loadname> part of the above command can be omitted.

5 Once the MTU has loaded, release the MTUs from the SEIZE state.

Release the circuit which is currently posted:

>RLS; RLS

If both circuits are provisioned, release the other circuit which has been held.

>NEXT <hold_number>

>RLS; RLS

Example

For a circuit held as HOLD1, use the following commands:

>NEXT 1

and release the circuit using

>RLS; RLS

6 Test the MTU circuit to confirm that the circuit passes diagnostics

>TTP; POST G MTU <mtu_number_1>

>RTS;TST

>NEXT; RTS; TST

7 Query the MTU circuit to verify the valid firmware load.

>LOADFW QUERY

After issuing this command, reply should be:

Query Option

Firmware query: valid firmware load

8 Confirm the operation of the MTU circuit by performing diagnostics on a line card. To ensure that the desired MTU circuit is selected, BSY all other LTU or MTU circuits which can access the line card via MTA. If the MTU is dedicated to a particular LCM then select a line card in this LCM and proceed to next step below. Otherwise repeat following procedure until all other LTU/MTU circuits have been busied.

>TRKS; TTP

>POST G <trunk_clli> <circuit_number>

>BSY INB

9 Perform diagnostics on one line card in an LCM which is connected to the MTU card under test.

>LNS; LTP

>POST L <site> <frame_number> <module_number> <drawer_number> <card_number>

>DIAG

10 LTU or MTU circuits were busied in step listed above then return circuits to service. Repeat the steps below for each LTU/MTU.

>TRKS; TTP; POST G <trunk_clli> <circuit_number>

>BSY; RTS

11 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

DTU Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in the Digital test Unit (DTU).

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM and TRK logs are enabled.
- The the DTU is in-service.
- Automatic REX testing is suspended in the office.

Notes

The DTU is being used as the Bit Error Rate Testing vehicle in both the BERP (Bit Error Rate Performance) and LTP levels.

The DTU consists of one circuit pack, NT4X23AA. Each DTU circuit pack consists of 2 virtual test units which can be used independently.

Steps of Procedure

At the CI level of the MAP display

1 Insert the cartridge provided containing the firmware required for DTU and copy the software module onto disk as follows:

>DISKUT; IT <slm_tape>

>LF <slm_tape>

>RESTORE FILE <disk_volume> <tape_device> <file_name>

2 Now change TUPLE DTULDINFO in TABLE OFCVAR to reflect the new loadname.

>TABLE OFCVAR

>POS DTULDINFO

>CHA PARMVAL <loadname>

3 You have completed this procedure.

Procedure
Steps of Procedure
At the CI level of the MAP display

1 Seize both circuits associated with the DTU card to be loaded with the firmware.

>TRKS; TTP

>POST G DTU <dtu_number_1>

>BSY; SEIZE

>HOLD

>BSY; SEIZE

2 LOAD the firmware required for the DTU circuit.

Note: This may take approximately 10 minutes

>LOADFW CC <loadname>

3 Once the DTU has loaded, release the DTUs from the SEIZE state.

>RLS; RLS

>NEXT <hold_number>

>RLS; RLS

Example

for HOLD1 enter

>NEXT 1

and release the circuit using

>RLS; RLS

4 Test the DTU circuit to confirm that the circuit passes diagnostics

>TTP; POST G DTU <mtu_number_1>

>RTS; TST

>NEXT; RTS; TST

5 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

EDCH Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in the Enhanced D-Channel Handler (EDCH) card.

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The LCM upgrade has been completed.
- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The DCH to be upgraded is in-service.
- Automatic REX testing is suspended in the office.

Notes

Execute the following procedure for the SPARE DCH first and then after performing a SWITCH, repeat the procedure for all the DCHs.

Steps of Procedure

At the CI level of the MAP display

1 List all of TABLE DCHINV

2 Change loadname in TABLE DCHINV

>TABLE DCHINV

position on the links of the selected PM

>POS <DCH_KEY>

>CHANGE LOAD <new_ loadname>

>QUIT

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

where

<pm_type> could be **PDTC** (for a DTCO/i), **PLGC** (for a LGCO/i) or **RSCS/RSCM**.

>DCH

>POST <DCH no>

>BSY

>LOADPM CC

>RTS

3 Perform this step only for the first EDCH

>prsm

>dbaudit dch <n>

>apply <patch_name>

>report dest dch

>assign upgrade_Id (load name) in destset dch <edch number>

4 Repeat steps 1 and 2 for all other DCHs and EDCHs

5 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

Enhanced DCH card (NTBX02) Upgrade Procedure

Application

Use this procedure to update the enhanced ISDN D-channel handler (DCH) circuit 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 name of the new DCH load is datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All peripheral module (PM) logs are enabled.
- The DCH is in service.
- All automatic routine exercise (REX) tests are suspended in the office.
- No post-release software manager (PRSM) automated processes, such as DBAUDIT and AUTOAPP, are scheduled to 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.

- Is this DCH card the first DCH card in the office to use the new load?
- Do you need to apply any post-release software units (PRSU) manually to the new load?
- Is the new PM load a pre-patched XPM load (PPXL)?

For help, refer to “Overview of release" and “Overview of manual update process" in this document.

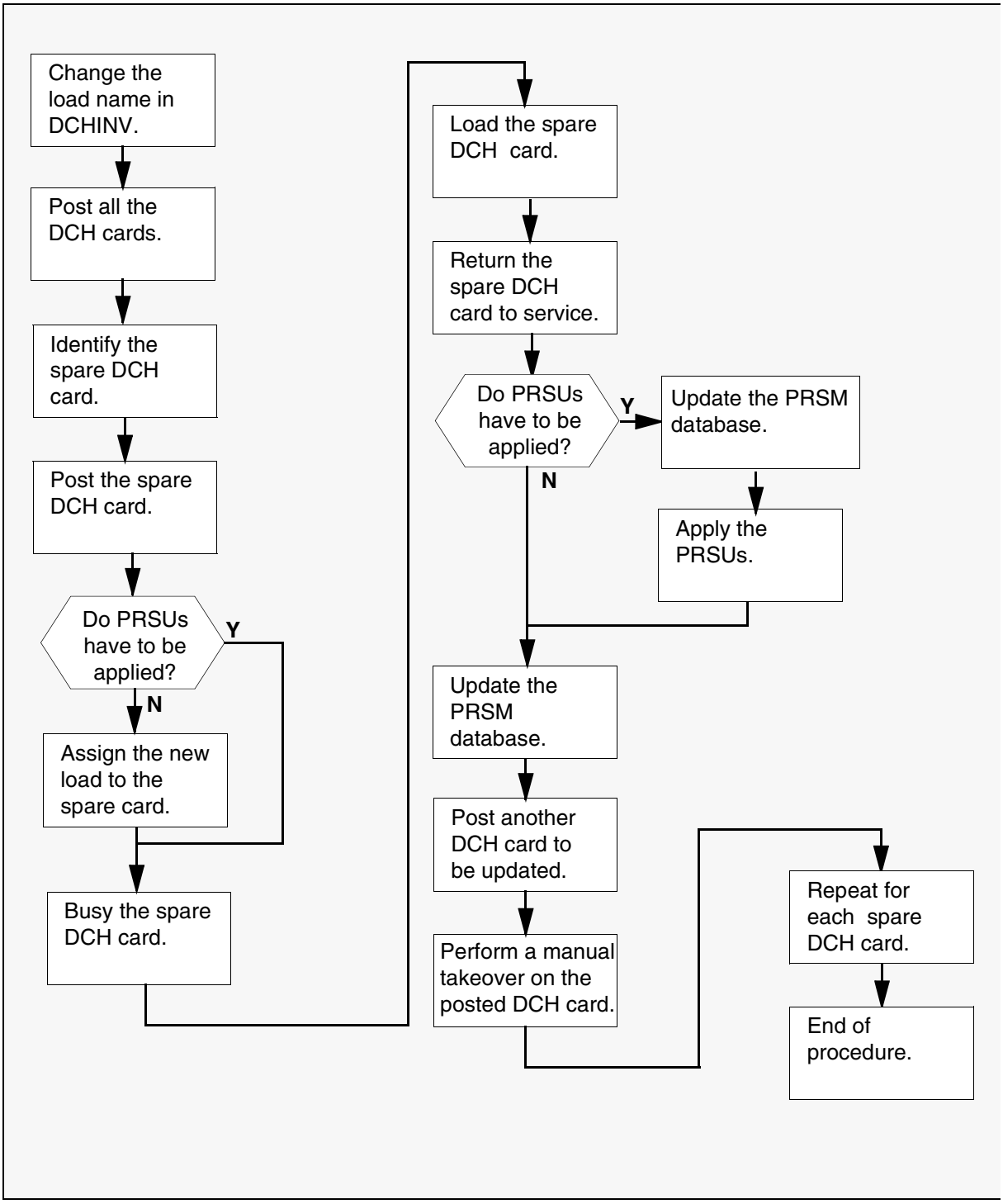
Update sequence

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

Notes

Update only the spare DCH card. Follow this procedure, and switch the spare DCH cards in the PM until you update all the DCH circuit cards. You can lose service if you update a DCH card in an ISDN service group (ISG).

Summary of procedure



Steps of procedure

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

ATTENTION
Follow office policy is 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 DCH circuit cards to update.

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

3 Update the DCH inventory table.

a. Open the DCH inventory table. Type

>TABLE DCHINV

and press the Enter key.

b. Display the contents of the table. Type

>LIS ALL

and press the Enter key.

c. Record the DCH numbers for the PM with DCH circuit cards to update.

d. Position on the datafill tuple for one of the DCH circuit cards to update. Type

>POS dch_no

and press the Enter key.

where

dch_no is the number of the DCH

Example of command

```
>POS 1
```

e. Change the load name 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 EDH15AY
```

f. Confirm the change. Type

>Y

and press 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.

g. Repeat these steps for each DCH card you will update.

h. Close the table. Type

>QUIT

and press the Enter key.

4 Enter the PM level of the MAP display. Type

>MAPCI;MTC;PM

and press the Enter key.

5 Post the PM that contains the DCH circuit cards. 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

Example of command

```
>POST PLGC 1
```

6 Enter the DCH level. Type

>DCH

and press the Enter key.

7 Post all the DCH circuit cards. Type

>POST ALL

and press the Enter key.

8 Display all the posted DCH circuit cards. Type

>DISP ALL

and press the Enter key.

Example of MAP display

```
DCH1ISG0InSvLTC2port 13

DCH2spareInSvLTC2port 15

DCH3ISG2InSvLTC2port 17

DCH4ISG1InSvLTC2port 19
```

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

10

CAUTION
Possible service interruption
Update only spare DCH circuit cards. You can lose service if you update an ISG DCH circuit card.

a. Post the spare DCH circuit card. Type

>POST dch_no

and press the Enter key.

where

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

Example of command

```
>POST 2
```

11 Use PRSM to assign the new load to the spare DCH circuit card.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

ATTENTION

After you perform 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 for the previous load to the new PM load.

b. Assign the new load to the spare DCH circuit card. Type

>ASSIGN UPGRADE_LD new_load IN DESTSET DCH dch_no

and press the Enter key.

where

new_load is the name of the new load

dch_no is the number of the spare DCH card

Example of command

```
>ASSIGN UPGRADE_LD EDH14BC IN DESTSET DCH 0
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

12 Busy the DCH circuit card. Type

>BSY

and press the Enter key.

13 Load the DCH circuit card. Type

>LOADPM

and press the Enter key.

14 Return the DCH circuit card to service. Type

>RTS

and press the Enter key.

If this DCH circuit card is	Do
the first DCH circuit card in the office to use the new load	step 15
not the first DCH circuit card in the office to use the new load	step 17

15 Review the PM update checklist. Determine if you must apply PRSUs manually to the new load.

If you	Do
need to apply PRSUs manually to the new load	step 16
do not need to apply PRSUs manually to the new load	step 17

16 Apply the PRSUs.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database with the name of the new load name. Type

>DBAUDIT DCH dch_no

and press the Enter key.

where

dch_no is the number of the DCH

Example

```
>DBAUDIT DCH 0
```

c. Apply any PRSUs that need to be manually applied. Type

>APPLY 'prsu_name IN DCH dch_no

and press 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 'XAJ13X08 | XRP29X08 | XBA45X08 IN DCH 0
```

Example of double-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +
>'XD02908 | XJL87X08 | XAH13X08 IN DCH 0
```

Note: You do not need to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs if they are applied as a set.

17 Update the PRSM database.

a. Update the PRSM database to reflect the current PRSU list for the DCH. Type

>DBAUDIT DCH dch_no

and press the Enter key.

where

dch_no is the number of the DCH

Example of command

```
>DBAUDIT DCH 0
```

b. Display the list of PRSUs for the spare DCH circuit card. Type

>REPORT DEST DCH dch_no

and press the Enter key.

where

dch_no is the number of the DCH

Example of command

```
>REPORT DEST DCH 0
```

c. Confirm all PRSUs for the new load are applied to the DCH card.

If	Do
all PRSUs for the new load are applied to the DCH circuit card	step 18
all PRSUs for the new load are not applied to the DCH circuit card	Troubleshoot the problem or contact the next level of support.
PRSUs from the previous load are listed at VA status	A DBAUDIT was not performed. Return to step 17a. If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 18. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

18 Exit the utility. Type>QUIT

and press the Enter key.

19 Post one of the DCH circuit cards that is not updated. Type

>POST dch_no

and press the Enter key.

where

dch_no is the number of the DCH

Example of command

```
>POST 1
```

Note: Use the numbers recorded in step 9.

20 Perform a manual takeover from the newly updated DCH circuit card to the posted DCH circuit card. Type

>SWTCH dch_no

and press the Enter key.

where

dch_no is the number of the DCH

Example of command

```
>SWTCH  2
```

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

21

ATTENTION

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

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

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

If you have	Do
other DCH circuit 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 procedure in this document.
no other PMs or hardware types to update during this shift	Go to “Finishing a PM update shift" in this document.

CTM, MTM, or STM Upgrade Procedure

Application

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

PM	Description
CTM	Conference trunk module (CTM)
MTM	Maintenance trunk module (MTM) Remote maintenance trunk module
STM	Service trunk module (STM)

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 CTM, MTM, or STM is in-service.
- Automatic REX testing is suspended in the office.

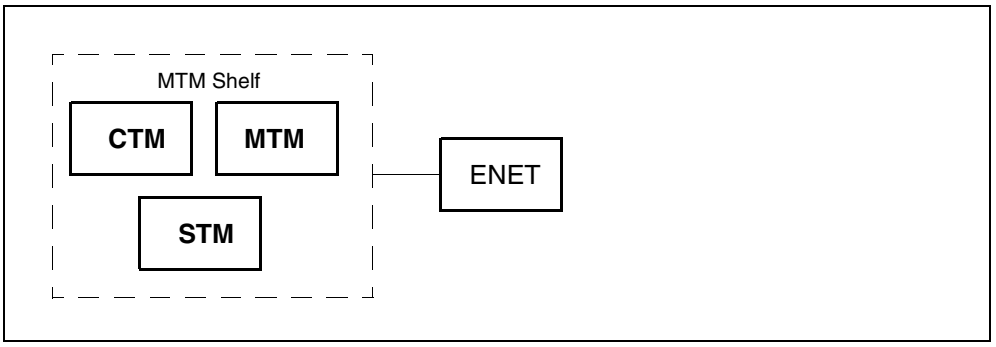
Required information

None

Update sequence

The following figure illustrates a possible node configuration for the CTM, MTM, or STM. Serving PMs must be updated after the CTM, MTM, or STM.

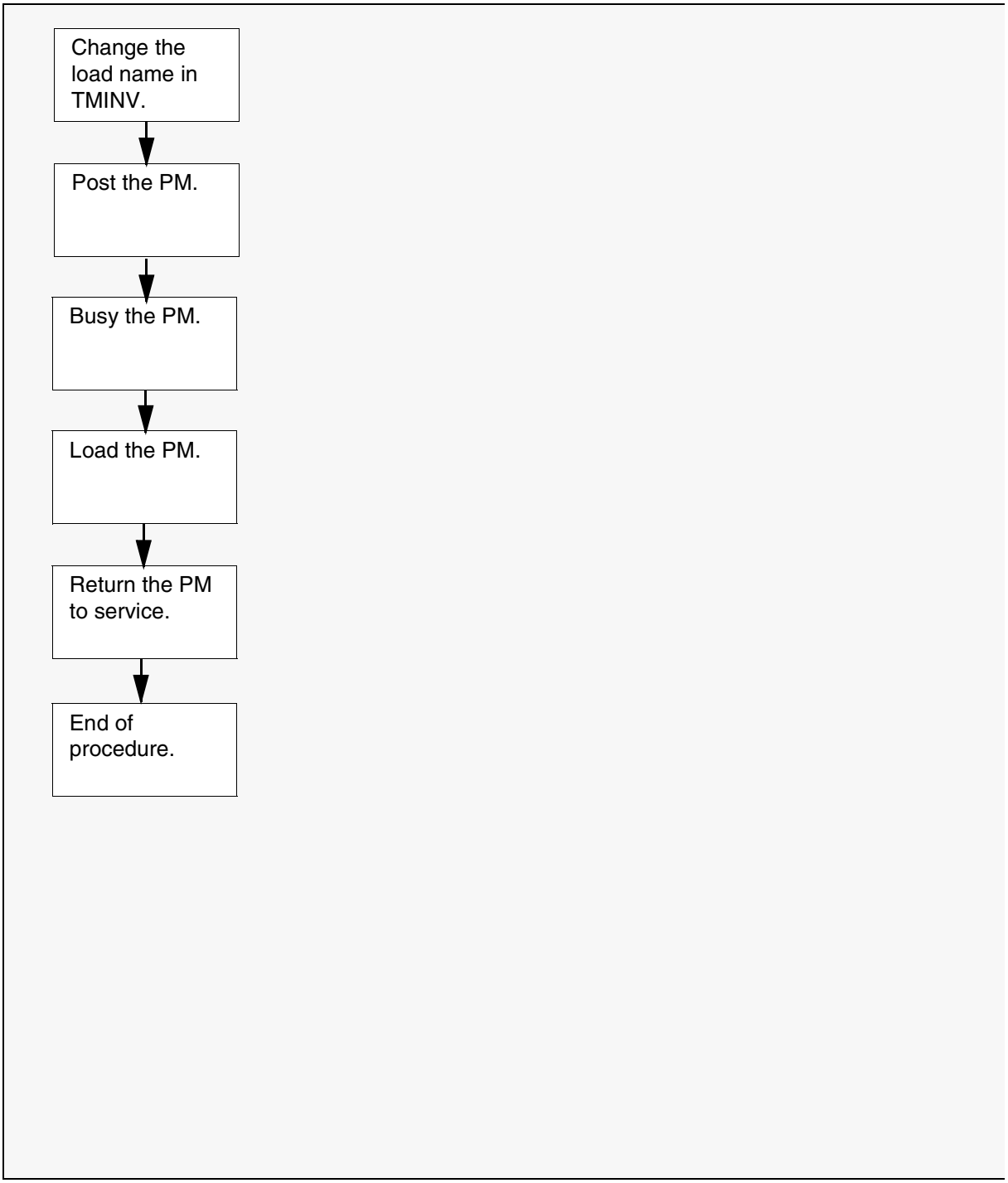
Node configuration for CTM, MTM, or STM



Notes

None

Summary of procedure



Steps of procedure

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

ATTENTION
Follow office policy is 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 CTM, MTM, or STM to update.

2 Confirm that 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 PM to be updated by typing

>POS pm_type pm_no

and pressing the Enter key.

where

pm_type is CTM, MTM, or STM

pm_no is the number of the PM

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 will change state 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 PM by typing

>POST pm_type pm_no

and pressing the Enter key.

where

pm_type is CTM, MTM, or STM

pm_no is the number of the PM being updated

Note: The PM will be 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 that the PM inventory table was correctly updated and the correct PM is posted.

10 Busy the PM by typing

>BSY

and pressing the Enter key.

11 Load the PM by typing

>LOADPM

and pressing the Enter key.

12 Return the PM to service by typing

>RTS

and pressing the Enter key.

13 You have successfully updated the CTM, MTM, or STM and have completed this procedure. Review the update schedule.

If there are	Do
additional CTMs, MTMs, or STMs 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.

STM Upgrade Procedure

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 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.

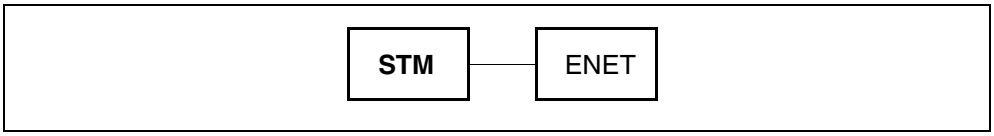
Required information

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.

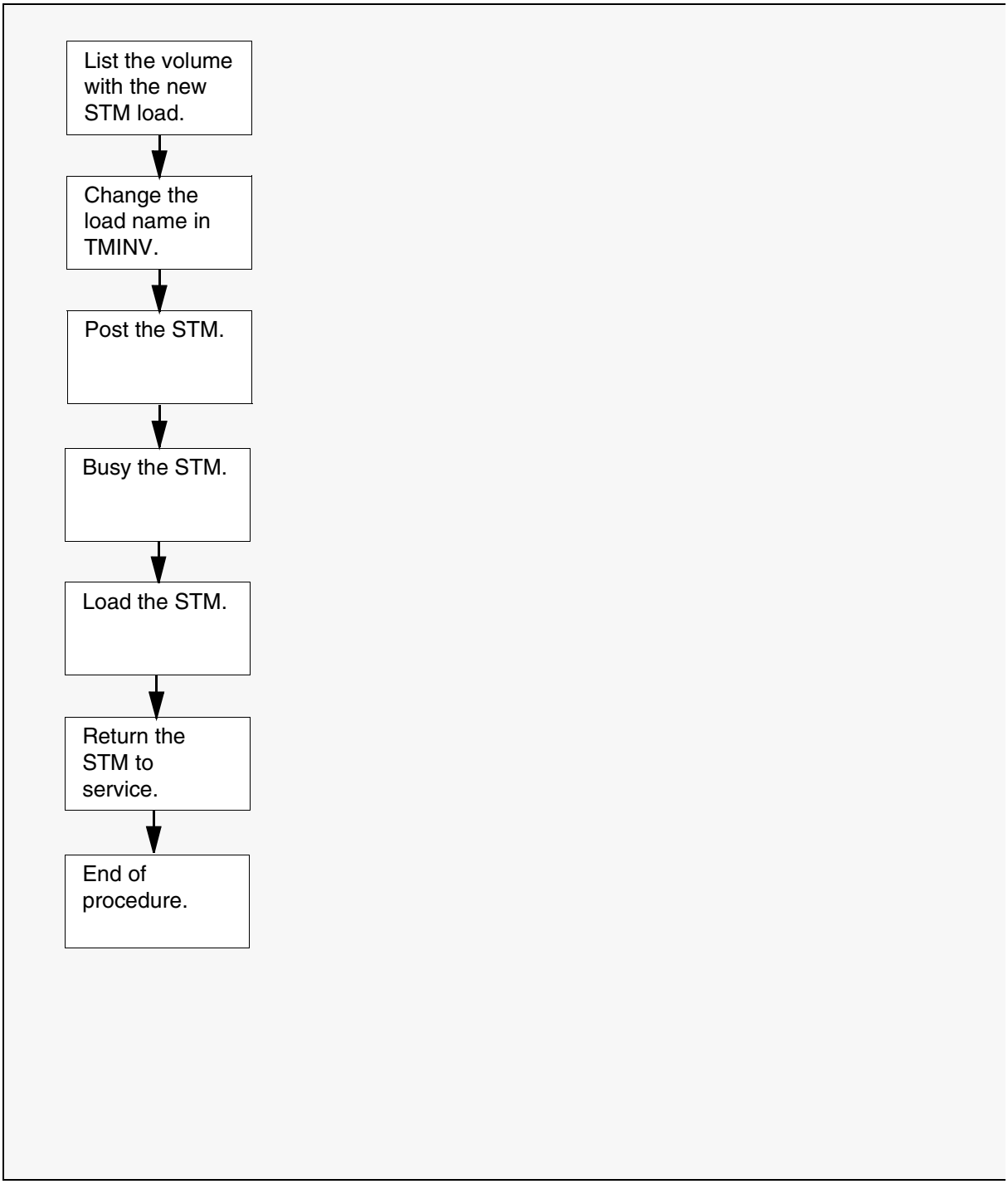
Node configuration for STM



Notes

None

Summary of procedure



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.

Steps of procedure

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.

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

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 other PMs or hardware types to update during this shift	Go to “Finishing a PM update shift" in this document.

MTM, ISM, TM, T8A, RMM, TAN, CTM or DTM Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in the MTM, ISM, TM, T8A, RMM, TAN, CTM or DTM peripherals.

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The peripheral to be upgraded is in-service.
- Automatic REX testing is suspended in the office.

Notes

There are no special notes for this procedure.

Steps of Procedure

At the CI level of the MAP display

1 Add the ISN07 loadnames in TABLE PMLOADS, specifying the disk volume containing the load:

```
>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file>
<backup_volume> n

>QUIT
```

2 Change the MTM, ISM, TM, T8A, TAN, CTM and DTM loadnames in TABLE TMINV or RMMINV respectively.

```
>TABLE TMINV
```

position on the selected PM

Note: The command for RMM is >TABLE RMMINV.

>POS <pm_name> <pm_number>

>CHANGE LOAD <new_loadname>

>QUIT

3 POST, BSY, Reload and RTS each MTM, ISM, TM, T8A, RMM, TAN, CTM and DTM

Note: Before re-loading a DTM, list the volume containing the voice files. Back up the DTM (EDRAM) voice files to prevent them being lost if they have been recorded direct to the EDRAM.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY

>LOADPM

>RTS

4 **Allow a 3 minute soak-period before proceeding with next peripheral.** Ensure the logs indicate no peripheral or call processing problems. The peripheral should be in INSV state.

5 Check for faults and confirm that the peripheral now has the correct load:

>QUERYPM

6 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

MPC Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in the Multi-Protocol Controller (MPC) cards.

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- All MPC logs are enabled.
- The MPC to be upgraded is in-service.
- Automatic REX testing is suspended in the office.

Notes

There are no special notes for this procedure.

Steps of Procedure

At the CI level of the MAP display

1 Insert the cartridge provided containing the firmware required for the MPC and copy the software module onto disk as follows:

>DISKUT; IT <slm_tape>

>LF <slm_tape>

>RESTORE FILE <disk_volume> <tape_device> <file_name>

2 Put correct loadname in TABLE PMLOADS.

>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file> <backup_volume> n

>QUIT

3 Ensure TABLE MPC is correctly datafilled using <new_ loadname> for the DLDFIL field.

>TABLE MPC

>CHA DLDFILE <new_ loadname>

Example

>CHA DLDFILE MPC403AC

4 POST the MPC

>MAPCI; MTC; IOD; IOC <ioc_number>; MPC <mpc_number>

5 Ensure all links on MPC card are MANB or OFFL. If not, BSY them.

>BSY LINK <link_number> FORCE

When all links are MANB or OFFL

>BSY

>DOWNLD <file_name>

>RTS LINK <link_number>

The crafts person has the OPTION to do an explicit DOWNLD once the card is MBSY, but it will occur upon BSY, OFFL, BSY, RTS otherwise.

6 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

TM8 Upgrade Procedure

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 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.

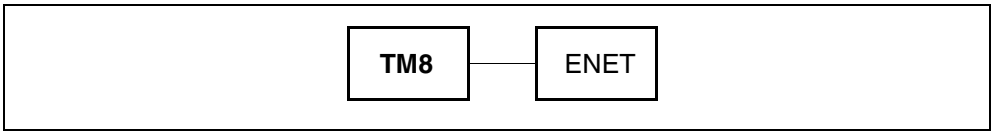
Required information

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.

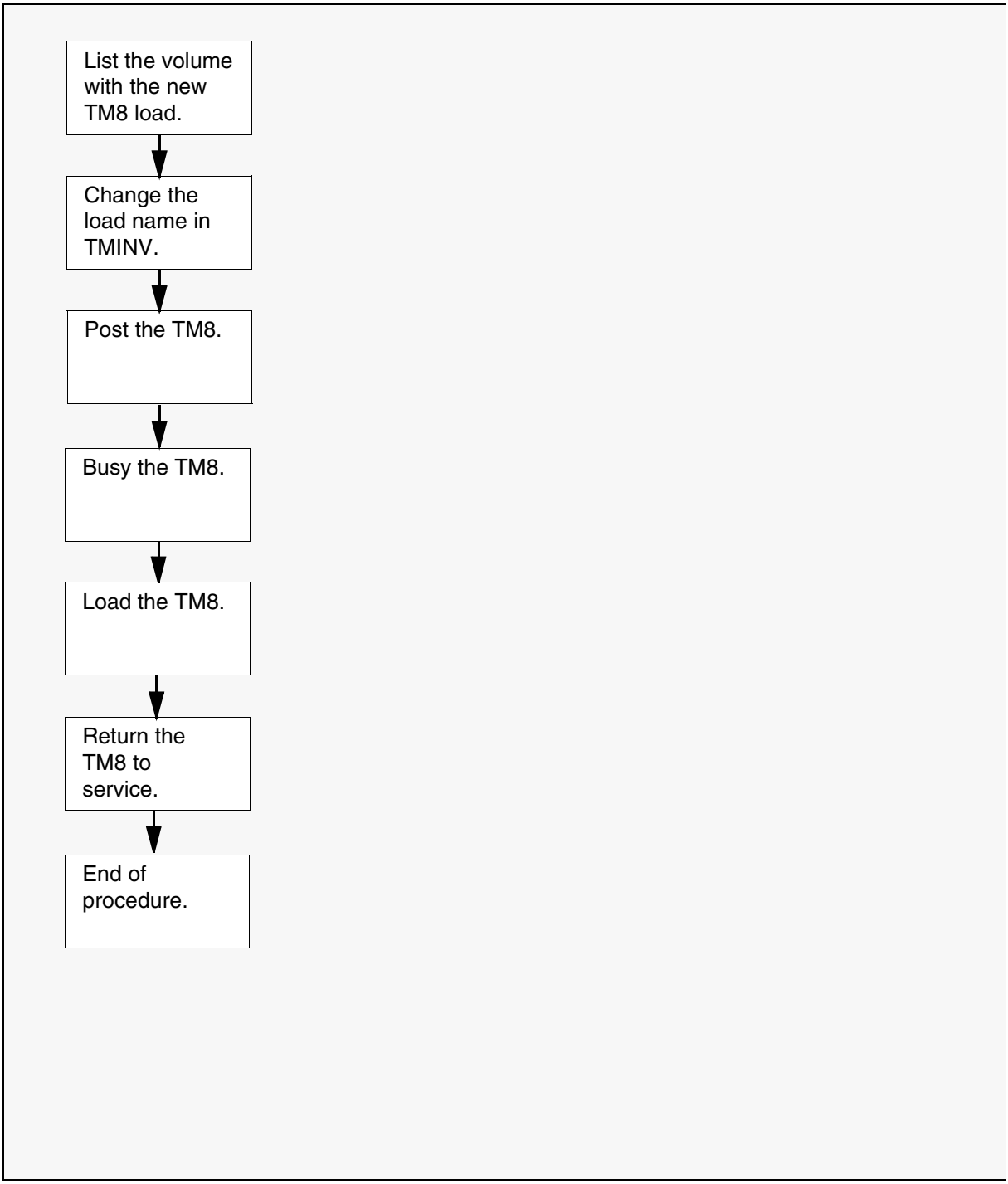
Node configuration for TM8



Notes

None

Summary of procedure



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.

Steps of procedure

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 other PMs or hardware types to update during this shift	Go to “Finishing a PM update shift" in this document.

TMS Upgrade Procedure

Application

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

Use this procedure to update the Traffic Operator Position System (TOPS) message switch (TMS).

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 names of all new loads for the PM are datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The PM is in-service (INSV).
- The PM passed its last REX test within the last two weeks.
- All REX tests are suspended in the office.
- Post-release software manager (PRSM) automated processes will not run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. You need this information to complete this procedure.

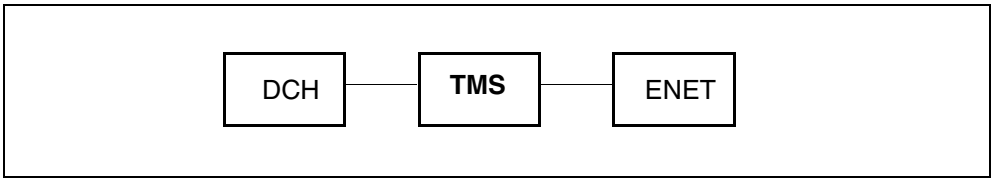
- Do you need to update the XPM processor firmware?
- Is the first unit you update the first unit in the office to use the new load?
- Do you have to apply any post-release software units (PRSU) manually to the new load?
- Is the new PM load a pre-patched XPM load (PPXL)?

For help, 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 TMS. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

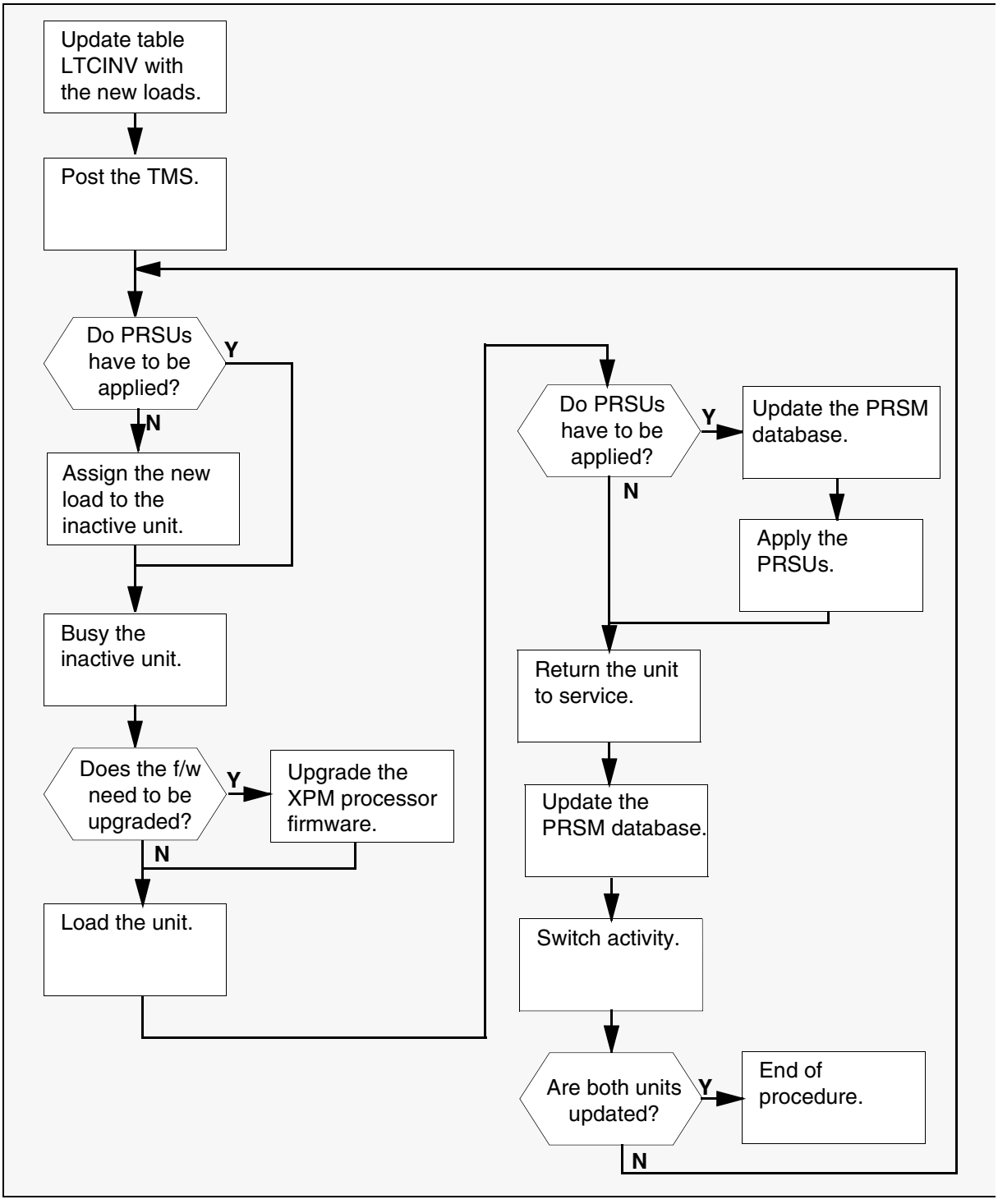
Node configuration for TMS



Notes

None.

Summary 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.

ATTENTION

If this PM has a peripheral/remote loader (PRL) circuit card, use this procedure to update the first PM in the office that uses the new load. Use the procedure "Using a PRL card (NT7X05) to update an XPM" in this document to update remaining PMs.

Steps of procedure

At the CI level of the MAP display

1 Select a TMS to update

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

3 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE LTCINV

and press the Enter key.

If	To view the tuples in a	Do
	packed format	step 3b.
	normal 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. Position on the datafill tuple for the TMS. Type

>POS TMS tms_no

and press the Enter key.

where

tms_no is the number of the TMS

Example of command

```
>POS TMS 0
```

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched XPM 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. 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 EUT13BB
```

e. Confirm the change. Type

>Y

and press the Enter key.

Note: When you change the load name in the inventory table, you create a load mismatch between the inventory table and the PM. The load mismatch will cause the PM to go in-service trouble (ISTb). Continue this procedure.

If you	Do
need to update the XPM processor firmware in the TMS	step 4
do not need to update the XPM processor firmware in the TMS	step 5

Note: Review the update schedules and checklists to determine if you must update the XPM processor firmware. The procedure “Preparing for a PM update" or “Preparing for a PM update using PMUPGRADE" determines the need for an update of XPM processor firmware.

4 Change the name of the XPM processor firmware load in the inventory table.

a. Change the name of the XPM processor firmware load to the new firmware load name. Type

>CHA E2LOAD fw_load

and press the Enter key.

where

fw_load is the name of the new XPM processor firmware load

Example of command

```
>CHA E2LOAD UPFWNR04
```

b. Confirm the change. Type

>Y

and press the Enter key.

5 Close the table. Type

>QUIT

and press the Enter key.

6 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

7 Post the TMS. Type

>POST TMS tms_no

and press the Enter key.

where

tms_no is the number of the TMS

Example of command

```
>POST TMS 0
```

Note: The PM will be ISTb. If necessary, wait for the PM to change to ISTb before you continue this procedure. If the PM does not change to ISTb, confirm that you updated the PM inventory table correctly and posted the correct PM.

8 Identify the inactive unit. You will update this unit.

9 Review the update schedules for the office. 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 12
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.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b.

ATTENTION

After you perform 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 for the previous load to the new PM load.

Assign the new load to the inactive unit. Type

>ASSIGN UPGRADE_LD new_load IN DESTSET TMS tms_no unit_no

and press the Enter key.

where

new_load is the name of the new load

tms_no is the number of the TMS

unit_no is the number of the inactive unit

Example of commands

```
>ASSIGN UPGRADE_LD EUT13BB IN DESTSET TMS 0 1
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

11 Determine which software release the office is currently at.

If	Do
the office is at ABSM009 or lower	steps 12 through 14
the office is at ABSM010 or higher	steps 15 through 18

12 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	step 13
do not need to update the XPM processor firmware in the inactive unit	step 14

13 Load the XPM processor firmware in the inactive unit. Type

>LOADPM INACTIVE CC FIRMWARE

and press the Enter key.

14

> **CAUTION**
> **Possible service interruption**
> Do not use the LOADPM CC command with the file name parameter when you update a PM with a PPXL. Obsolete PRSUs may be loaded, and PRSUs not included in the PPXL will not be loaded.

Load the inactive unit. Type

>LOADPM INACTIVE

and press the Enter key.

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 21

ATTENTION

Perform steps 15, 16 and 17 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 15, 16 and 17. Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

15 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 Initialize 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 15
not the first unit in the office to use the new load	step 21

19 Review the PM update checklist for the office. Determine if you must apply PRSUs manually to the new load.

If you	Do
need to apply PRSUs manually to the new load	step 20
do not need to apply PRSUs manually to the new load	step 21

20

CAUTION
Possible service interruption
Apply PRSUs immediately after you load the PM. Failure to do so can increase administrative time and interrupt service.

Apply the PRSUs.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database with the new load name. Type

>DBAUDIT TMS tms_no unit_no

and press the Enter key.

where

tms_no is the number of the TMS

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT TMS 0 1
```

c. Apply any PRSUs that need to be manually applied. Type

>APPLY 'prsu_id IN TMS tms_no unit_no

and press the Enter key.

where

prsu_id is the name of the PRSU (repeat variable as required)

tms_no is the number of the TMS

unit_no is the number of the inactive unit

Example of single-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 IN TMS 0 1
```

Example of double-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +
>'XD02908 | XJL87X08 | XAH13X08 IN TMS 0 1
```

Note: You do not need to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility. Type

>QUIT

and press the Enter key.

21 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

22 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

23 Confirm the inactive unit has the correct patches.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database to reflect the current PRSU list for the TMS. Type

>DBAUDIT TMS tms_no unit_no

and press the Enter key.

where

tms_no is the number of the TMS

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT TMS 0 1
```

c. Display the PRSU list for the inactive unit. Type

>REPORT DEST TMS tms_no unit_no

and press the Enter key.

where

tms_no is the number of the TMS

unit_no is the number of the inactive unit

Example of command

```
>REPORT DEST TMS 0 1
```

d. Confirm that 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.

If	Do
PRSUs from the previous load are listed at VA status	A DBAUDIT was not performed. Return to step 23b. If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 24. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

24 Exit the utility. Type

>QUIT

and press the Enter key.

25 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the switch can not perform a warm switch of activity (SWACT), do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

26 Confirm the switch of activity. Type

>Y

27 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

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 ISTb due to the load mismatch between the unit and the PM inventory table. The node will remain ISTb until you update both units with the new load.	

28 You have updated the TMS and completed this procedure. Review the update schedule for the office.

If you have	Do
other TMSs to update during this shift	Follow the guidelines in “Overview of manual update process" in this document. You can repeat this procedure, use broadcast mate loading, or use parallel loading on the remaining TMSs.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no other PMs or hardware types to update during this shift	Go to the procedure “Finishing a PM update shift" in this document.

CMR Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in the Class Modem Resource (CMR) cards if the CMR is being upgraded SEPARATELY from its host XPM.

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been data filled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The host peripheral is in-service.
- The host peripheral has successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Notes

There are no special notes for this procedure.

Steps of Procedure

At the CI level of the MAP display

1 Add then new CMR loadname in TABLE PMLOADS, specifying the disk volume containing the load:

```
>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file>
<backup_volume> n

>QUIT
```

2 Change the CMR loadnames in TABLE LTCINV for each peripheral with cards.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

```
>TABLE LTCINV
```

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE OPTCARD

change by stepping through the options using the Return key until

>CMRLOAD:

><new_ loadname>

Continue stepping through the options using the Return key until no further options are offered. Then enter the command:

>$

3 POST, BSY, Reload and RTS each CMR card.

Start with the inactive side.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY UNIT <unit number> cmr

>LOADPM UNIT <unit number> CC CMR

>RTS UNIT <unit number> cmr

Perform a warm swact on the peripheral.

Now repeat procedure for the new inactive side.

4 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

CMR card (NT6X78) Upgrade Procedure

Application

Use this procedure to update the CLASS modem resource (CMR) card (NT6X78) 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 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 data filled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The serving PM is in service.
- The serving PM successfully passed its last routine exercise (REX) test within the last two weeks.
- All automatic REX tests are suspended in the office.

Required information

None

Update sequence

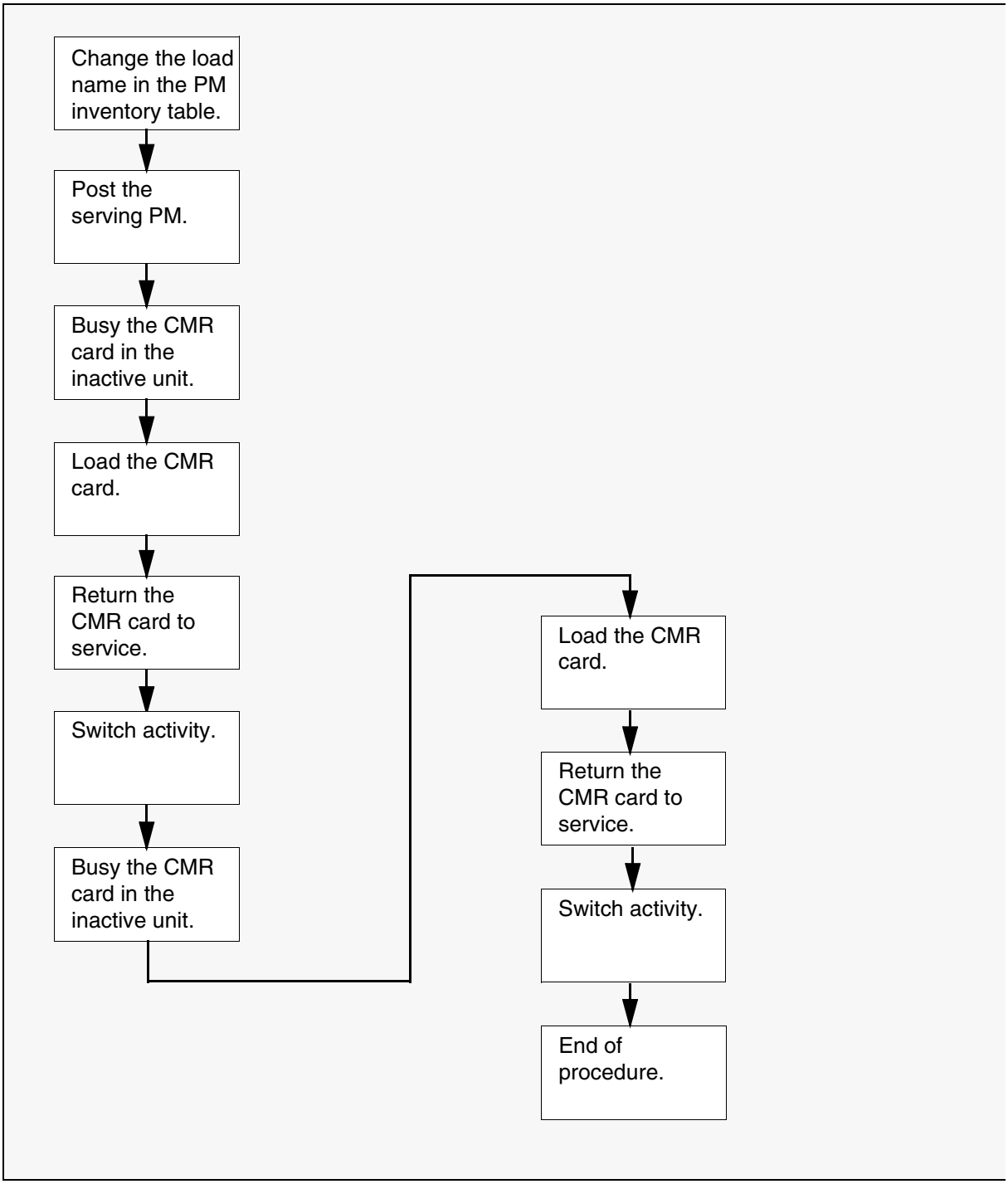
Not applicable

Notes

You do not have to update the CMR circuit card when you update the serving PM. The CMR circuit card will automatically be updated when the serving PM is updated if both of the following conditions are true:

- The card is correctly data filled in table PMLOADS
- The card is correctly data filled in the correct PM inventory table

Summary of procedure



Steps of procedure

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

ATTENTION
Follow office policy is 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 card to update.

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

3 Update the PM inventory table.

a. Open the inventory table of the CMR's serving PM. Type

>TABLE pm_inv

and press the Enter key.

where

pm_inv is the name of the inventory table of the serving PM

b. Position on the datafill tuple for the PM with the CMR card. Type

>POS site_name pm_type pm_no

and press 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

c. Enter the OPTCARD field. Type

>CHA OPTCARD

and press the Enter key.

d. Press the Enter key to scroll through the fields until the MAP display prompts you for the CMR load name.

e. Enter the CMR load name. Type

>cmr_load

and press the Enter key.

where

cmr_load is the name of the new CMR load

f. Press the Enter key to scroll through the fields until the MAP display shows the blank OPTCARD prompt.

g. Exit the OPTCARD field. Type

>$

and press the Enter key.

h. Confirm the change. Type

>Y

and press the Enter key.

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

4 Exit the table. Type

>QUIT

and press the Enter key.

5 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

6 Post the PM that contains the CMR card. 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

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

7 Busy the CMR card in the inactive unit. Type

>BSY UNIT unit_no CMR

and press the Enter key.

where

unit_no is the number of the inactive unit

8 Load the CMR card. Type

>LOADPM UNIT unit_no CC CMR

and press the Enter key.

where

unit_no is the number of the inactive unit

9 Return the CMR card to service. Type

>RTS UNIT unit_no CMR

and press the Enter key.

where

unit_no is the number of the inactive unit

10 Wait for the unit to go in service (InSv). The unit achieves superframe sync and data sync when it goes InSv. The unit can take two to three minutes to go InSv.

11 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: This switch of activity (SWACT) may cause a major alarm in the serving PM. If you receive this alarm, silence the alarm.

Note: If the switch can not perform a warm SWACT, do not continue 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.

12 Confirm the switch of activity. Type

>Y

and press the Enter key.

13 Repeat steps 7 to 12.

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

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

ESA Uprade Procedure

Application

Use this procedure to update the emergency stand-alone (ESA).

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 name of the new ESA load is datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All ESA and peripheral module (PM) logs are enabled.
- The ESA and its serving PM are in-service.
- The serving PM passed its last routine exercise (REX) test within the last two weeks.
- All automatic REX tests are suspended in the office.
- No post-release software manager (PRSM) automated processes, such as DBAUDIT and AUTOAPP, are scheduled to run during the PM update shift.

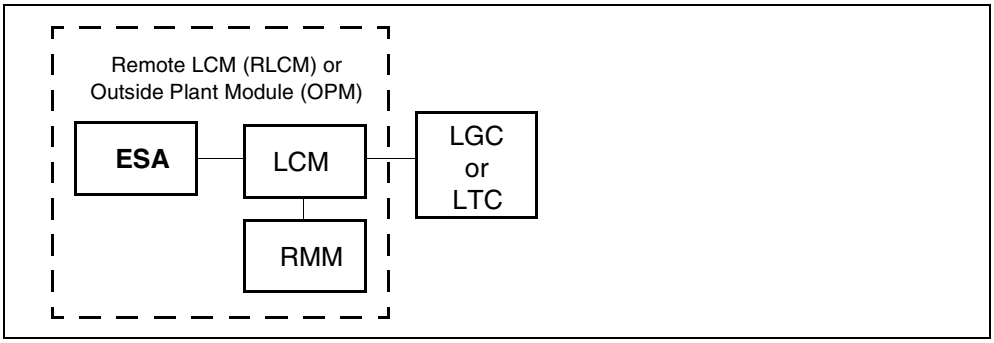
Required information

None

Update sequence

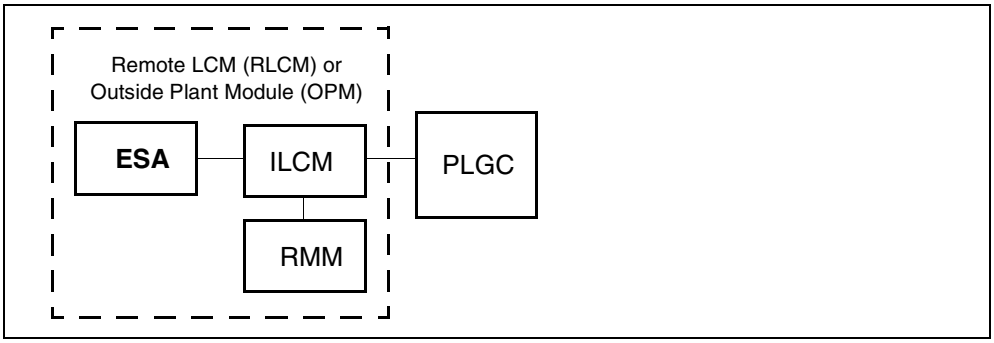
The following figure illustrates a possible node configuration for the ESA when it resides in the line concentrating module (LCM). Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

Node configuration for ESA



The following figure illustrates a possible node configuration for the ESA when it resides in the international LCM (ILCM). Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

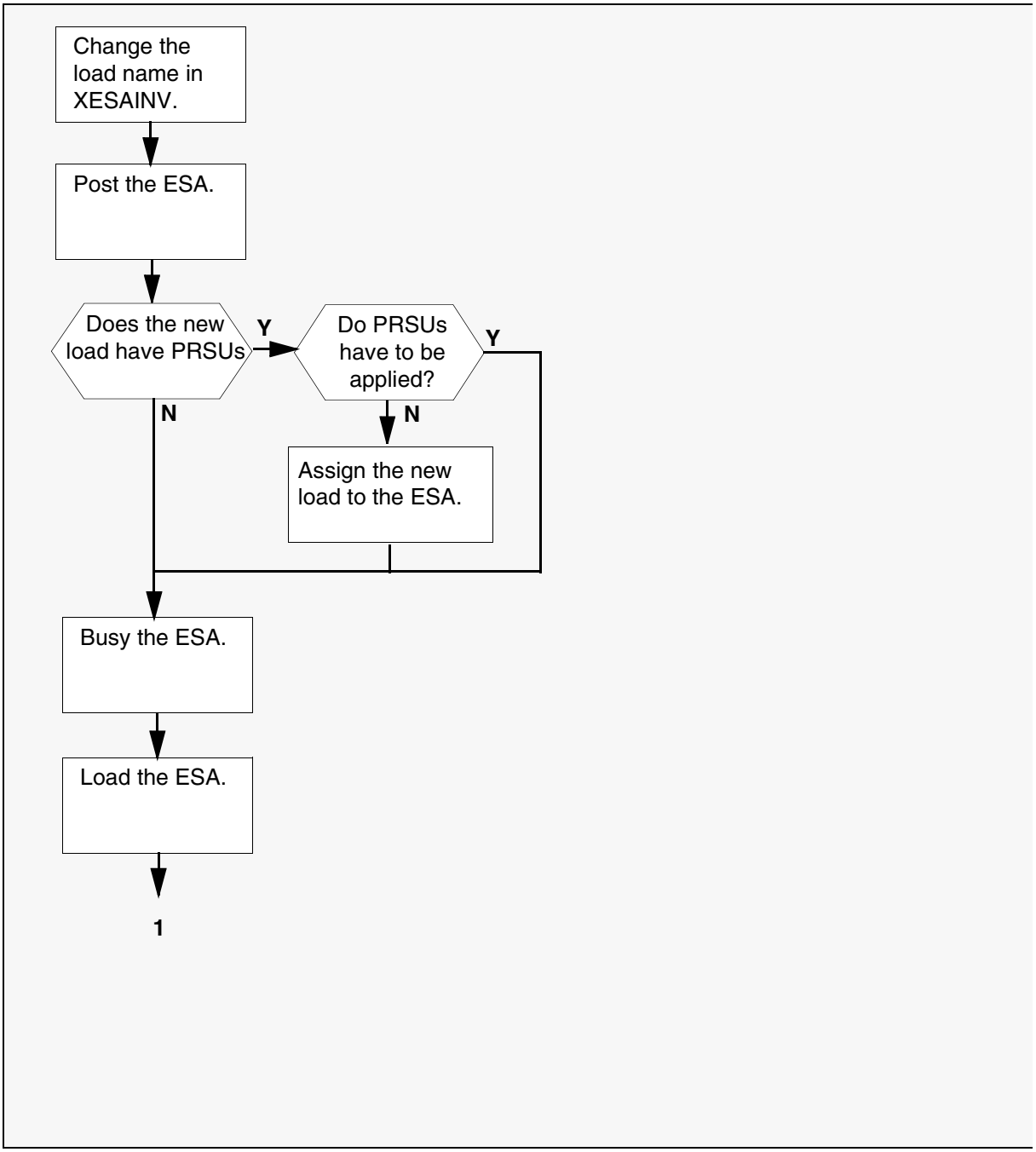
Node configuration for ESA in ILCM



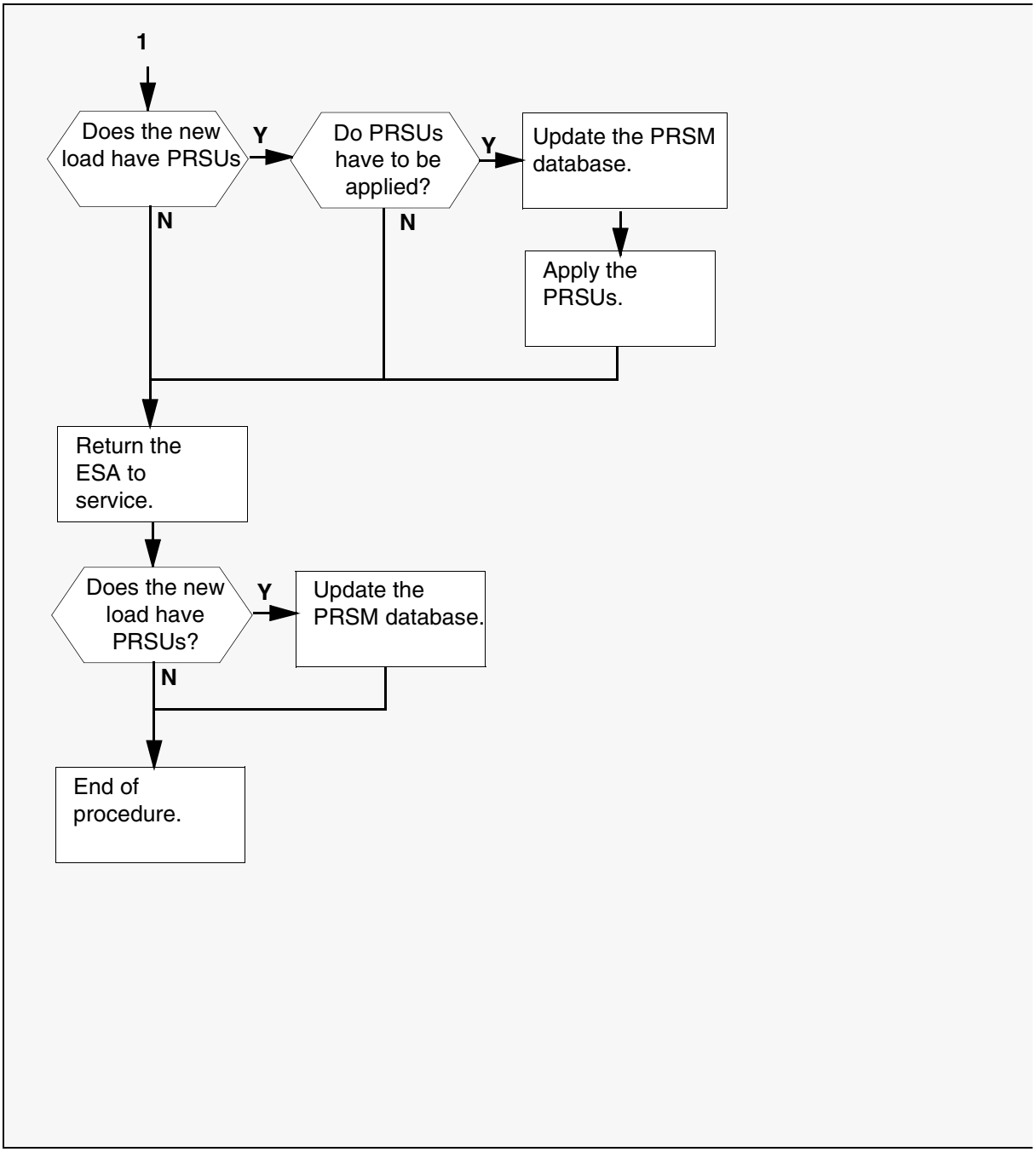
Notes

None

Summary of procedure



Summary of procedure (continued)



Steps of procedure

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

ATTENTION
Follow office policy is 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
Select an ESA to update.

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

2 Update the ESA inventory table.

a. Open the ESA inventory table. Type

>TABLE XESAINV

and press the Enter key.

b. Position on the datafill tuple for the ESA. Type

>POS site_name ESA esa_no

and press the Enter key.

where

site_name is the name of the site

esa_no is the number of the ESA

Example of command

```
>POS REM1 ESA 1
```

c. Change the load name 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 PES10AQ
```

d. Confirm the change. Type

>Y

and press the Enter key.

e. Close the table. Type

>QUIT

and press the Enter key.

3 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

a. Post the ESA. Type

>POST ESA esa_no

and press the Enter key.

where

esa_no is the number of the ESA

Example of command

```
>POST ESA 1
```

Note: The PM will be ISTb due to the load mismatch with its inventory table. If necessary, wait for the PM to change to ISTb before you

continue this procedure. If the PM does not change to ISTb, confirm that you updated PM inventory table correctly and posted the correct PM.

If the new load	Do
has PRSUs	step 6
does not have PRSUs	step 7

4 Review the update schedules for the office. Determine if this ESA is the first ESA to use the new load.

If this ESA 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

5 Use PRSM to assign the new load to the PM.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

ATTENTION

After you perform 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.

6 Assign the new load to the PM. Type

>ASSIGN UPGRADE_LD new_load IN DESTSET ESA esa_no

and press the Enter key.

where

new_load is the name of the new load

esa_no is the number of the ESA

Example of command

```
>ASSIGN UPGRADE_LD ESA08BC IN DESTSET ESA 0
```

a. Exit the utility. Type

>QUIT

and press the Enter key.

7 Busy the PM. Type

>BSY

and press the Enter key.

8 Load the PM. Type

>LOADPM

and press the Enter key.

If the new load	Do
has PRSUs	step 10
does not have PRSUs	step 12

9 Review the PM update checklist. Determine if this ESA is the first ESA to use the new load.

If this ESA is	Do
the first ESA in the office to use the new load	step 12
not the first ESA in the office to use the new load	step 13

10 Apply the PRSUs.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database with the name of the new load. Type

>DBAUDIT ESA esa_no

and press the Enter key.

where

esa_no is the number of the ESA

Example of command

```
>DBAUDIT  ESA  0
```

c. Apply any PRSUs that need to be manually applied. Type

>APPLY 'prsu_name IN ESA esa_no

and press 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 'XAJ13X08 | XRP29X08 | XBA45X08 IN PM ESA 0
```

Example of double-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +
>'XD02908 | XJL87X08 | XAH13X08 IN ESA 0
```

Note: You do not need to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs if they are applied as a set.

11 Exit the utility. Type

>QUIT

and press the Enter key.

12 Return the PM to service. Type

>RTS

and press the Enter key.

If the new load	Do
has PRSUs	step 13
does not have PRSUs	step 15

13 Use PRSM to confirm the ESA is properly patched.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database according to the PM's current PRSU list. Type

>DBAUDIT ESA esa_no

and press the Enter key.

where

esa_no is the number of the ESA

Example of command

```
>DBAUDIT  ESA  0
```

c. Display the list of PRSUs for the ESA. Type

>REPORT DEST ESA esa_no

and press the Enter key.

where

esa_no is the number of the ESA

Example of command

```
>REPORT DEST ESA 0
```

d. Confirm all PRSUs for the new load are applied to this ESA.

If	Do
all PRSUs for the new load are applied to the ESA	step 15
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 was not performed. Return to step 13.b. If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 14. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

14 Quit the utility. Type

>QUIT

and press the Enter key.

15 You have updated the ESA and completed this procedure. Review the update schedule.

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

Series-II Peripherals - XPMs

You should have studied “Notes” on page 54 and section Series I peripherals and other hardware types on page 112 before proceeding.

Observe the following notes before proceeding

- Using the command “LOADPM INACTIVE” will cause the unit to MATE LOAD even if it is appended with the “CC” sub-command. Ensure that either UNIT 0 or UNIT 1, of a particular type of PM, is ACTIVE on all PMs. This can be done with a Warm SwAct.
- When upgrading XPM loads in a dual RCC, ensure that the new loads are in both the ACTIVE and INACTIVE UNIT of the RCC. In addition, ensure that both RCCs in a dual configuration have been upgraded with the new load. Failure to do so could affect call processing over the IRLINKS.

Reverting to the original load

If problems occur after SWACTing to the unit with the new load, SwAct back to the old load in the other unit. Repeat the upgrade procedure with the old load for the PMs in which the problems occur. This should be done to each peripheral in reverse order to the original application.

Procedures for MX77 Downloadable Firmware

Load new firmware with the new peripheral load

ATTENTION

If a new MX77 firmware load is needed then the new firmware should be upgraded in the same operation as the peripheral load. It can also be upgraded as a separate operation.

Determining the current firmware version

To determine the version of firmware loads that currently reside in your XPM+ peripheral, go to the PM level within MAPCI, and POST the XPM+ peripheral you wish to review, and enter the following command:

```
>QUERYPM CNTRS
```

To determine if your current firmware version is greater than the listed baseline, look at the last four characters in the current name. If any sequential character is greater than those characters listed in the baseline version then your current version is acceptable. If they are less than the current baseline then you are requested to upgrade to the firmware version that is on the load tape received with this document. For example, MX77NB05 is greater than MX77NB03 (5 is greater than 3). However, MX77NB03 is less than MX77NG03 (B is less than G).

Restrictions and Limitations

- The unit **must** be equipped with NTMX77AA card and support new messaging (NT6X69). It **must** also contain a valid load in order to RTS the unit.
- Confirm whether the NTMX77AA firmware will change by verifying the recommended load and comparing this with firmware present in XPM by using the QUERYPM CNTRS command.
- The qualifiers UNIT/PM/INACTIVE options of the device parameter have the same meaning for firmware (EEPROM) loading as it does for regular PM loading.
- If the peripheral processor is other than MX77 then the E2LOAD field in the inventory table is automatically loaded with NILLOAD.

Loading MX77 Firmware
Steps of Procedure

At the CI level of the MAP display

1 Update TABLE PMLOADS with new firmware load.

>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file> <backup_volume> n

>QUIT

2 Update appropriate peripheral's inventory table.

>TABLE <inventory_table>

where

<inventory_table> is LTCINV or RCCINV.

>POS <pm_type> <pm_number>

>CHA E2LOAD <firmware_load>

where

<firmware_load> is the new firmware loadname.

>QUIT

3 Enter the PM level of the MAP and load the new firmware

ATTENTION

To ensure the firmware load updates properly, do not enter the PMRESET or LOADPM command whilst performing the firmware update commands. If the user enters the PMRESET command, the LOADFW INACTIVE upgrade command passes the step but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between the firmware upgrade commands.

Repeat the firmware downgrade and upgrade process if the firmware does not update to the latest firmware load.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>LOADFW UNIT <unit_ number>

>BSY UNIT <unit_number>

>LOADFW UNIT <unit_number> UPGRADE

>RTS UNIT <unit_number>

4 Use Warm SwAct to switch between the units, and repeat the above procedure to load the other unit.

Broadcast loading

Observe the following recommendations when using Broadcast Loading

5 Enter the PM level of the MAP and load the new firmware.

Note: It is common practice for experienced operating company personnel to make the same unit ACTIVE on all XPMs to be upgraded. The INACTIVE

UNIT is always upgraded but it is specified by the UNIT <INACTIVE UNIT #>.

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1> <pm_no_2> ... <pm_no_10>

>LOADFW UNIT <unit_number> ALL

>BSY UNIT <unit_number> ALL

>LOADFW UNIT <unit_number> UPGRADE ALL

>RTS UNIT <unit_number> ALL

6 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

Command for Querying Firmware

>QUERYPM CNTRS

For example

>QUERYPM CNTRS

Unsolicited MSG limit = 250, UNIT 0 = 0, UNIT 1 = 0
UNIT 0:
Ram Load: ODTO6BI

EPRom version:AC01
EEPRom Load: Executable: MX77NB03, Loadable: MX77NB03
UP: MX77AA

UNIT 1:
Ram Load: ODTO6BI

EPRom version:AC01
EEPRom Load: Executable: MX77NB03, Loadable: MX77NB03
UP: MX77AA

Rom Version Mismatch

The correct operating configuration is to equip the EEPROMs on both NTMX77AA cards, with the same firmware load. The software initialisation code checks to ensure that the correct configuration is maintained. In the event a mismatch is found then a log is generated indicating the mismatch.

Updating a PM load with a PPXL (Pre-applied PRSU XPM Load)

This procedure is not in general use as of the writing of this document, but is included for the users benefit if a PPXL arrives on site.

Prerequisites

CM PATCH / PRSU requirements for PPXLs

- EUR006 CM load has no PATCH / PRSU requirements
- EUR008 CM load has no PRSU requirements

Procedure

The procedure for upgrading a PM using a PPXL is the same as the standard upgrade procedures as outlined later in this section with the following exceptions:

TABLE PMLOADS datafill

The PPXL filename should be datafilled in the ACTFILE field in TABLE PMLOADS and the base load should be datafilled in the BKPFILE as shown in the example below.

Only the base loadname needs to be datafilled in the associated PM inventory table. PM loader software will use the base loadname in the inventory table to index field ACTFILE in TABLE PMLOADS to get the full PPXL file name

Example of PMLOADS datafill

LOADNAME ACTFILE BKPFILE	ACTVOL BFPVOL	UPDACT
ODTO6BI		
ODTO6BI_960215	S00DPMLOADS	
ODTO6BI	S01DPMLOADS	N

PATCH Application

See “XPM PRSU Application Procedure using a PPXL” on page 70.

See “ASSIGN the new PRSUs to the target” on page 64.

See “Example using a PPXL for a PDTC” on page 71.

Obsolete PRSUs

Perform the following procedure if one of the PPXL PRSUs becomes obsolete.

Steps of Procedure

At the CI level of the MAP display

1 Remove the defective PRSU from all XPM units.

2 Change the ACTFILE field for the base load from the PPXL filename to the base load filename.

3 Erase the defective PRSU file and the PPXL file from all disk volumes.

4 If an XPM needs to be recovered after performing this procedure, it will automatically reload using the base load and apply PRSUs according to those defined for the loadset. The loadset will no longer have the defective PRSU because it has been removed from the loadset.

5 You have completed this procedure.

IOM Upgrade Procedure

Application

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

Use this procedure to upgrade the input output module (IOM).

> ***Note:*** The IOM card is a replacement for the IOC (input output controller). The MAP dialogue refers to the IDM as an "IOC", except for the IOC-level display which shows: IOC (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 IOD logs are enabled.
- The IOM is in service (InSv).
- All REX tests are suspended in the office.
- Determine if the IOM needs to be reloaded or the IOM board needs to be reprogrammed with a new IOM load.
- Call Nortel Networks for the password to gain TOOLSUP access to the UPGIOM command if the IOM board needs to be reprogrammed with a new load.

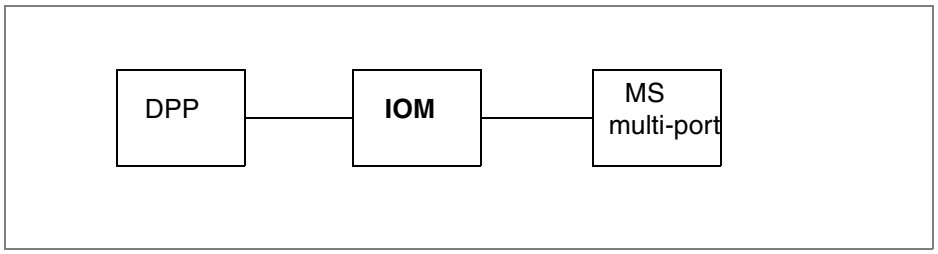
Required information

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

Steps of procedure

ATTENTION

Follow office policy is 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 IOM to update.

2 Review and confirm the completion of all prerequisites for this procedure.

3 Update the IOC inventory table. Perform the following steps.

a. Open the IOC inventory table. Type

>TABLE IOC

and press 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 press the Enter key.

c. Position on the datafill tuple for the IOM. Type

>POS ioc_no

and press the Enter key.

where

ioc_no is the number of the IOM being upgraded

Example of command

>POS 0

d. Determine the value entered in field PECINFO from the IOC inventory table print-out.

If the value in PECINFO is	Do
1X61 (IOC)	step 16
FX30 (IOM)	step 3e.

e. Position on field PECINFO. Type

>CHA PECINFO

and press the Enter key.

f. Press the Enter key to scroll through the fields until the MAP display prompts for the DFILE name.

g. Enter the new load name. Type

>new_load

and press the Enter key.

where

new_load is the name of the new load

Example of command

>IOMRAH01

h. Press the Enter key to scroll through the fields until the MAP display prompts for the device name.

i. Enter the name of the device with the new load file. Type

>dev_name

and press the Enter key.

where

dev_name is the name of the device with the new load file

Example of command

>S00DPMLOADS

j. Confirm the change. Type

>y

and press the Enter key.

Note: The IOM indicates a MisM (mismatch) condition at the IOC level of the MAP display because of the load mismatch with the inventory table. The MAP display updates within a minute of this condition. Continue this procedure.

k. Close the table. Type

>QUIT

and press the Enter key.

4 Access the IOC level of the MAP display. Type

>MAPCI;MTC;IOD;IOC ioc_no

and press the Enter key.

where

ioc_no is the number of the IOM

Example of command

>MAPCI;MTC;IOD;IOC 4

5 Busy the IOM's in-service ports. Type

>PORT port_no; BSY

and press the Enter key.

where

port_no is the number of the IOM's in-service port

6 Repeat step 5 for all in-service ports.

7 Return to the IOC level. Type

>QUIT

and press the Enter key.

8 Busy the IOM. Type

>BSY IOC

and press the Enter key.

9 Determine if you wish to download the new IOM load or to reprogram the IOM board with the new IOM load.

Note: Reprogramming the IOM board requires a password supplied by Nortel Networks to gain TOOLSUP access to the UPGIOM command

If the IOM needs to be	Do
reloaded with the IOM load	step 10
reprogrammed with a new IOM load	step 11

10 Load the IOM. Type

>DOWNLD

and press the Enter key.

a. Go to step 12.

11 Reprogram the IOM board with the new IOM load. Perform the following steps.

WARNING
Possible service degradation
Only trained and qualified operating company personnel should reprogram the IOM board because of access permitted to command(s) that require skilled and knowledgeable users.

Caution
Reprogramming the IOM load file
The UPGIOMcommand downloads the complete IOM load file as specified. The UPGIOM command also provides options for reprogramming the IOM board flash memory.

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.

a. Access the TOOLSUP utility. Type

>TOOLSUP

and press the Enter key.

b. Access the UPGIOM tool. Type

>ACCESS on UPGIOM

and press the Enter key.

Note: The command response prompts for a password to be entered. Call Nortel Networks to obtain the password.

Example of MAP response

>Enter Password:

c. Enter the password. Type

>pswd

and press the Enter key.

where

pswd is the password supplied by Nortel Networks

Example of MAP response

>UPGIOM permitted

>UPGIOM access will expire 48 hours from now.

d. Exit the TOOLSUP utility. Type

>QUIT

and press the Enter key

e. Reprogram the IOM board. Type

>UPGIOM new_load RPGM

and press the Enter key.

where

new_load is the name of the new IOM load

Example of command

>UPGIOM IOMRAU01 RPGM

Example of MAP response

This command will reprogram the IOM on board flash memory. Proceed with caution.

This IOC is using load file: IOMRAU01

Do you want to continue?

Please confirm (“YES”, “Y”, “NO”, or “N”) :

f. Confirm the action. Type

>Y

and press the Enter key.

If reprogramming the IOM	Do
passes	step 12
fails	contact the next level of support

12 Return the IOM to service. Type.

>RTS IOC

and press the Enter key.

13 Query the IOM and confirm it has the correct load. Type

>QIOM

and press the Enter key.

If the IOM	Do
has the correct load	step 14
does not have the correct load	Troubleshoot the problem or contact the next level of support.

14 Return the IOM's busied ports to service. Type

>PORT port_no; RTS

and press the Enter key.

where

port_no is the number of the IOM's busied port

15 Repeat step 14 for all IOM ports busied in step 5.

16 You have 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 update procedure in this document.
no additional PMs or hardware types to update during this shift	Go to the procedure "Finish a PM update shift" in this document.

LCM-type, RLCM, ILCM, NLCM, IRLCM, LCME and SRU Peripherals Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in Line Controller Module (LCM) type peripherals. The following peripherals are LCM-type: RLCM, ILCM, NLCM, IRLCM, LCME, SRU.

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The peripheral/unit to be upgraded is in-service.
- The peripheral/unit to be upgraded has successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Notes

These peripherals have line concentrating ability, with 2 units that loadshare rather than taking an ACTIVE or INACTIVE status.

Steps of Procedure

At the CI level of the MAP display

1 Before loading an RLCM or IRLCM, ensure that the PESA load has been upgraded by following procedure “SDM Upgrade Procedure for Operating System and Firmware” on page 439. This does not apply to the other types of LCM peripherals.

2 List volume containing load

>DISKUT; LF <volume>; QUIT or DSKUT; LIV <volume> ALL; QUIT

3 Add the new loadname in TABLE PMLOADS, specifying the disk volume containing the load

>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file> <backup_volume> n

>QUIT

4 Change one LCM, RLCM, ILCM, NLCM, IRLCM, LCME, SRU, loadname in TABLE LCMINV

>TABLE LCMINV

>POS <site> <frame> <unit>

>CHANGE LOAD <new_loadname>

>QUIT

Note: Once the loadname has been changed in TABLE LCMINV each peripheral unit will be marked ISTB. This indicates that the load in the peripheral does not match the datafill. This condition will remain until each unit of the peripheral is RTSed with the load indicated in the INV table.

Upgrade the First PM (non-broadcast loading)

5 You **must** always upgrade the first PM of any type or loadname to establish the sanity of the load that you have received.

6 POST, BSY, Reload, and RTS one unit of the (LCM, RLCM, ILCM, NLCM, IRLCM, LCME, SRU).

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY UNIT <unit_number>

>LOADPM UNIT <unit_number> CC

>RTS UNIT <unit_number>

The unit should pass out-of-service tests, return to an INSV state and pass in-service tests.

>TST UNIT <unit_number>

7 **Allow a 5 minute soak-period before proceeding.** Ensure the logs indicate no peripheral or call processing problems. Perform Critical Verification Tests for the office.

8 POST, BSY, reload and RTS the other LCM, RLCM, ILCM, NLCM, IRLCM, LCME, SRU unit.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY UNIT <unit_number>

>LOADPM UNIT <unit_number> CC

>RTS UNIT <unit_number>

>TST UNIT <unit_number>

>LOGUTIL; OPEN PM

9 **Allow a 5 minute soak-period before proceeding.** Ensure the logs indicate no peripheral or call processing problems. Perform Critical Verification Tests for the office.

10 To continue using non-broadcast loading, repeat the above steps for all remaining LCM, RLCM, ILCM, NLCM, IRLCM, LCME, SRU unit.

11 Once confidence in the procedure and new load has been established and critical PMs have been upgraded, you can use Broadcast Loading to speed up the application of the new load to all of the remaining PMs of the same type.

12 You have completed this procedure.

Broadcast loading

Observe the following recommendations when using Broadcast Loading

- It is recommended that the remaining peripherals of that type be loaded in groups of no more than ten.
- These peripherals **must** have the same loadname and be of the same PM type.
- As the Units are all load-sharing units, load UNIT 0 first and then load UNIT 1. This will help you be systematic and to keep track of the status of each unit at every step of the process.

Steps of Procedure

At the CI level of the MAP display

1 Update TABLE LCMINV to reflect new loadnames for all remaining LCM, RLCM, ILCM, NLCM, IRLCM, LCME, SRU.

>TABLE LCMINV

>POS <pm_type> <pm_number>

>CHANGE LOAD <new_loadname>

2 Repeat for all remaining LCM, RLCM, ILCM, NLCM, IRLCM, LCME, SRU.

>QUIT

3 POST the selected groups of LCM, RLCM, ILCM, NLCM, RLCM, LCME, SRU.

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1> <pm_no_2> ... <pm_no_10>

4 LOAD UNIT 0 for all LCM, RLCM, ILCM, NLCM, RLCM, LCME, SRU.

>BSY UNIT 0 ALL

Confirm that you wish to proceed.

>LOADPM UNIT 0 CC ALL

Confirm that you wish to proceed.

>RTS UNIT 0 ALL

Confirm that you wish to proceed.

All units should pass out-of-service tests, return to an INSV state and pass in-service tests.

5 **Allow a 10 to 30 minute soak-period before proceeding.**
Ensure the logs indicate no peripheral or call processing problems.

6 Repeat for UNIT 1 of all LCM, RLCM, ILCM, NLCM, IRLCM, LCME, SRU.

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1> <pm_no_2> ... <pm_no_10>

>BSY UNIT 1 ALL

>LOADPM UNIT 1 CC ALL

>RTS UNIT 1 ALL

All units should pass out-of-service tests, return to an INSV state and pass in-service tests (this is done during the RTS procedure).

7 Repeat this process until all PMs of this type are upgraded.

8 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

Remote Units Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in the Remote unit UNIREM, and TRLEs (DEKEL, TAMAR).

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The UNIREM, TRLE to be upgraded is in-service.
- Automatic REX testing is suspended in the office.

Notes

Execute the following procedure for the UNIREM first and then after performing a SWITCH, repeat the procedure for all the remotes.

Steps of Procedure

At the CI level of the MAP display

1 List all of TABLE LCMINV

2 Change loadname in TABLE LCMINV

>TABLE LCMINV

position on the links of the selected PM

3 Change the load name to the new load name. Type

CHANGE LOAD <new_ loadname>

and press the Enter key.

4 Exit the table. Type

>QUIT

and press the Enter key.

5 Enter the PM level of the MAP display. Type

MAPCI; MTC; PM

and press the Enter key.

6 Post the pm. Type

>POST STAR <UNIREM name>

where

<pm_type> could be **<UNIREM name>**

and press the Enter key.

7 Busy unit 0. Type

>BSY UNIT 0

and press the Enter key.

8 Load pm unit 0. Type

>LOADPM UNIT 0 CC

and press the Enter key.

9 Return unit 0 to service. Type

>RTS UNIT 0

and press the Enter key.

10 Busy unit 1. Type

>BSY UNIT 1

and press the Enter key.

11 Load pm unit 1. Type

>LOADPM UNIT 1

and press the Enter key.

12 Return unit 1 to service. Type

>RTS UNIT 1

and press the Enter key.

13 Repeat steps 1 and 2 for all other UNIREMs.

14 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

UMP Upgrade Procedure

Application

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

Use this procedure to upgrade the UMP software load (if required).

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The UMP to be upgraded is in-service. If two UMPs are used in a TRLE or an UNIREM it is possible to load them one after another, but the loaded UMP will be BSYed.
- Automatic REX testing is suspended in the office.

Notes

None

Steps of Procedure

At the CI level of the MAP display

1 List all of TABLE RMPCKT

2 Change loadname in TABLE RMPCKT

>TABLE RMPCKT

position on the links of the selected PM

3 To post all UMPs of the UNIREM. Type

>HOST <Unirem name #>

4 Change the load type. Type

CHANGE LOAD <new_ loadname> (UMPAQ10)

and press the Enter key.

5 Exit the table. Type

QUIT

and press the Enter key.

6 Enter the PM level of the MAP display. Type

>MAPCI; MTC; MTCNA; TSTEQUIP

and press the Enter key.

7 Post the pm. Type

>POST UMP #

where

 # is the UMP number

and press the Enter key.

8 Busy unit. Type

>BSY

and press the Enter key.

9 Load unit. Type

>LOADTE

and press the Enter key.

10 Return unit to service. Type

>RTS

and press the Enter key.

11 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

RSCS/RSCM Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in an RSCS/RSCM type peripheral.

Prerequisites

Perform the procedure "Starting an Upgrade Shift" to confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been data filled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The peripheral to be upgraded is in-service.
- The peripheral to be upgraded has successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Notes

When upgrading XPM loads in a dual RCC, ensure that the new loads are in both the ACTIVE and INACTIVE UNIT of the RCC. In addition, ensure that both RCCs in a dual configuration have been upgraded with the new load. Failure to do so could affect call processing over the IRLINKS.

If this peripheral is the first of its type to be loaded with a PPXL, set the new loadname first, in order to pick up the PRSUs in the PPXL, and follow the rest of the procedure as normal, including the last SET command in the proceeding.

Steps of Procedure

At the CI level of the MAP display

1 Review "Update Procedures" on page 74.

2 If you are using a PPXL, review "SDM Upgrade Procedure for Operating System and Firmware" on page 439.

3 Add the ISN07 RSCS/RSCM loadnames in TABLE PMLOADS (if applicable), specifying the disk volume containing the load.

>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file> <backup_volume> n

>QUIT

4 Change the RSCS/RSCM loadnames in TABLE RCCINV.

>TABLE <table name>

>POS <pm_type> <pm_number>

>CHANGE LOAD <new_ loadname>

>QUIT

Once the loadname has been changed in RCCINV, each peripheral unit will be marked ISTB. This condition will remain until each unit of the peripheral is RTSed with the load indicated in RCCINV.

5

> **Caution**
> **Possible service interruption**
> Perform this step if the firmware is to be upgraded at the same time as the peripheral.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE RCCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE E2LOAD <firmware_load>

>QUIT

6 Change the CMR loadnames in TABLE RCCINV for each peripheral with cards.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE RCCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE OPTCARD

change by stepping through the options using the Return key until

>CMRLOAD:

><new_ loadname>

Continue stepping through the options using the Return key until no further options are offered. Then enter the command:

>$

Upgrade the First PM (non-broadcast loading)

7 POST, BSY and RTS the INACTIVE UNIT of ONE of each peripheral type (for the in-service RCCs) as described below. Ensure that the unit selected has in-service circuits on it so that critical call tests can be carried out on that unit.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY UNIT <unit_number>

>RTS UNIT <unit_number>

where

<unit_number> is the number of the inactive unit

Note: This will ensure that no obvious hardware faults are present before upgrading.

8 LOAD the INACTIVE UNIT of ONE of each peripheral type (for the in-service RCCs) as described below.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

9 LOAD the PMs INACTIVE UNIT (load the new firmware at this time if applicable).

Load the firmware first if it is required

>LOADFW UNIT <unit_number>

>BSY UNIT <unit_number>

>LOADFW UNIT <unit_number> UPGRADE

Then load the PM

>LOADPM UNIT <unit_number> CC

10 Apply each PRSU in accordance with any special application instructions.

>PRSM

>DBAUDIT <pm_type> <pm_number> <unit_number>

>APPLY <prsu_id> IN <pm_type> <pm_number> <unit_number>

11 Once the PM or UNIT has been returned to service, update the CM with the PRSUs which are used by this PM or UNIT:

>PRSM

>ASSIGN UPGRADE_LD <new_loadname> IN DESTSET <pm_type> <pm_number> <unit_number>

12 You can RTS the PM or UNIT with the new load once the PRSUs have been set.

>RTS UNIT <unit_number>

The unit should pass out-of-service tests, return to an INSV state and pass in-service tests.

13 Once the PM or UNIT has been returned to service you can tell the CM which PRSUs are used by this PM or UNIT by using the following commands:

>PRSM

>DBAUDIT <pm_type> <pm_number> <unit_number>

14 SwAct the peripheral.

>SWACT

If the response is

A Warm SwAct will be performed

then proceed with the Warm SwAct

Note: This procedure will maintain all stable calls (talking), but will drop all unstable calls (dialing, etc.). If this considered undesirable, it may be performed at a suitable low traffic period. If calls are dropped then the procedure should be halted and the ETAS organisation notified.

>YES

If the response is

A Cold SwAct will be performed

then abort the by typing

>NO

Note: If the reason for the Cold SwAct cannot be determined and fixed then the procedure should be halted and the ETAS organisation notified:

15 **Allow a 10 to 30 minute soak-period before proceeding.**
Ensure the logs indicate no peripheral or call processing problems.

16 Perform Critical Verification Tests for the office.

17 Repeat from step 9 to 16 for the newly INACTIVE UNIT.

18 Check for any faults on either unit of the peripheral

>QUERYPM FLT

19 Verify that the correct loadname appears in both units.

>QUERYPM CNTRS

20 Critical call processing tests should be run to verify that the new load functions correctly.

21 **Allow a reasonable soak-period before proceeding to the next steps (10-30 minutes)**

22 To load the remaining UNIT of the first PM (and all subsequent PMs of the same type) without having to manually apply PRSUs you must use the following commands:

ASSIGN the new loadname against the particular PM or UNIT that you intend to load before loading.

>PRSM

>ASSIGN UPGRADE_LD <new_loadname> IN DESTSET <pm_type> <pm_number> <unit_number>

23 LOAD the INACTIVE unit of each peripheral to be loaded.

If the peripheral requires new processor firmware then load the new firmware. This command is not needed for MSB7 peripherals.

>LOADFW UNIT <unit_number>

>BSY UNIT <unit_number>

>LOADFW UNIT <unit_number> UPGRADE

Now load the new software and when loading has completed, return the peripheral to service.

>LOADPM INACTIVE CC

>RTS INACTIVE

24 Once you have loaded all of the PM or UNIT of a certain PM type you **must** match the PRSUs in the PM with the CM.

>PRSM

>DBAUDIT <pm_type>

25 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

RCC-type PM (Dual Configuration) Upgrade Procedure 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) in a dual configuration.

PM	Description
RCC	Remote cluster controller (RCC)
RCC2	Remote cluster controller 2 (RCC2)
RCO2	International remote cluster controller 2 (RCO2)

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 names of all new loads for the PM are datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The PM is in-service (INSV).
- The PM passed its last REX test within the last two weeks.
- All REX tests are suspended in the office.
- Post-release software manager (PRSM) automated processes will not run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. You need this information to complete this procedure.

- Do you need to update the XPM processor firmware?
- Do you need to update the CLASS modem resource (CMR) load?
- Is the first unit you update the first unit in the office to use the new load?
- Do you have to apply any post-release software units (PRSU) manually to the new load?

- Is the new PM load a pre-patched XPM load (PPXL)?

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

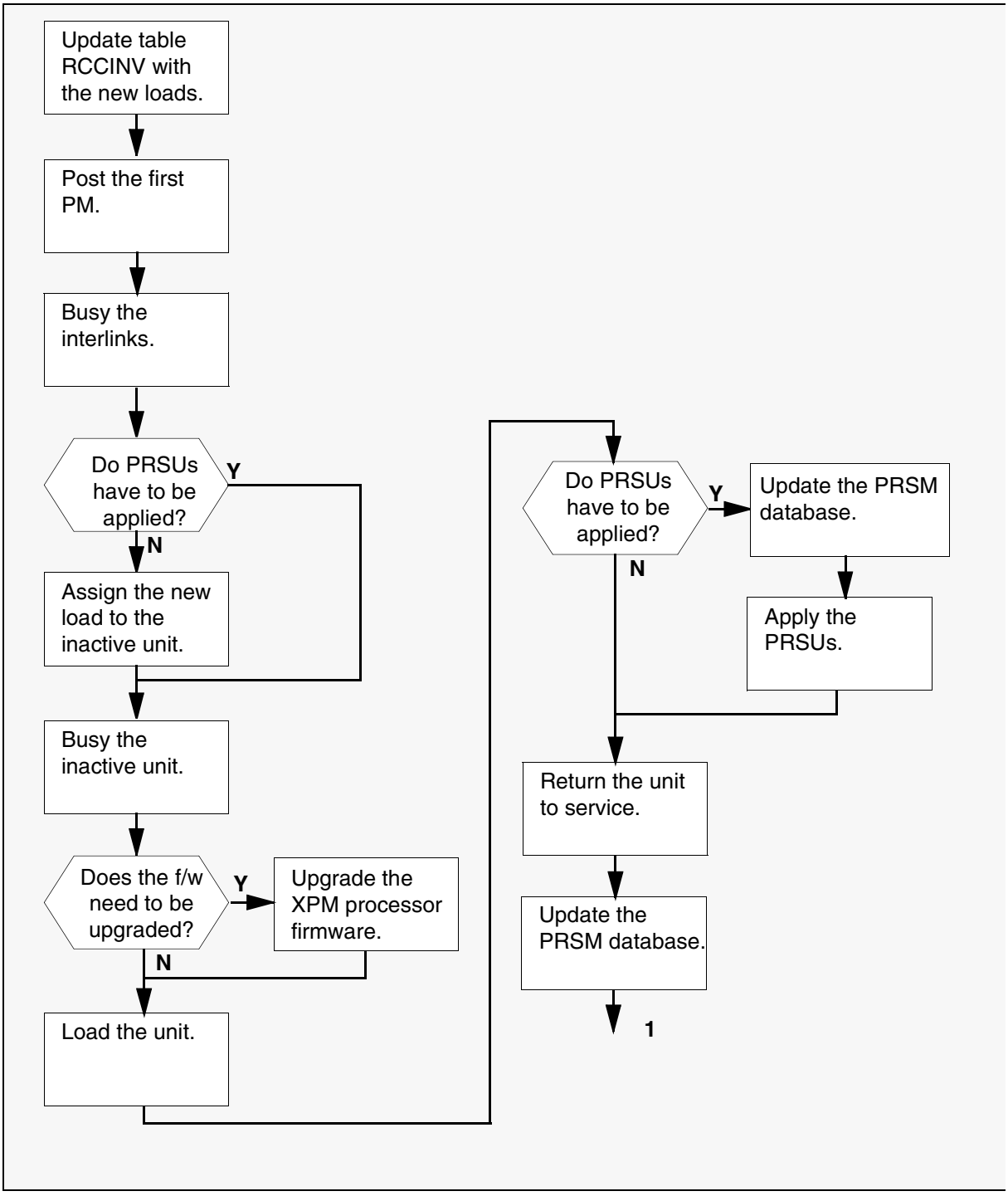
Update sequence

Refer to the update procedure in this document for the type of PM you will update.

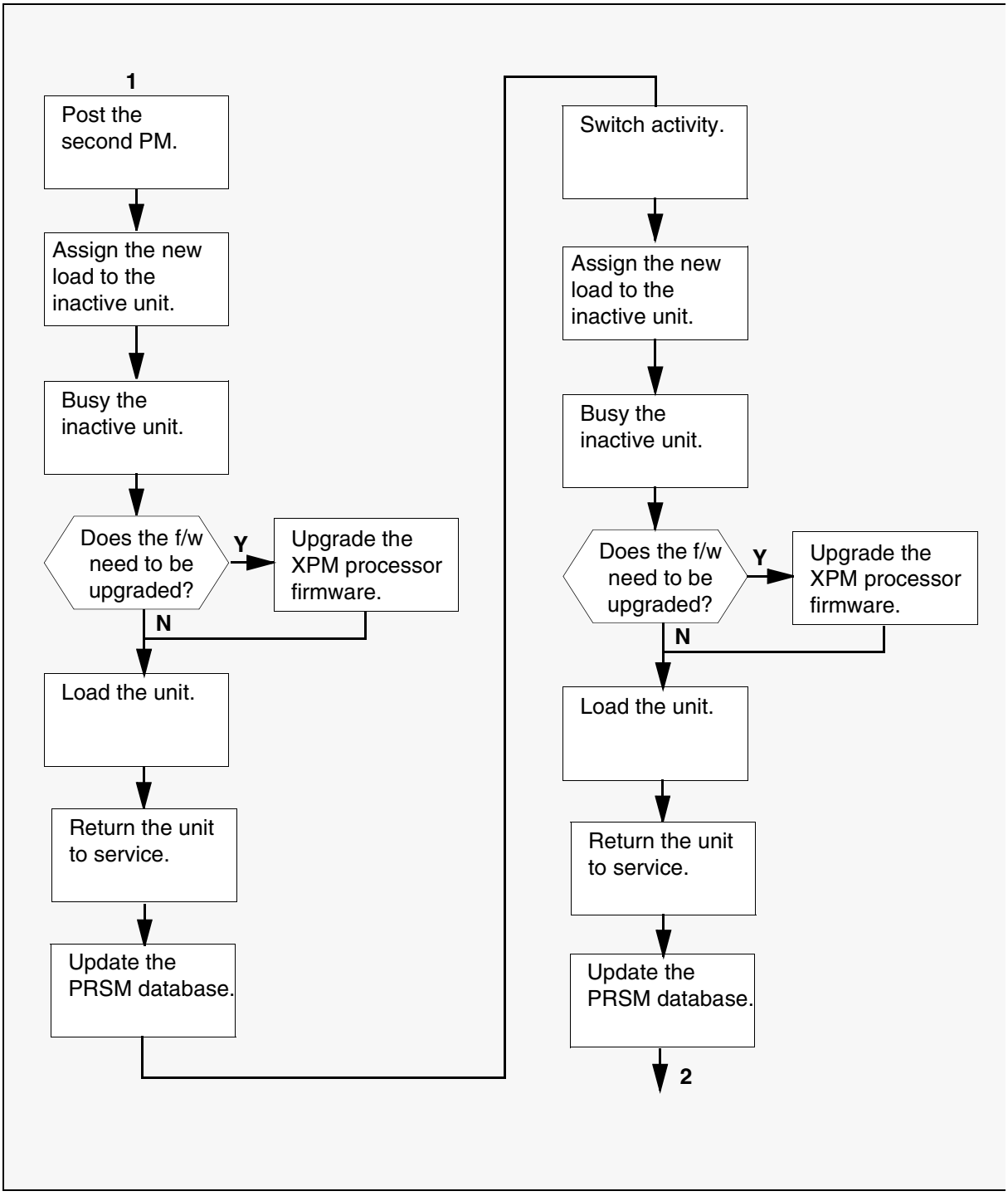
Notes

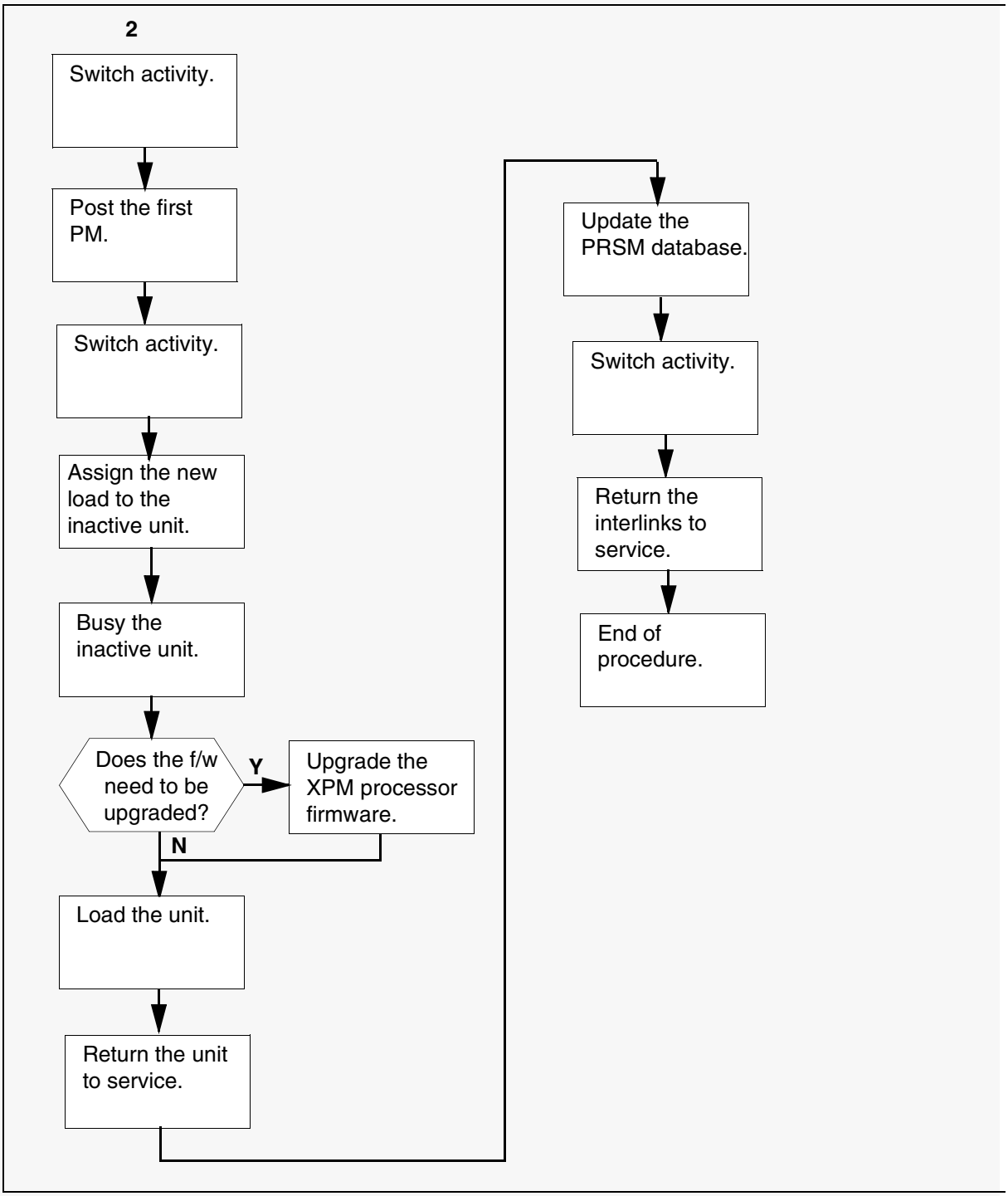
None.

Summary of procedure



Summary of procedure (continued)




2
Switch activity.
Post the first PM.
Switch activity.
Assign the new load to the inactive unit.
Busy the inactive unit.
Does the f/w need to be upgraded?
Y
Upgrade the XPM processor firmware.
N
Load the unit.
Return the unit to service.
Update the PRSM database.
Switch activity.
Return the interlinks to service.
End of procedure.

ATTENTION

If this PM 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 (NT7X05) to update an XPM" in this document to update remaining PMs.

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.

Steps of procedure

CAUTION

Caution advised for SX05 upgrades on LGCOI which may affect Pside RCO2s (MMP15).

At the CI level of the MAP display

1 Select an RCC, RCC2, or RCO2 to update.

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

3 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE RCCINV

and press 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 press the Enter key.

c. Position on the datafill tuple for the PM. Type

>POS site_name pm_type pm_no

and press the Enter key.

where

site_name is the name of the site of the RCC, RCC2 or RCO2

pm_type is RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

Example of command

```
>POS REM0 RCC 0
```

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched XPM 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. 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 WRI15AY
```

e. Confirm the change. Type

>Y

and press the Enter key.

Note: When you change the load name in the inventory table, you create a load mismatch between the inventory table and the PM. The load mismatch will cause the PM to go in-service trouble (ISTb). Continue this procedure.

If you	Do
need to update the XPM processor firmware in the PM	step 4
do not need to update the XPM processor firmware in the PM	step 5

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

4 Change the name of the XPM firmware load in the inventory table.

a. Change the name of the XPM processor firmware load to the XPM processor firmware load name. Type

>CHA E2LOAD fw_load

and press the Enter key.

where

fw_load is the name of the new XPM processor firmware load

Example of command

```
>CHA E2LOAD UPFWNR04
```

b. Confirm the change. Type

>Y

and press the Enter key.

5 Determine if the PM has a CMR load to be updated.

If you	Do
need to update the CMR load in the PM	step 6
do not need to update the CMR load in the PM	step 7

6 Update the name of the CMR load in the inventory table.

a. Enter the OPTCARD field. Type

>CHA OPTCARD

and press 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. Type

>cmr_load

and press the Enter key.

where

cmr_load is the name of the new CMR load

Example of command

```
>CMR10A
```

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

e. Exit the OPTCARD field. Type

>$

and press the Enter key.

f. Confirm the change. Type

>Y

and press the Enter key.

7 Determine if you have updated table RCCINV for both PMs.

If you updated table RCCINV for	Do
one RCC, RCC2 or RCO2	step 3c.
both RCCs, RCC2s, or RCO2s	step 8

8 Exit the table. Type

>QUIT

and press the Enter key.

9 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

10 Post the first RCC, RCC2 or RCO2. Type

>POST pm_type pm_no

and press the Enter key.

where

pm_type is the first RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

Example of command

```
>POST RCC 0
```

Note: The PM will be ISTb. If necessary, wait for the PM to change to ISTb before you continue this procedure. If the PM does not change to ISTb, confirm that you updated the PM inventory table correctly and posted the correct PM.

11 Busy the interlinks.

a. Enter the IRLINK level of the MAP display. Type

>IRLINK

and press the Enter key.

b. Display the interlinks. Type

>QUERYIR

and press the Enter key.

c. Disable interswitching. Type

>INTERSW DISABLE

and press the Enter key.

d. Select and busy an interlink. Type

>BSY link_no

and press the Enter key.

where

link_no is the number of the interlink

Example of command

```
>BSY  1
```

e. Confirm the action. Type

>Y

and press the Enter key.

f. Repeat the previous step for each interlink.

g. Exit the IRLINK level. Type

>QUIT

and press the Enter key.

12 Identify the inactive unit in the first RCC, RCC2 or RCO2. This is the unit to be updated.

13 Review the update schedules for the office. 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 16
not the first unit in the office to use the new load	step 14

14 Assign the new load to the inactive unit.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b.

ATTENTION

After you perform 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 load to the inactive unit. Type

>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, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the first RCC, RCC2 or RCO2

Example of command

```
>ASSIGN UPGRADE_LD CRI08BC IN DESTSET RCC 0 1
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

15 Determine which software release the office is currently at.

If	Do
the office is at ABSM009 or lower	steps 16 and 17
the office is at ISN04 or higher	steps 18 through 20

16 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	step 17
do not need to update the XPM processor firmware in the inactive unit	step 21

17 Load the firmware into the inactive unit. Type

>LOADPM INACTIVE CC FIRMWARE

and press the Enter key.

ATTENTION

Perform steps 18, 19 and 20 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 18, 19 and 20. Repeat the firmware downgrade and upgrade process if the firmware does not update to the latest firmware load.

18 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 data filled 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 you update a PM with a PPXL. Obsolete PRSUs may be loaded, and PRSUs not included in the PPXL will not be loaded.

Load the inactive unit. Type

>LOADPM INACTIVE

and press the Enter key.

If the inactive unit is	Do
the first unit in the office to use the new load	step 22

If the inactive unit is	Do
not the first unit in the office to use the new load	step 24

22 Review the PM update checklist for the office. Determine if you must apply PRSUs manually to the new load.

If you	Do
need to apply PRSUs manually to the new load	step 23
do not need to apply PRSUs manually to the new load	step 24

23

> **CAUTION**
> **Possible service interruption**
> Apply PRSUs immediately after you load the PM. Failure to do so can increase administrative time and interrupt service.

Apply the PRSUs.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database with the name of the new load. Type

>DBAUDIT pm_type pm_no unit_no

and press the Enter key.

where

pm_type is RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the first RCC, RCC2 or RCO2

Example of command

```
>DBAUDIT RCC 0 1
```

c. Apply the PRSUs. Type

>APPLY 'prsu_id IN pm_type pm_no unit_no

and press the Enter key.

where

prsu_id is the name of the PRSU (repeat variable as required)

pm_type is RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the first RCC, RCC2 or RCO2

Example of single-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 IN RCC 0 1
```

Example of double-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +
>'XD02908 | XJL87X08 | XAH13X08 IN RCC 0 1
```

Note: You do not need to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility. Type

>QUIT

and press the Enter key.

24 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

25 Wait for the MAP display to show the new loaded unit as in-service. This ensures superframe sync and data sync are achieved.

26 Confirm the inactive unit has the correct patches.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database to reflect the current PRSU list for the unit. Type

>DBAUDIT pm_type pm_no unit_no

and press the Enter key.

where

pm_type is RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the first RCC, RCC2 or RCO2

Example of command

```
>DBAUDIT RCC 0 1
```

c. Display the PRSU list for the inactive unit. Type

>REPORT DEST pm_type pm_no unit_no

and press the Enter key.

where

pm_type is RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the first RCC, RCC2 or RCO2

Example of command

```
>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 was not performed. Return to step 26b. If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 27. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

27 Exit the utility. Type

>QUIT

and press the Enter key.

28 Post the second RCC, RCC2 or RCO2. Type

>POST pm_type pm_no

and press the Enter key.

where

pm_type is the second RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

Example of command

```
>POST RCC 1
```

Note: The PM will be ISTb. If necessary, wait for the PM to change to ISTb before you continue this procedure. If the PM does not change to ISTb, confirm that you updated the PM inventory table correctly and posted the correct PM.

29 Identify the inactive unit in the second RCC, RCC2 or RCO2. This is the unit you will update.

30 Assign the new load to the inactive unit.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Assign the new load to the inactive unit. Type

>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, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the second RCC RCC2, or RCC2

Example of command

```
>ASSIGN UPGRADE_LD CRI08BC IN DESTSET RCC 1 1
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	step 31
do not need to update the XPM processor firmware in the inactive unit	step 34

ATTENTION

Perform steps 31, 32 and 33 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 31, 32 and 33. Repeat the firmware downgrade and upgrade process if the firmware does not update to the latest firmware load.

31 Load the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE

and press the Enter key.

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

32 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

33 Activate the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE UPGRADE

and press the Enter key.

34

CAUTION

Possible service interruption

Do not use the LOADPM CC command with the file name parameter when you update a PM with a PPXL. Obsolete PRSUs may be loaded, and PRSUs not included in the PPXL will not be loaded.

a. Load the inactive unit. Type

>LOADPM INACTIVE

and press the Enter key.

b. Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

c. Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

35 Confirm the inactive unit has the correct patches.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database to reflect the current PRSU list for the unit. Type

>DBAUDIT pm_type pm_no unit_no

and press the Enter key.

where

pm_type is RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the second RCC RCC2, or RCC2

Example of command

```
>DBAUDIT RCC 1 1
```

c. Display the PRSU list for the inactive unit. Type

>REPORT DEST pm_type pm_no unit_no

and press the Enter key.

where

pm_type is RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the second RCC, RCC2, or RCO2

Example of command

```
>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 36
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 was not performed. Return to step 35b. If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 36. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

36 Exit the utility. Type

>QUIT

and press the Enter key.

37 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the switch can not perform a warm switch of activity (SWACT), do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

38 Confirm the switch of activity. Type

>Y

39 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

40 Assign the new load to the inactive unit.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Assign the new load to the inactive unit. Type

>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, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the second RCC, RCC2, or RCO2

Example of command

```
>ASSIGN UPGRADE_LD CRI08BC IN DESTSET RCC 1 0
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	step 41
do not need to update the XPM processor firmware in the inactive unit	step 46

ATTENTION

Perform steps 41, 42 and 43 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 41, 42 and 43. Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

41 Load the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE

and press the Enter key.

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

42 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

43 Activate the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE UPGRADE

and press the Enter key.

44

> **CAUTION**
> **Possible service interruption**
> Do not use the LOADPM CC command with the file name parameter when you update a PM with a PPXL. Obsolete PRSUs may be loaded, and PRSUs not included in the PPXL will not be loaded.

Load the inactive unit. Type

>LOADPM INACTIVE

and press the Enter key.

45 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

46 Wait for the MAP display to show the new loaded unit as in-service. This ensures superframe sync and data sync are achieved.

47 Update the PRSM database.

a. Update the PRSM database to reflect the current PRSU list for the unit. Type

>DBAUDIT pm_type pm_no unit_no

and press the Enter key.

where

pm_type is RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the second RCC, RCC2, or RCO2

Example of command

```
>DBAUDIT RCC 1 0
```

b. Display the PRSU list for the inactive unit. Type

>REPORT DEST pm_type pm_no unit_no

and press the Enter key.

where

pm_type is RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the second RCC, RCC2 or RCO2

Example of command

```
>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 49
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 was not performed. Return to step 48b. If you performed a DBAUDIT, contact the next level of support.

If	Do
PRSUs from the previous load are listed at NV status	Go to step 49. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

48 Exit the utility. Type

>QUIT

and press the Enter key.

49 Switch activity between the units and return to their original service states. Type

>SWACT

and press the Enter key.

Note: If the switch can not perform a warm SWACT, do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

50 Confirm the switch of activity. Type

>Y

51 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

52 Post the first RCC, RCC2 or RCO2. Type

>POST pm_type pm_no

and press the Enter key.

where

pm_type is the first RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

Example of command

```
>POST RCC 0
```

53 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the switch can not perform a warm SWACT, do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

54 Confirm the switch of activity. Type

>Y

55 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

56 Identify the new inactive unit in the second RCC, RCC2 or RCO2. This is the unit to be updated.

57 Assign the new load to the inactive unit.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Assign the new load to the inactive unit. Type

>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, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the first RCC, RCC2 or RCO2

Example of command

```
>ASSIGN UPGRADE_LD CRI08BC IN DESTSET RCC 0 0
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	step 58
do not need to update the XPM processor firmware in the inactive unit	step 61

ATTENTION

Perform steps 58, 59 and 60 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 58, 59 and 60. Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

58 Load the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE

and press the Enter key.

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

59 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

60 Activate the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE UPGRADE

and press the Enter key.

61

> **CAUTION**
> **Possible service interruption**
> Do not use the LOADPM CC command with the file name parameter when you update a PM with a PPXL. Obsolete PRSUs may be loaded, and PRSUs not included in the PPXL will not be loaded.

Load the inactive unit. Type

>LOADPM INACTIVE

and press the Enter key.

62 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

63 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

64 Update the PRSM database.

a. Update the PRSM database to reflect the current PRSU list for the unit. Type

>DBAUDIT pm_type pm_no unit_no

and press the Enter key.

where

pm_type is RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the first RCC, RCC2 or RCO2

Example of command

```
>DBAUDIT RCC 0 0
```

b. Display the PRSU list for the inactive unit. Type

>REPORT DEST pm_type pm_no unit_no

and press the Enter key.

where

pm_type is RCC, RCC2 or RCO2

pm_no is the number of the RCC, RCC2, or RCO2

unit_no is the number of the inactive unit in the first RCC, RCC2 or RCO2

Example of command

```
>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 66
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 was not performed. Return to step 65b. If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 66. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

65 Exit the utility. Type

>QUIT

and press the Enter key.

66 Switch activity between the units and return to their original service states. Type

>SWACT

and press the Enter key.

Note: If the switch can not perform a warm SWACT, do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

67 Confirm the switch of activity. Type

>Y

68 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

69 Return the interlinks to service.

a. Enter the IRLINK level of the MAP display. Type

>IRLINK

and press the Enter key.

b. Display the interlinks. Type

>QUERYIR

and press the Enter key.

c. Return an interlink to service. Type

>RTS link_no

and press the Enter key.

where

link_no is the number of the interlink

Example of command

```
>RTS 1
```

d. Repeat the previous step for each interlink.

e. Enable interswitching. Type

>INTERSW ENABLE

and press the Enter key.

f. Exit the IRLINK level. Type

>QUIT

and press the Enter key.

70 You have updated the RCC-type PM in a dual configuration and completed this procedure. Review the update schedule for the office.

If you have	Do
other RCC-type PMs in a dual configuration 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 other PMs or hardware types to update during this shift	Go to "Finishing a PM update shift" in this document.

RCO2 Upgrade Procedure

Application

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

Use this procedure to update the international remote cluster controller 2 (RCO2).

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 names of all new loads for the RCO2 are data filled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All peripheral module (PM) logs are enabled.
- The RCO2 is in service.
- The RCO2 passed its last routine exercise (REX) test within the last two weeks.
- All automatic REX tests are suspended in the office.
- No post-release software manager (PRSM) automated processes, such as DBAUDIT and AUTOAPP, are scheduled to run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. You need this information to complete this procedure.

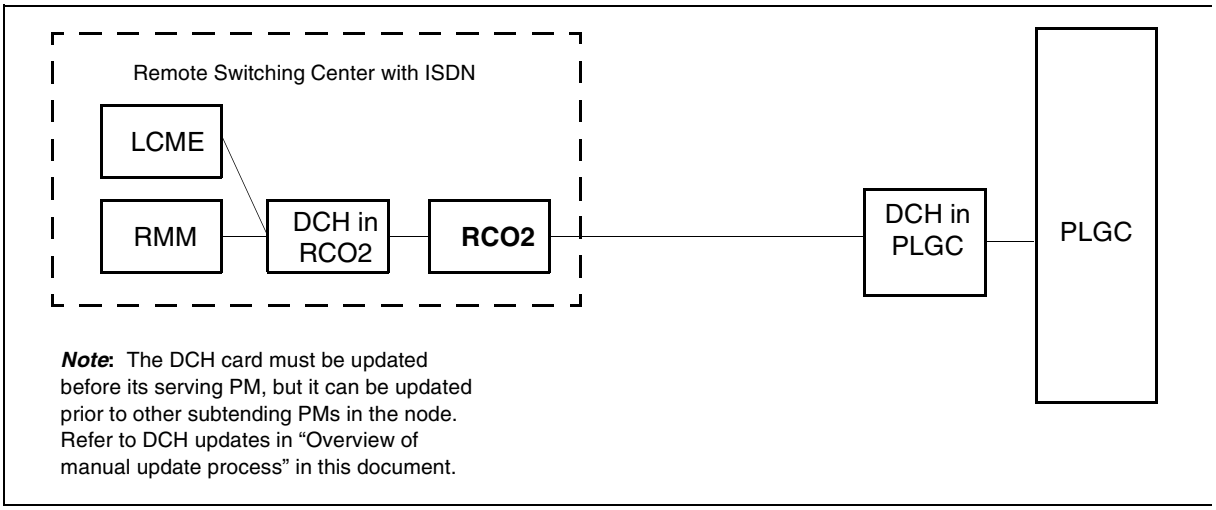
- Do you need to update the XPM processor firmware?
- Do you need to update the CLASS modem resource (CMR) load?
- Is the first unit you update the first unit in the office to use the new load?
- Do you have to apply any post-release software units (PRSU) manually to the new load?
- Is the new PM load a pre-patched XPM load (PPXL)?

For help, 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 RCO2. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

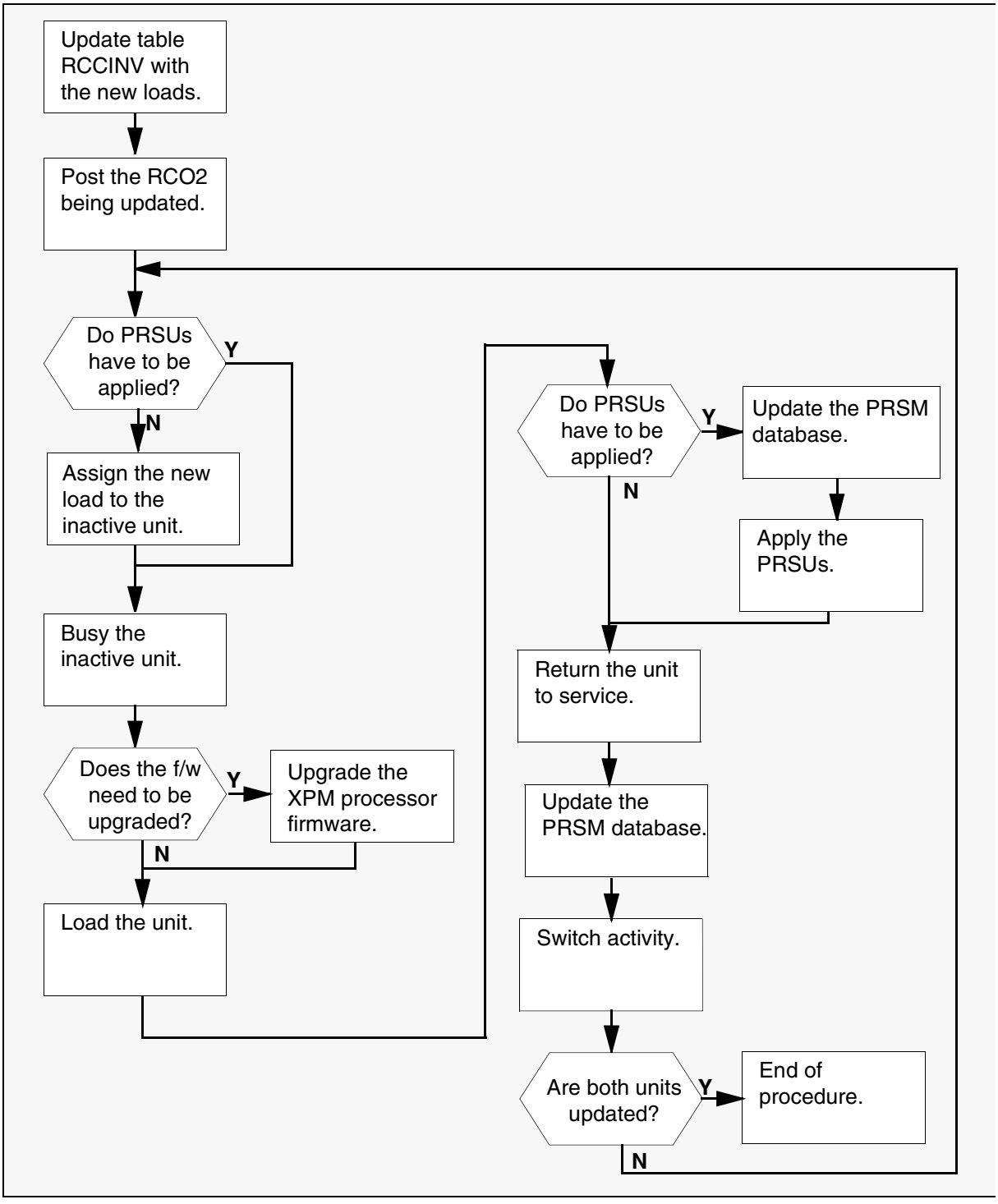
Node configuration for RCO2



Notes

None.

Summary of procedure



ATTENTION

Do not use this procedure if the RCO2 is part of dual configuration. Use the procedure “Updating an RCC-type PM in a dual configuration” 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.

Steps of procedure

At the CI level of the MAP display

1 Select an RCO2 to update

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

3 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE RCCINV

and press the Enter key.

Ifyou wish to view the tuples in a	**Do**
packed format	step 3b
normal 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. Position on the datafill tuple for the RCO2. Type

>POS site_name RCO2 rco2_no

and press the Enter key.

where

site_name is the name of the site with the RCO2

rco2_no is the number of the RCO2

Example of command

```
>POS REM1 RCO2 0
```

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched XPM 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. 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 KRI14BC
```

e. Confirm the change. Type

>Y

and press the Enter key.

Note: The RCO2 will change state to in service trouble (ISTb) due to the load mismatch with the inventory table. Continue this procedure.

If you	Do
need to update the XPM processor firmware in the RCO2	step 4
do not need to update the XPM processor firmware in the RCO2	step 5

Note: Review the update schedules and checklists to determine if you must update the XPM processor firmware. The procedure “Preparing for a PM update" or “Preparing for a PM update using PMUPGRADE" determines the need for an update of XPM processor firmware.

4 Change the name of the XPM processor firmware load in the inventory table.

a. Change the name of the XPM processor firmware load to the new firmware load name. Type

>CHA E2LOAD fw_load

and press the Enter key.

where

fw_load is the name of the new XPM processor firmware load

Example of command

```
>CHA E2LOAD UPFWNR04
```

b. Confirm the change. Type

>Y

and press the Enter key.

5 Determine if the PM has a CMR load to be updated.

If you	Do
need to update the CMR load in the RCO2	step 6
do not need to update the CMR load in the RCO2	step 7

6 Update the name of the CMR load in the inventory table.

a. Enter the OPTCARD field. Type

>CHA OPTCARD

and press the Enter key.

b. Press the Enter key to scroll through the fields until the MAP display prompts you for the CMR load name.

c. Enter the new CMR load name. Type

>cmr_load

and press the Enter key.

where

cmr_load is the name of the new CMR load

Example

```
>CMR10A
```

d. Press the Enter key to scroll through the fields until the MAP display shows the blank OPTCARD prompt.

e. Exit the OPTCARD field. Type

>$

and press the Enter key.

f. Confirm the change. Type

>Y

and press the Enter key.

7 Close the table. Type

>QUIT

and press the Enter key.

8 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

9 Post the RCO2. Type

>POST RCO2 rco2_no

and press the Enter key.

where

rco2_no is the number of the RCO2

Example of command

```
>POST RCO2 0
```

Note: The RCO2 will be ISTb due to the load mismatch with its inventory table. If necessary, wait for the RCO2 to change to ISTb before you continue this procedure. If the RCO2 does not change to ISTb, confirm that you updated PM inventory table correctly and posted the correct RCO2.

10 Identify the inactive unit. You will update this unit.

11 Review the update schedules for the office. 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.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b.

ATTENTION

After you perform 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 load to the inactive unit. Type

>ASSIGN UPGRADE_LD new_load IN DESTSET RCO2 rco2_no unit_no

and press the Enter key.

where

new_load is the name of the new load

rco2_no is the number of the RCO2

unit_no is the number of the inactive unit

Example of commands

```
>ASSIGN UPGRADE_LD KRI08BC IN DESTSET RCO2 0 1
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	step 13
do not need to update the XPM processor firmware in the inactive unit	step 14

ATTENTION

Perform steps 13, 14 and 15 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 13, 14 and 15. Repeat the firmware downgrade and upgrade process if the firmware does not update to the latest firmware load.

13 Load the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE

and press the Enter key.

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

14 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

15 Activate the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE UPGRADE

and press the Enter key.

16

CAUTION

Possible service interruption

Do not use the LOADPM CC command with the file name parameter when you update a PM with a PPXL. Obsolete PRSUs may be loaded, and PRSUs not included in the PPXL will not be loaded.

Load the inactive unit. Type

>LOADPM INACTIVE

and press the Enter key.

17 Review the PM update checklist for the office. Determine if you must apply PRSUs manually to the new load.

If you	Do
need to apply PRSUs manually to the new load	step 18
do not need to apply PRSUs manually to the new load	step 19

18

> **CAUTION**
> **Possible service interruption**
> Apply PRSUs immediately after you load the PM. Failure to do so can increase administrative time and interrupt service.

Apply the PRSUs.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database with the new load name. Type

>DBAUDIT RCO2 rco2_no unit_no and press the Enter key.

where

rco2_no is the number of the RCO2

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT RCO2 0 1
```

c. Apply any PRSUs that need to be manually applied. Type

>APPLY 'prsu_id IN RCO2 rco2_no unit_no

and press the Enter key.

where

prsu_id is the name of the PRSU (repeat variable as required)

rco2_no is the number of the RCO2

unit_no is the number of the inactive unit

Example of single-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 IN RCO2 0 1
```

Example of double-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +
>'XD02908 | XJL87X08 | XAH13X08 IN RCO2 0 1
```

Note: You do not need to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility. Type

>QUIT

and press the Enter key.

19 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

20 Wait for the unit to go InSv. The unit achieves superframe sync and data sync when it goes InSv. The unit can take two to three minutes to go InSv.

21 Confirm the inactive unit has the correct patches.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database to reflect the current PRSU list for the RCO2. Type

>DBAUDIT RCO2 rco2_no unit_no

and press the Enter key.

where

rco2_no is the number of the RCO2

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT RCO2 0 1
```

c. Display the PRSU list for the inactive unit. Type

>REPORT DEST RCO2 rco2_no unit_no

and press the Enter key.

where

rco2_no is the number of the RCO2

unit_no is the number of the inactive unit

Example of command

```
>REPORT DEST RCO2 0 1
```

d. Confirm that 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 23
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 was not performed. Return to Step 22 .If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step Step 23. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

22 Exit the utility. Type

>QUIT

and press the Enter key.

23 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the switch can not perform a warm switch of activity (SWACT), do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

24 Confirm the switch of activity. Type

>Y

25 Wait for the unit to go InSv. The unit achieves superframe sync and data sync when it goes InSv. The unit can take two to three minutes to go InSv.

If	Do
one unit is updated	Step 11
both units are updated	step 26
Note: If one unit is updated, the inactive unit will be ISTb due to the load mismatch between the unit and the PM inventory table. The node will remain ISTb until you update both units with the new load.	

26 If a flash loader card (SX06 for SX05 processor, NT7X05AA for MX77 processor) exists in a PM, it is necessary to copy the new PM load to the SX06/NT7X05AA card. Type

>XPMSTOR PM

and press the Enter key.

Note: This process will copy the new PM load to the flash loader without taking either side of the PM out of service. The PM will return to an InSv condition once the copying process is complete.

27 You have updated the RCO2 and completed this procedure. Review the update schedule for the office.

If you have	Do
other RCO2s 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 other PMs or hardware types to update during this shift	Go to the procedure "Finishing a PM update shift" in this document.

LGCOi, LGCO, MSBs, GPP Upgrade Procedure

Application

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

CAUTION
Possible service interruption to subscribers linked to RC02

The following issue was noticed in MMP15:

When upgrading an LGCOi from MX77 to the SX05 processor to use the QGI15AY load, caution must be observed when using the following hardware configuration:

An LGCOi (OGI15AY load, with UPFWNS01 firmware) that is communicating with a Pside RC02 (WRI15AY load, with UPFWNS01 firmware) using the optional HDLC protocol (NTMX76 card).

When using this configuration, the PSIDE RC02 drops SYSB after the PLGC has been upgraded to SX05. This is because the SX05 firmware uses a different HDLC protocol from the AX74 and MX77 firmware.

In order to correct this, the RC02 must have the UPFWQK01 firmware before upgrading the PLGC.

Use this procedure to upgrade the software load in all Series-II, two-unit XPMs.

This procedure is applicable to the following peripheral types:

- LGCOi
- LGCO
- MSB
- GPP

They are all characterised by having two units operating with full redundancy. There is always an ACTIVE and an INACTIVE unit.

Prerequisites

Perform the procedure "Starting an Upgrade Shift" to confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The peripheral/unit to be upgraded is in-service.
- The peripheral/unit to be upgraded has successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Notes

Observe the following notes before proceeding with the procedure.

- If this peripheral is the first of its type to be loaded with a PPXL, set the new loadname first, in order to pick up the PRSUs in the PPXL, and follow the rest of the procedure as normal, including the last SET command in the procedure.
- For MSB7s where a new ST load is not required, you **must** still carry out step 2 of "STM Upgrade Procedure" on page 136.

Steps of Procedure

At the CI level of the MAP display

1 Before proceeding, See "Update Procedures" on page 74.

2 Before proceeding, See "SDM Upgrade Procedure for Operating System and Firmware" on page 439.if you are using a PPXL.

3 Add the new ISN07 LGCOi, LGCO, MSB, GPP loadnames (including any new firmware or CMR loadnames) in TABLE PMLOADS, specifying the disk volume containing the load.

>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file> <backup_volume> n

>QUIT

4 Change the LGCOi, LGCO, MSB or GPP loadnames in TABLE LTCINV or MSBINV

>TABLE <table name>

where

<table name> is either LTCINV or MSBINV

>POS <pm_type> <pm_number>

>CHANGE LOAD <new_ loadname>

>QUIT

Once the loadname has been changed in LTCINV/MSBINV, each peripheral unit will be marked ISTB. This condition will remain until each unit of the peripheral is RTSed with the load indicated in LTCINV/MSBINV.

5

ATTENTION

Possible service interruption
Perform this step if the firmware is to be upgraded at the same time as the peripheral.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE LTCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE E2LOAD <firmware_load>

>QUIT

6 Change the CMR loadnames in TABLE LTCINV for each peripheral with cards.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE LTCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE OPTCARD

change by stepping through the options using the Return key until

>CMRLOAD:

><new_ loadname>

Continue stepping through the options using the Return key until no further options are offered. Then enter the command:

>$

7 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

Upgrade the First PM (non-broadcast loading)
Observe the following notes before proceeding

- Due to an outstanding open CSR Using the command "LOADPM INACTIVE" will cause the unit to MATE LOAD even if it is appended with the "CC" sub-command. To make life easier, ensure that either UNIT 0 or UNIT 1, of a particular type of PM, is ACTIVE on all PMs. This can be done with a Warm SwAct.
- Ensure that the STs have been upgraded on the MSB7s before upgrading the MSB7.
- If the XPM type to be upgraded is PLGC with load OLG17AY then perform the following steps:

  1 Get a hard copy of the table IPMLINV

  >RECORD START ONTO <printer_device_name>

  >TABLE IPMLINV;FORMAT PACK

  >LIST ALL;QUIT

  >RECORD STOP ONTO <printer_device_name>

  2 From the printout, check that all carriers used for IPML mapping is INSV and not OFFL

  >MAPCI;MTC;TRKS,CARRIER

  >POST PDTC <pm_number> <carrier_number>

  If it is OFFL then:

  >BSY 0;RTS 0

Steps of Procedure

At the CI level of the MAP display

1 POST, BSY and RTS the INACTIVE UNIT of ONE of each peripheral type (for the in-service LGCs/MSB/GPPs) as described below. Ensure that the unit selected has in-service circuits on it so that critical call tests can be carried out on that unit.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY UNIT <unit_number>

>RTS UNIT <unit_number>

Note: This will ensure that no obvious hardware faults are present before upgrading

2 Assign in the CM the new firmware load for each peripheral type.

>MAPCI;MTC;PM

>POST <pm_type> <pm_number>

>PRSM

PRSM:

Welcome to PRSM - Post Release Software Manager.

Type Q PRSMCI for a list of available commands,

or

Type HELP for a list of available help topics.

>ASSIGN UPGRADE_LD GPO11BD IN DESTSET GPP 0 0

Assignment completed

ATTENTION

Perform steps 3, 4 and 5 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 3, 4 and 5. Repeat the firmware downgrade and upgrade process if the firmware does not update to the latest firmware load.

3 Load the XPM processor firmware in the inactive unit. Type

Note: This step is not applicable to MSB7 peripherals as they have no processor firmware.

>LOADFW INACTIVE

and press the Enter key.

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

4 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

5 Activate the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE UPGRADE

and press the Enter key

6 Load the PMs inactive unit. Type

>LOADPM INACTIVE

and press the Enter key.

7 Perform this step if this is the very first unit to be upgraded for this XPM type.

>PRSM

>DBAUDIT <pm_type> <pm_number> <unit_number>

Repeat for all relevant PRSUs.

>APPLY <prsu_id> IN <pm_type> <pm_number> <unit_number>

>REPORT DEST <pm_type> <pm_number> <unit_number>

Ensure that all the PRSUs applied in the above steps are displayed.

8 You can RTS the PM or UNIT with the new load once the PRSUs have been set.

>RTS UNIT <unit_number>

The unit should pass out-of-service tests, return to an INSV state and pass in-service tests.

9 Once the PM or UNIT has been returned to service, update the CM with the PRSUs which are used by this PM or UNIT:

>PRSM

>DBAUDIT <pm_type> <pm_number> <unit_number>

>QUIT

10 SwAct the peripheral.

>SWACT

If the response is

A Warm SwAct will be performed

then proceed with the Warm SwAct

Note: This procedure will maintain all stable calls (talking), but will drop all unstable calls (dialling, etc.). If this considered undesirable, it may be performed at a suitable low traffic period. If calls are dropped over the SwAct then the procedure should be halted and the ETAS organisation notified.

>YES

If the response is

A Cold SwAct will be performed

then abort the by typing

>NO

Note: If the reason for the Cold SwAct cannot be determined and fixed then the procedure should be halted and the ETAS organisation notified.

11 **Allow a 10 to 30 minute soak-period before proceeding.**
Ensure the logs indicate no peripheral or call processing problems.

12 Perform Critical Verification Tests for the office. Repeat the Step 2 to Step 9 for the newly INACTIVE UNIT.

13 Check for any faults on either unit of the peripheral

>QUERYPM FLT

14 Confirm that the correct loadname appears in both units.

>QUERYPM CNTRS

15 Critical call processing tests should be run to confirm that the new load functions correctly.

16 You have completed this procedure.

Broadcast Loading

Observe the following notes before proceeding

- Ensure that all the inactive units to be loaded are of the same unit number i.e. all unit 0's or all unit 1's. If not then perform a warmswact on the peripheral:

  >MAPCI;MTC;PM

  >POST <pm_type> <pm_number>

  >SWACT

- It is recommended that the remaining peripherals of that type be loaded in groups of no more than ten.
- These peripherals **must** have the same loadname and be of the same PM Type.
- In the case of MSBs, the upgrade should be performed and completed on one MSB at a time to prevent possible office degradation.

Steps of Procedure

At the CI level of the MAP display

1 Change the PLGC, MSB or GPP loadnames in TABLE LTCINV or MSBINV

>TABLE <table name>

where

<table name> is either LTCINV or MSBINV

>POS <pm_type> <pm_number>

>CHANGE LOAD <new_ loadname>

>QUIT

Once the loadname has been changed in LTCINV/MSBINV, each peripheral unit will be marked ISTB. This condition will remain until each unit of the peripheral is RTSed with the load indicated in LTCINV/MSBINV.

2 Perform this step if the firmware is to be upgraded at the same time as the peripheral.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE LTCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE E2LOAD <firmware_load>

>QUIT

3 Change the CMR loadnames in TABLE LTCINV for each peripheral with cards.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE LTCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE OPTCARD

change by stepping through the options using the Return key until

>CMRLOAD:

><new_ loadname>

Continue stepping through the options using Return key until no further options are offered. Then enter the command:

>$

4 Ensure the previous step is carried out for all of the POSTed PMs.

5 This step will ensure that all the units will be loaded with the proper PRSUs applied:

>PRSM

Repeat this step for all the inactive units to be loaded:

>ASSIGN UPGRADE_LD <new_loadname> IN DESTSET <pm_type> <pm_number> <unit_number>

6 LOAD the INACTIVE UNIT of the POSTed PM set and return to service.

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1> <pm_no_2> ... <pm_no_10>

>LOADFW UNIT <unit_number> ALL

>BSY UNIT <unit_number> ALL

>LOADFW UNIT <unit_number> UPGRADE ALL

>LOADPM UNIT <unit_number> CC ALL

>RTS UNIT <unit_number> ALL

The yes or no will have to be entered for each peripheral

Note: If any of the INACTIVE UNITS of the DTCs, LGCs, or MSBs fail to reload, fails out-of-service tests, fails to RTS, or fails in-service tests then the BSY,LOADPM,RTS steps should be repeated on the failed units. If there is still a failure the above procedure should be to reload the previous load release to determine whether it is a hardware problem, or the load is corrupt or incompatible with the CC load. In the former case, the INACTIVE UNIT will have to be man-busied, in the latter case, the CC/PM loading application may have to be aborted manually.

7 SWACT all of the relevant peripherals

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1> <pm_no_2> ... <pm_no_10>

>SWACT All

Note: You will have to confirm YES or No for every peripheral in the post set. Take great care to study every switch response to ensure a Warm SwAct will be performed.

If the response is

A Warm SwAct will be performed

then proceed with the Warm SwAct

Note: This procedure will maintain all stable calls (talking), but will drop all unstable calls (dialling, etc.). If this considered undesirable, it may be performed at a suitable low traffic period. If calls are dropped over the SwAct then the procedure should be halted and the ETAS organisation notified.

>YES

If the response is

A Cold SwAct will be performed

then abort the by typing

>NO

Note: If the reason for the Cold SwAct cannot be determined and fixed then the procedure should be halted and the ETAS organisation notified.

8 Verify that the PM switches activity. Verify the newly ACTIVE UNIT returns to an INSV state (immediately in the case of a Warm SwAct) and the newly INACTIVE UNIT goes SYSB and is eventually Returned To Service by the system.

9 Check for any faults on either unit of the peripherals that have just been loaded

>QUERYPM FLT

10 Verify that the correct loadname appears in both units.

>QUERYPM CNTRS

11 Repeat Step 5 to Step 7 for the other unit.

12 Repeat the whole procedure until all XPMs for this type in the office are complete

13 Once you have loaded all of the PM or UNIT of a certain PM type you **must** match the PRSUs in the PM with the CM.

>PRSM

>DBAUDIT <pm type>

>RECORD START ONTO <printer_device>

>REPORT DEST <pm_type>

>QUIT

14 You have completed this procedure.

PLGC Upgrade Procedure 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
PLGC	PCM30 line group controller (PLGC)
	PLGC with subtending international remote cluster controller 2 (RCO2)
	PLGC with ISDN
	PLGC with ISDN and subtending RCO2

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 names of all new loads for the PLGC are datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The PLGC is in service.
- The PLGC passed its last routine exercise (REX) test within the last two weeks.
- All automatic REX tests are suspended in the office.
- No post-release software manager (PRSM) automated processes, such as DBAUDIT and AUTOAPP, are scheduled to run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. You need this information to complete this procedure.

- Do you need to update the the XPM processor firmware?

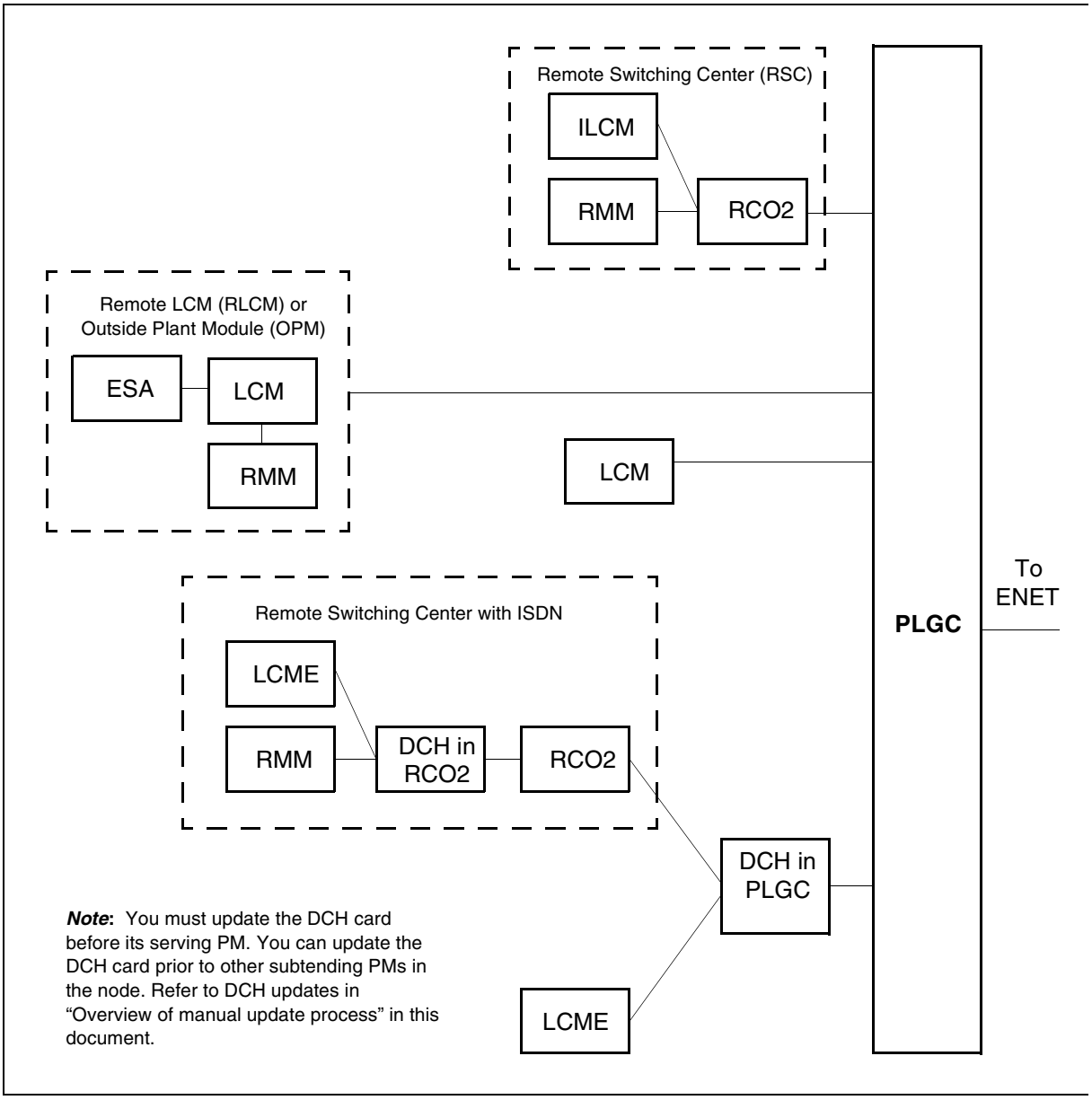
- Do you need to update the CLASS modem resource (CMR) load?
- Is the first unit you update the first unit in the office to use the new load?
- Do you have to apply any post-release software units (PRSU) manually to the new load?
- Is the new PM load a pre-patched XPM load (PPXL)?

For help, 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 PLGC. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

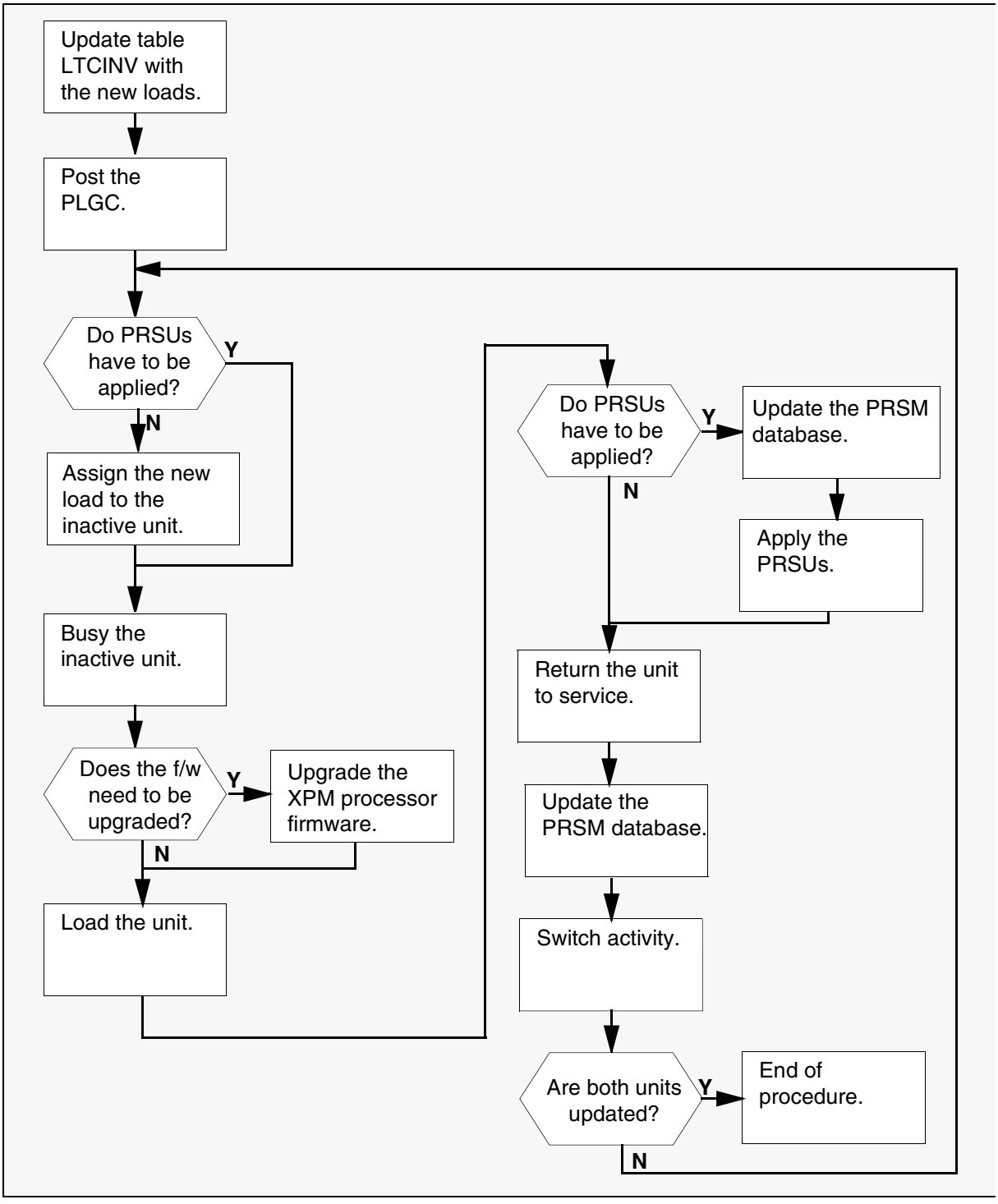
Node configuration for PLGC



Notes

None.

Summary of procedure



ATTENTION

Follow office policy is 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.

ATTENTION

If this PM has a peripheral/remote loader (PRL) circuit card, use this procedure to update the first PM in the office that uses the new load. Use the procedure "Using a PRL card (NT7X05) to update an XPM" in this document to update remaining PMs.

Steps of procedure

At the CI level of the MAP display

1 Select a PLGC to update

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

3 Add the new loadname in TABLE PMLOADS, specifying the disk volume containing the load

>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file> <backup_volume> n

>QUIT

4 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE LTCINV

and press the Enter key.

IfTo view the tuples in a	Do
packed format	step 4b.
normal or expanded format	step 4c.

b. Change the format of the display to a packed format. Type

>FORMAT PACK

and press the Enter key.

c. Position on the datafill tuple for the PLGC. Type

>POS PLGC plgc_no

and press the Enter key.

where

plgc_no is the number of the PLGC

Example of command

```
>POS PLGC 0
```

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched XPM 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. 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 BNKOSI05
```

e. Confirm the change. Type

>Y

and press the Enter key.

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

If you	Do
need to update the XPM processor firmware in the PLGC	Step 5
do not need to update the XPM processor firmware in the PLGC	Step 6

Note: Review the update schedules and checklists to determine if you must update the XPM processor firmware. The procedure “Preparing for a PM update" or “Preparing for a PM update using PMUPGRADE" determines the need for an update of XPM processor firmware.

5 Change the name of the XPM processor firmware load in the inventory table.

a. Change the name of the XPM processor firmware load to the new firmware load name. Type

>CHA E2LOAD fw_load

and press the Enter key.

where

fw_load is the name of the new XPM processor firmware load

Example of command

```
>CHA E2LOAD UPFWNS01
```

b. Confirm the change. Type

>Y

and press the Enter key.

6 Determine if the PM has a CMR load to be updated.

If you	Do
need to update the CMR load in the PLGC	Step 7
do not need to update the CMR load in the PLGC	Step 8

7 Update the name of the CMR load in the inventory table.

a. Enter the OPTCARD field. Type

>CHA OPTCARD

and press the Enter key.

b. Press the Enter key to scroll through the fields until the MAP display prompts you for the CMR load name.

c. Enter the new CMR load name. Type

>cmr_load

and press the Enter key.

where

cmr_load is the name of the new CMR load

Example

```
>CMR10A
```

d. Press the Enter key to scroll through the fields until the MAP display shows the blank OPTCARD prompt.

e. Exit the OPTCARD field. Type

>$

and press the Enter key.

f. Confirm the change. Type

>Y

and press the Enter key.

8 Close the table. Type

>QUIT

and press the Enter key.

9 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

10 Post the PLGC. Type

>POST PLGC plgc_no

and press the Enter key.

where

plgc_no is the number of the PLGC

Example of command

```
>POST PLGC 0
```

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

11 Identify the inactive unit. You will update this unit.

12 Review the update schedules for the office. 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 14
not the first unit in the office to use the new load	Step 13

13 Use PRSM to assign the new load to the inactive unit.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b.

ATTENTION

After you perform 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 load to the inactive unit. Type

>ASSIGN UPGRADE_LD new_load IN DESTSET PLGC plgc_no unit_no

and press the Enter key.

where

new_load is the name of the new load

plgc_no is the number of the PLGC

unit_no is the number of the inactive unit

Example of commands

```
>ASSIGN UPGRADE_LD OLG15BC IN DESTSET PLGC 0 1
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	Step 14
do not need to update the XPM processor firmware in the inactive unit	Step 17

ATTENTION

Perform steps 14, 15 and 16 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 14, 15 and 16. Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

14 Load the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE

and press the Enter key.

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

15 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

16 Activate the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE UPGRADE

and press the Enter key.

17

CAUTION

Possible service interruption

Do not use the LOADPM CC command with the file name parameter when you update a PM with a PPXL. Obsolete PRSUs may be loaded, and PRSUs not included in the PPXL will not be loaded.

Assign the new load to the inactive unit. Type

>ASSIGN UPGRADE_LD <new_load> IN DESTSET <XPM_name> <pm_no> <unit_no>

Load the inactive unit. Type

>LOADPM INACTIVE

and press the Enter key.

If the inactive unit is	Do
the first unit in the office to use the new load	Step a.
not the first unit in the office to use the new load	Step 18.

a. Review the PM update checklist for the office. Determine if you must apply PRSUs manually to the new load.

If you	Do
need to apply PRSUs manually to the new load	Step b.
do not need to apply PRSUs manually to the new load	Step 18.

Apply the PRSUs.

> **CAUTION**
> **Possible service interruption**
> Apply PRSUs immediately after you load the PM. Failure to do so can increase administrative time and interrupt service.

b. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

Update the PRSM database with the new load name. Type

>DBAUDIT PLGC plgc_no unit_no

and press the Enter key.

where

plgc_no is the number of the PLGC

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT PLGC 0 1
```

c. Apply any PRSUs that need to be manually applied. Type

>APPLY <prsu>_id in PLGC 0 1

and press the Enter key.

where

prsu_id is the name of the PRSU (repeat variable as required)

18 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

19 Wait for the unit to go InSv. The unit achieves superframe sync and data sync when it goes InSv. The unit can take two to three minutes to go InSv.

20 Confirm the inactive unit has the correct patches.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database to reflect the current PRSU list for the PLGC. Type

>DBAUDIT PLGC plgc_no unit_no

and press the Enter key.

where

plgc_no is the number of the PLGC

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT PLGC 0 1
```

c. Display the PRSU list for the inactive unit. Type

>REPORT DEST PLGC plgc_no unit_no

and press the Enter key.

where

plgc_no is the number of the PLGC

unit_no is the number of the inactive unit

Example of command

```
>REPORT DEST PLGC 0 1
```

d. Confirm that 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 21
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 was not performed. Return to step 21. If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 22. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

21 Exit the utility. Type

>QUIT

and press the Enter key.

22 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the switch can not perform a warm switch of activity (SWACT), do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

23 Confirm the switch of activity. Type

>Y

24 Wait for the unit to go InSv. The unit achieves achieves superframe sync and data sync when it goes InSv. The unit can take two to three minutes to go InSv.

If	Do
one unit is updated	Step 11
both units are updated	Step 26
Note: If one unit is updated, the inactive unit will be ISTb due to the load mismatch between the unit and the PM inventory table. The node will remain ISTb until you update both units with the new load.	

25 If a flash loader card (SX06 for SX05 processor, NT7X05AA for MX77 processor) exists in a PM, it is necessary to copy the new PM load to the SX06/NT7X05AA card. Type

>XPMSTOR PM

and press the Enter key.

Note: This process will copy the new PM load to the flash loader without taking either side of the PM out of service. The PM will return to an InSv condition once the copying process is complete.

26 You have updated the PLGC and completed this procedure. Review the update schedule for the office.

If you have	Do
other PLGCs to update during this shift	Follow the guidelines in “Overview of manual update process" in this document. You can repeat this procedure, use broadcast mate loading, or use parallel loading on the remaining PLGCs.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no other PMs or hardware types to update during this shift	Go to the procedure “Finishing a PM update shift" in this document.

Series-III Peripherals

Note: Because of the order in which peripherals are upgraded, the upgrade procedures for PDTC, DTC, DTCOi, DTCO, DTCO2, DTCOi2 and LTC which are Series-II Peripherals are included in this section.

General Notes

- For large configuration offices (>20 LIU7s), it is recommended that the broadcast loading section of the LIU upgrade occurs in groups of no more than 10 LIU7s at a time.
- The Series-III peripherals should be loaded outside in, that is, EIUs, LIU7s, NIUs first before the LIMs.
- Care **must** be taken to insure that no nodes on the Telco's SS7 network are isolated during peripheral loading.
- The following steps would normally be done out of hours, but can be done during the day at the Telco's discretion. The appropriate support organisations (SCCs, SS7 network control centres etc.) should be notified before beginning. Ideally, there should be no SS7 alarms before beginning and an attempt should be made the day before loading to clear all SS7 alarms.
- If the Telco requires a soak of the new load in one LIU7 or LIM before loading all peripherals, it should be noted that all subtending peripherals (i.e. LIU7s) assigned to a given LIM **must** be upgraded before the LIM is upgraded.
- It is not recommended to run with different loads in the LIM units for an extended period of time.

EIU Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in a Ethernet Interface Unit (EIU).

Prerequisites

Perform the procedure "Starting an Upgrade Shift" to confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The peripheral to be upgraded is in-service.
- The peripheral to be upgraded has successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Notes

There are no special notes for this procedure.

Steps of Procedure

At the CI level of the MAP display

1 Copy new EIU load to disk and update TABLE PMLOADS.

>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file> <backup_volume> n

>QUIT

2 Before proceeding, review "Update Procedures" on page 74.

3 Obtain a hard copy of TABLE LIUINV.

4 Change the 'LOAD' field in TABLE LIUINV for all EIUs to reflect the new loadname. The correct loadname can be determined by comparing the hardware information contained in the field 'PROCPEC' of TABLE LIUINV obtained in step 1 with the cross-reference information found on page 35.

5 Change the new loadnames in TABLE LIUINV

>TABLE LIUINV

>POS EIU <pm_number>

>CHANGE LOAD <new_ loadname>

>QUIT

6 POST, BSY and RTS the peripheral as described below. The EIU does not carry calls so the call tests cannot be done.

>MAPCI; MTC; PM

>POS EIU <pm_number>

>BSY

>RTS

Note: This will ensure that no obvious hardware faults are present before upgrading

7 BSY the peripheral and LOAD the POSTed PM

>BSY

>LOADPM

8 Apply each PRSU in accordance with any special application instructions.

>PRSM

>DBAUDIT EIU <pm_number>

>APPLY <prsu_id> IN EIU <pm_number>

9 You can RTS the PM with the new load once the PRSUs have been applied.

>RTS

The PM should pass out-of-service tests, return to an INSV state and pass in-service tests.

10 Once the PM has been returned to service, tell the CM which PRSUs are used by this PM

>PRSM

>DBAUDIT <pm_type> <pm_number>

11 Check for any faults on the peripheral

>QUERYPM FLT

12 Verify that the correct loadname appears.

>QUERYPM

13 There are no links on an EIU.

14 Critical LAN contivity tests should be run to verify that the new load functions correctly.

15 You **must** now take an image of the new PATCHed EIU load. First rename the current load file, or move it to another device.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

Example

>RENAMEFL MAS09BJ MAS09BJ_OLD

16 Take an image of the Series-III PM node

>DUMP <file_name> <device_id> <dump_type> <action_type> <scope> NODE <node_name> <device_number>

Example

>DUMP ETT17BN D000PMLOADS ACTIVE RETAIN NODE EIU

17 When the IMAGE has successfully completed then rename the current Series-III load file, or move it to another device.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

Example

>RENAMEFL ETT17BN_EIU ETT17BN

18 Use the CI command, PMLOADER to bind in the new location of the image file.

Audit the PM load volumes.This task may take a number of minutes to complete depending on volume configuration and other switch activity:

>PMLOADER AUDIT ALL

Query the alarm condition to confirm the audit has not contributed to any alarm condition:

>PMLOADER QUERY ALARM

Confirm that the response is:

```
Table PMLOADS is not contributing to any alarm.
```

19 A copy of the original unPATCHed Series-III load should always be kept and, a record of all current PRSUs contained in the PATCHed version of the Series-III load. In essence the same procedures and methods that are used for CM images should be applied to Series-III loads.

LIU7 Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in a CCS7 Link Interface Unit (LIU7).

Prerequisites

Perform the procedure "Starting an Upgrade Shift" to confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The peripheral to be upgraded is in-service.
- The peripheral to be upgraded has successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Notes

There are no special notes for this procedure.

Steps of Procedure

At the CI level of the MAP display

1 Copy new LIU load to disk and update TABLE PMLOADS.

```
>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file>
<backup_volume> n

>QUIT
```

2 Before proceeding, review "Update Procedures" on page 74.

3 Obtain a hard copy of TABLE LIUINV and TABLE C7LINK.

4 Before proceeding, determine which links in TABLE C7LINK support the inhibit command. The Telco should be aware of which links cannot be inhibited due to their network configurations as this information is needed for subsequent steps. This means that the Links will/will not respond to the inhibit command, depending on the network configuration. The Telco should be aware of which links will need manual intervention at the far end in order

to return them to service. This means that the Far end switch will only allow 90 secs out-of-service time before requiring manual intervention to bring them back into service.

5 At the CCS7 level of the MAP, obtain a hard copy of the of the results of the 'DISALM' command. Resolve and/or understand all current CCS7 alarms.

6 Change the 'LOAD' field in TABLE LIUINV for all LIU7s to reflect the new loadname. The correct loadname can be determined by comparing the hardware information contained in the field 'PROCpec' of TABLE LIUINV obtained in step 2 with the cross-reference information found in “PM-to-load cross-reference” on page 21.

7 Change the new loadnames in TABLE LIUINV

>TABLE LIUINV

>POS <pm_type> <pm_number>

>CHANGE LOAD <new_ loadname>

>QUIT

8 Select one in-service LIU to be upgraded. At the C7LKSET level of the MAP, POST the linkset that appears in TABLE C7LINK for that LIU. For the related link in the linkset, type

>MAPCI; MTC; CCS; CCS7; C7LKSET

>POST C <linkset>

>INH <link_number>

Note: This command will not work if the link is inhibited, refer to the Caution at the beginning of this section.

The sync state of the link should change from 'INSV' to 'LINH'

Note: link may not inhibit due to configuration. (check and continue)

>BSY <link_number>

>DEACT <link_number>

9 POST, BSY and RTS the peripheral as described below. Ensure that the PM selected has in-service circuits on it so that critical call tests can be carried out on that PM.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY

>RTS

Note: This will ensure that no obvious hardware faults are present before upgrading

10 BSY the LIU7 as described below.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY

11 LOAD the POSTed PM

>LOADPM

12 Apply each PRSU in accordance with any special application instructions.

>PRSM

>DBAUDIT LIU7 <pm_number>

>APPLY <prsu_id> IN LIU7 <pm_number>

13 You can RTS the PM with the new load once the PRSUs have been set.

>RTS

The PM should pass out-of-service tests, return to an INSV state and pass in-service tests.

14 Once the PM has been returned to service, tell the CM which PRSUs are used by this PM

>PRSM

>DBAUDIT <pm_type> <pm_number>

15 Check for any faults on the peripheral

>QUERYPM FLT

16 Verify that the correct loadname appears.

>QUERYPM

17 At the C7LKSET level, POST each linkset that has deactivated links and type:

>POST C <linkset>

>ACT <link_number>

>RTS <link_number>

>UINH <link_number>

18 Each should return to the traffic state of INSV. The exceptions would be those links not INSV before starting this procedure or links that require an RTS at the far end.

19 Critical call processing tests should be run to verify that the new load functions correctly.

20 You **must** now take an image of the new PATCHed LIU7 load. First rename the current load file, or move it to another device.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

Example

>RENAMEFL MAS09BJ MAS09BJ_OLD

21 Take an image of the Series-III PM node

>DUMP <file_name> <device_id> <dump_type> <action_type> <scope> NODE <node_name> <device_number>

Example

>DUMP MAS05BB D000PMLOADS ACTIVE RETAIN NODE LIU7 1

22 When the IMAGE has successfully completed then rename the current Series-III load file, or move it to another device.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

Example

>RENAMEFL MAS05BB_LIU7 MAS05BB

23 Perform a NIL change to the load name in table PMLOADS by completing the following steps.

a. Open table PMLOADS. Type

>TABLE PMLOADS

and press the Enter key.

b. Position on the datafill tuple for the load. Type

>POS load_name

and press the Enter key

where

load_name is the name of the EIU load

Example of command

>POS ETC12BF

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.

24 Use the CI command, PMLOADER to bind in the new location of the image file.

Audit the PM load volumes.This task may take a number of minutes to complete depending on volume configuration and other switch activity:

>PMLOADER AUDIT ALL

Query the alarm condition to confirm the audit has not contributed to any alarm condition:

>PMLOADER QUERY ALARM

Confirm that the response is:

```
Table PMLOADS is not contributing to any alarm.
```

25 A copy of the original unPATCHed Series-III load should always be kept and, a record of all current PRSUs contained in the PATCHed version of the Series-III load. In essence the same procedures and methods that are used for CM images should be applied to Series-III loads.

Broadcast Loading

This method may be used if LIU7s are redundant (paired) and you are allowed to upgrade one LIU7 associated with a linkset along with another LIU7 associated with another linkset. Careful planning AND permission by the site supervisor is required. This method can also be used to upgrade LIU7s that are not INSV

It is recommended that the remaining peripherals of that type be loaded in groups of no more than ten. These peripherals **must** have the same loadname and be of the same PM Type.

26 Update the relevant TUPLES in the inventory table and inhibit the links as described in section on page 301.

27 Repeat the previous step for all relevant PMs

28 For all the LIU7s to be broadcast loaded, at the C7LKSET level of the MAP, POST the linksets that appear in TABLE C7LINK for each of LIU7s. For the related link in the linkset, type

>MAPCI;MTC;CCS;CCS7;C7LKSET

>POST C <linkset>

>INH <link_number>

The sync state of the link should change from 'INSV' to 'LINH'

Note: link may not inhibit due to configuration. (check and continue)

>BSY <link_number>

>DEACT <link_number>

29 LOAD the POSTed PM set and return to service.

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1pm_no_2> ... <pm_no_10>

>BSY ALL

>LOADPM ALL

>RTS All

Note: The yes or no will have to be entered for each peripheral

30 Check for any faults on the peripherals that have just been loaded

>QUERYPM FLT

31 Verify that the correct loadname appears.

>QUERYPM

32 **Allow a 10 to 30 minute soak-period before proceeding.**
Ensure the logs indicate no peripheral or call processing problems.

33 At the C7LKSET level, POST each linkset that has deactivated links and type:

>ACT <link_number>

>RTS <link_number>

>UINH <link_number>

34 Each should return to the traffic state of INSV. The exceptions would be those links not INSV before starting this procedure or links that require an RTS at the far end.

35 Critical call processing tests should be run to verify that the new load functions correctly.

36 Repeat the above steps until all PMs have been upgraded

37 Once you have loaded all of the PMs of a certain PM type you **must** match the PRSUs in the PM with the CM.

>PRSM

>DBAUDIT <pm_type>

38 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

MLIU Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in a Multiple Link Interface Unit (MLIU).

Prerequisites

Perform the procedure "Starting an Upgrade Shift" to confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The peripheral to be upgraded is in-service.
- The peripheral to be upgraded has successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Notes

There are no special notes for this procedure.

Steps of Procedure

At the CI level of the MAP display

1 Copy new MLIU load to disk and update TABLE PMLOADS.

>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file> <backup_volume> n

>QUIT

2 Before proceeding, review "Update Procedures" on page 74.

3 Obtain a hard copy of TABLE LIUINV and TABLE C7LINK.

4 Before proceeding, determine which links in TABLE C7LINK support the inhibit command. The Telco should be aware of which links cannot be inhibited due to their network configurations as this information is needed for subsequent steps. This means that the Links will/will not respond to the inhibit command, depending on the network configuration. The Telco should be aware of which links will need manual intervention at the far end in order to return them to service. This means that the Far end switch will only allow

90 secs out-of-service time before requiring manual intervention to bring them back into service.

5 At the CCS7 level of the MAP, obtain a hard copy of the of the results of the 'DISALM' command. Resolve and/or understand all current CCS7 alarms.

6 Change the 'LOAD' field in TABLE LIUINV for all MLIUs to reflect the new loadname. The correct loadname can be determined by comparing the hardware information contained in the field 'PROCpec' of TABLE LIUINV obtained in step 2 with the cross-reference information found in “PM-to-load cross-reference” on page 21.

7 Change the new loadnames in TABLE LIUINV

>TABLE LIUINV

>POS <pm_type> <pm_number>

>CHANGE LOAD <new_ loadname>

>QUIT

8 Select one in-service MLIU to be upgraded. At the C7LKSET level of the MAP, POST the linkset that appears in TABLE C7LINK for that MLIU. For the related link in the linkset, type

>MAPCI; MTC; CCS; CCS7; C7LKSET

>POST C <linkset>

>INH <link_number>

Note: This command will not work if the link is inhibited, refer to the Caution at the beginning of this section.

The sync state of the link should change from 'INSV' to 'LINH'

Note: link may not inhibit due to configuration. (check and continue)

>BSY <link_number>

>DEACT <link_number>

9 POST, BSY and RTS the peripheral as described below. Ensure that the PM selected has in-service circuits on it so that critical call tests can be carried out on that PM.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY

>RTS

Note: This will ensure that no obvious hardware faults are present before upgrading

10 BSY the MLIU as described below.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY

11 LOAD the POSTed PM

>LOADPM

12 Apply each PRSU in accordance with any special application instructions.

>PRSM

>DBAUDIT MLIU <pm_number>

>APPLY <prsu_id> IN MLIU <pm_number>

13 You can RTS the PM with the new load once the PRSUs have been set.

>RTS

The PM should pass out-of-service tests, return to an INSV state and pass in-service tests.

14 Once the PM has been returned to service, tell the CM which PRSUs are used by this PM

>PRSM

>DBAUDIT <pm_type> <pm_number>

15 Check for any faults on the peripheral

>QUERYPM FLT

16 Verify that the correct loadname appears.

>QUERYPM

17 At the C7LKSET level, POST each linkset that has deactivated links and type:

>POST C <linkset>

>ACT <link_number>

>RTS <link_number>

>UINH <link_number>

18 Each should return to the traffic state of INSV. The exceptions would be those links not INSV before starting this procedure or links that require an RTS at the far end.

19 Critical call processing tests should be run to verify that the new load functions correctly.

20 You **must** now take an image of the new PATCHed MLIU load. First rename the current load file, or move it to another device.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

Example

>RENAMEFL CHM19BU CHM19BU_OLD

21 Take an image of the Series-III PM node

>DUMP <file_name> <device_id> <dump_type> <action_type> <scope> NODE <node_name> <device_number>

Example

>DUMP CHM19BU D000PMLOADS ACTIVE RETAIN NODE MLIU 1

22 When the IMAGE has successfully completed then rename the current Series-III load file, or move it to another device.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

Example

>RENAMEFL CHM19BU_MLIU CHM19BU

23 Use the CI command, PMLOADER to bind in the new location of the image file.

Audit the PM load volumes.This task may take a number of minutes to complete depending on volume configuration and other switch activity:

>PMLOADER AUDIT ALL

Query the alarm condition to confirm the audit has not contributed to any alarm condition:

>PMLOADER QUERY ALARM

Confirm that the response is:

```
Table PMLOADS is not contributing to any alarm.
```

24 A copy of the original unPATCHed Series-III load should always be kept and, a record of all current PRSUs contained in the PATCHed version of the Series-III load. In essence the same procedures and methods that are used for CM images should be applied to Series-III loads.

Broadcast Loading

This method may be used if MLIUs are redundant (paired) and you are allowed to upgrade one MLIU associated with a linkset along with another MLIU associated with another linkset. Careful planning AND permission by the site supervisor is required. This method can also be used to upgrade MLIUs that are not INSV

It is recommended that the remaining peripherals of that type be loaded in groups of no more than ten. These peripherals **must** have the same loadname and be of the same PM Type.

25 Update the relevant TUPLES in the inventory table and inhibit the links as described in section on page 301.

26 Repeat the previous step for all relevant PMs

27 For all the MLIUs to be broadcast loaded, at the C7LKSET level of the MAP, POST the linksets that appear in TABLE C7LINK for each of MLIUs. For the related link in the linkset, type

>MAPCI;MTC;CCS;CCS7;C7LKSET

>POST C <linkset>

>INH <link_number>

The sync state of the link should change from 'INSV' to 'LINH'

Note: link may not inhibit due to configuration. (check and continue)

>BSY <link_number>

>DEACT <link_number>

28 LOAD the POSTed PM set and return to service.

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1pm_no_2> ... <pm_no_10>

>BSY ALL

>LOADPM ALL

>RTS All

Note: The yes or no will have to be entered for each peripheral

29 Check for any faults on the peripherals that have just been loaded

>QUERYPM FLT

30 Verify that the correct loadname appears.

>QUERYPM

31 **Allow a 10 to 30 minute soak-period before proceeding.**
Ensure the logs indicate no peripheral or call processing problems.

32 At the C7LKSET level, POST each linkset that has deactivated links and type:

>ACT <link_number>

>RTS <link_number>

>UINH <link_number>

33 Each should return to the traffic state of INSV. The exceptions would be those links not INSV before starting this procedure or links that require an RTS at the far end.

34 Critical call processing tests should be run to verify that the new load functions correctly.

35 Repeat the above steps until all PMs have been upgraded

36 Once you have loaded all of the PMs of a certain PM type you **must** match the PRSUs in the PM with the CM.

>PRSM

>DBAUDIT <pm_type>

37 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

NIU Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in a Network Interface Unit (NIU).

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The peripheral to be upgraded is in-service.
- The peripheral to be upgraded has successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Notes

Observe the following notes before proceeding:

- Using the command “LOADPM INACTIVE” will cause the unit to MATE LOAD even if it is appended with the “CC” sub-command. To make life easier, ensure that either UNIT 0 or UNIT 1, of a particular type of PM, is ACTIVE on all PMs. This can be done with a Warm SwAct.
- Obtain a Copy of the office records that detail the circuits that are using the NIU and compare it with your hard copy of TABLE C7LINK (look for the LINKDATA that has LIUCHANNEL datafilled). This will help you identify the cause should trouble arise.

Steps of Procedure

At the CI level of the MAP display

1 Before proceeding, “Update Procedures” on page 74

2 Add the new load names in TABLE PMLOADS (if applicable), specifying the disk volume containing the load.

>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file> <backup_volume> n

>QUIT

3 Change the loadnames in TABLE NIUINV.

>TABLE NIUINV

>POS <pm_type> <pm_number>

>CHANGE LOAD <new_ loadname>

>QUIT

Upgrade the First PM (non-broadcast loading)

4 POST, BSY and RTS the peripheral as described below. Ensure that the PM selected has in-service circuits on it so that critical call tests can be carried out on that PM.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY UNIT <unit_number>

>RTS UNIT <unit_number>

Note: This will ensure that no obvious hardware faults are present before upgrading

5 BSY the NIU as described below.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number> <unit_number>

>BSY UNIT <unit_number>

6 LOAD the PM

>LOADPM UNIT <unit_number>

7 After the PM is loaded you can apply the PRSUs designated, to the new load.

Note: This step is carried out if loading only the first unit.

>PRSM

>DBAUDIT NIU <pm_number> <unit_number>

>APPLY <prsu_id> IN NIU <pm_number> <unit_number>

8 You can RTS the PM with the new load once the PRSUs have been applied.

>RTS NIU <unit_number>

The PM should pass out-of-service tests, return to an INSV state and pass in-service tests.

9 Once the PM has been returned to service, tell the CM which PRSUs are used by this PM.

>PRSM

>DBAUDIT NIU <pm_number> <unit_number>

10 **Allow a 10 to 30 minute soak-period before proceeding.**
Ensure the logs indicate no peripheral or call processing problems.

11 Check for any faults on the peripheral

>QUERYPM FLT

12 Verify that the correct loadname appears.

>QUERYPM

13 Critical call processing tests should be run to verify that the new load functions correctly.

14 You **must** now take an image of the new PATCHed NIU load. First rename the current load file, or move it to another device.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

Example

>RENAMEFL NRS05BC NRS05BC_OLD

15 Take an image of the Series-III PM node

>DUMP <file_name> <device_id> <dump_type> <action_type> <scope> NODE <node_name> <device_number> <unit_number>

Example

>DUMP NRS05BC D000PMLOADS ACTIVE RETAIN NODE NIU 1 1

16 When the IMAGE has successfully completed then rename the current Series-III load file, or move it to another device.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

Example

>RENAMEFL NRS05BC_NIU NRS05BC

17 Perform a NIL change to the load name in table PMLOADS by completing the following steps.

a. Open table PMLOADS. Type

>TABLE PMLOADS

and press the Enter key.

b. Position on the datafill tuple for the load. Type

>POS load_name

and press the Enter key

where

load_name is the name of the EIU load

Example of command

>POS ETC12BF

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.

18 Use the CI command, PMLOADER to bind in the new location of the image file.

Audit the PM load volumes.This task may take a number of minutes to complete depending on volume configuration and other switch activity:

>PMLOADER AUDIT ALL

Query the alarm condition to confirm the audit has not contributed to any alarm condition:

>PMLOADER QUERY ALARM

Confirm that the response is:

```
Table PMLOADS is not contributing to any alarm.
```

19 A copy of the original unPATCHed Series-III load should always be kept and, a record of all current PRSUs contained in the PATCHed version of the Series-III load. In essence the same procedures and methods that are used for CM images should be applied to Series-III loads.

20 **Allow a reasonable soak-period before proceeding to the next steps (10-30 minutes)**

21 SwAct the peripheral.

>SWACT

Note: If the cannot be performed then the procedure should be halted and the ETAS organisation notified:.

22 Repeat steps 4 -12 for the newly INACTIVE UNIT

23 Once you have loaded all of the PMs of a certain PM type you **must** match the PRSUs in the PM with the CM.

>PRSM

>DBAUDIT <pm_type>

24 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

LIM Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in the Link Interface Module (LIM).

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The peripheral to be upgraded is in-service.
- The peripheral to be upgraded has successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Notes

Observe the following notes before proceeding:

- Using the command “LOADPM INACTIVE” will cause the unit to MATE LOAD even if it is appended with the “CC” sub-command. To make life easier, ensure that either UNIT 0 or UNIT 1, of a particular type of PM, is ACTIVE on all PMs. This can be done with a Warm SwAct.
- Obtain a Hard Copy of TABLE LIMINV, C7LINK and LIUINV. This will help you identify the cause should trouble arise.
- Query CCS7 alarms before and after each unit is busied or returned to service by using the command below:

  >MAPCI; MTC; CCS; QUERYALM CCS7

Steps of Procedure

At the CI level of the MAP display

1 Before proceeding, “Update Procedures” on page 74

2 Add the new loadname in TABLE PMLOADS (if applicable), specifying the disk volume containing the load.

>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file> <backup_volume> n

>QUIT

3 Change the loadname in TABLE LIMINV

>TABLE LIMINV

>POS <pm_number>

>CHANGE LOAD <new_ loadname>

>QUIT

Upgrade the First PM (non-broadcast loading)

4 POST, BSY and RTS the peripheral as described below. Ensure that the PM selected has in-service circuits on it so that critical call tests can be carried out on that PM.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY UNIT <unit_number>

>RTS UNIT <unit_number>

Note: This will ensure that no obvious hardware faults are present before upgrading

5 BSY the LIM unit as described below.

>MAPCI; MTC; PM; POST <pm_type> <pm_number>

>BSY UNIT <unit_number>

6 LOAD the PM one unit at a time.

>LOADPM UNIT <unit_number>

7 Perform this step if this is the first unit to be upgraded, and if you have subsequent units to be upgraded.

>PRSM

>DBAUDIT LIM <pm_number> <unit_number>

Repeat this step for all PRSUs to be applied

>APPLY <prsu_id> IN LIM <pm_number> <unit_number>

8 Return to service the MANB unit of the LIM

>RTS UNIT <unit_number>

9 Once the PM has been returned to service, tell the CM which PRSUs are used by this PM

>PRSM

>DBAUDIT <pm_type> <pm_number> <unit_number>

>REPORT DEST LIM <pm_number> <pm_unit>

10 **Allow a 10 to 30 minute soak-period before proceeding.**
Ensure the logs indicate no peripheral or call processing problems.

11 Check for any faults on the peripheral

12 Verify that the correct loadname appears.

>QUERYPM

13 Critical call processing tests should be run to verify that the new load functions correctly.

14 You **must** now take an image of the new PATCHed LIM load. First rename the current load file, or move it to another device.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

Example

>RENAMEFL LPC07BM LPC07BM_OLD

15 Take an image of the Series-III PM node

>DUMP <file_name> <device_id> <dump_type> <action_type> <scope> NODE <node_name> <device_number> <unit_number>

Example

>DUMP LPC07BM D000PMLOADS ACTIVE RETAIN NODE LIM 1 1

16 When the IMAGE has successfully completed then rename the current Series-III load file, or move it to another device.

>DISKUT; LF <volume_name>

>RENAMEFL <present_name> <target_name>

>RENAMEFL LPC05BC_LIM LPC05BC

17 Perform a NIL change to the load name in table PMLOADS by completing the following steps.

a. Open table PMLOADS. Type

>TABLE PMLOADS

and press the Enter key.

b. Position on the datafill tuple for the load. Type

>POS load_name

and press the Enter key

where

load_name is the name of the EIU load

Example of command

>POS ETC12BF

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.

18 Use the CI command, PMLOADER to bind in the new location of the image file.

Audit the PM load volumes.This task may take a number of minutes to complete depending on volume configuration and other switch activity:

>PMLOADER AUDIT ALL

Query the alarm condition to confirm the audit has not contributed to any alarm condition:

>PMLOADER QUERY ALARM

Confirm that the response is:

```
Table PMLOADS is not contributing to any alarm.
```

19 A copy of the original unPATCHed Series-III load should always be kept and, a record of all current PRSUs contained in the PATCHed version of the Series-III load. In essence the same procedures and methods that are used for CM images should be applied to Series-III loads.

20 Wait 10 to 30 minutes before proceeding to perform upgrade for the other unit. Repeat steps 4 to 12.

21 You have completed this procedure.

Broadcast Loading

This step is usually not applicable because only 1 or 2 LIMs are supplied per site.

PDTC Upgrade Procedure

Application

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

Use this procedure to update the PCM30 digital trunk controller (PDTC).

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 names of all new loads for the PDTC are datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All peripheral module (PM) logs are enabled.
- The PDTC is in service.
- The PDTC passed its last routine exercise (REX) test within the last two weeks.
- All automatic REX tests are suspended in the office.
- No post-release software manager (PRSM) automated processes, such as DBAUDIT and AUTOAPP, are scheduled to run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. You need this information to complete this procedure.

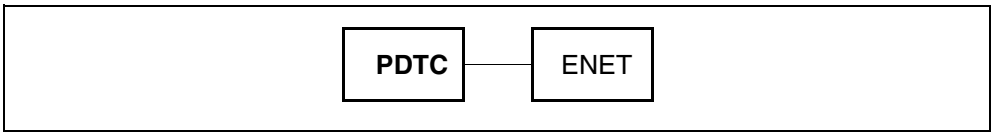
- Do you need to update the the XPM processor firmware?
- Is the first unit you update the first unit in the office to use the new load?
- Do you have to apply any post-release software units (PRSU) manually to the new load?
- Is the new PM load a pre-patched XPM load (PPXL)?

For help, 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 PDTC. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

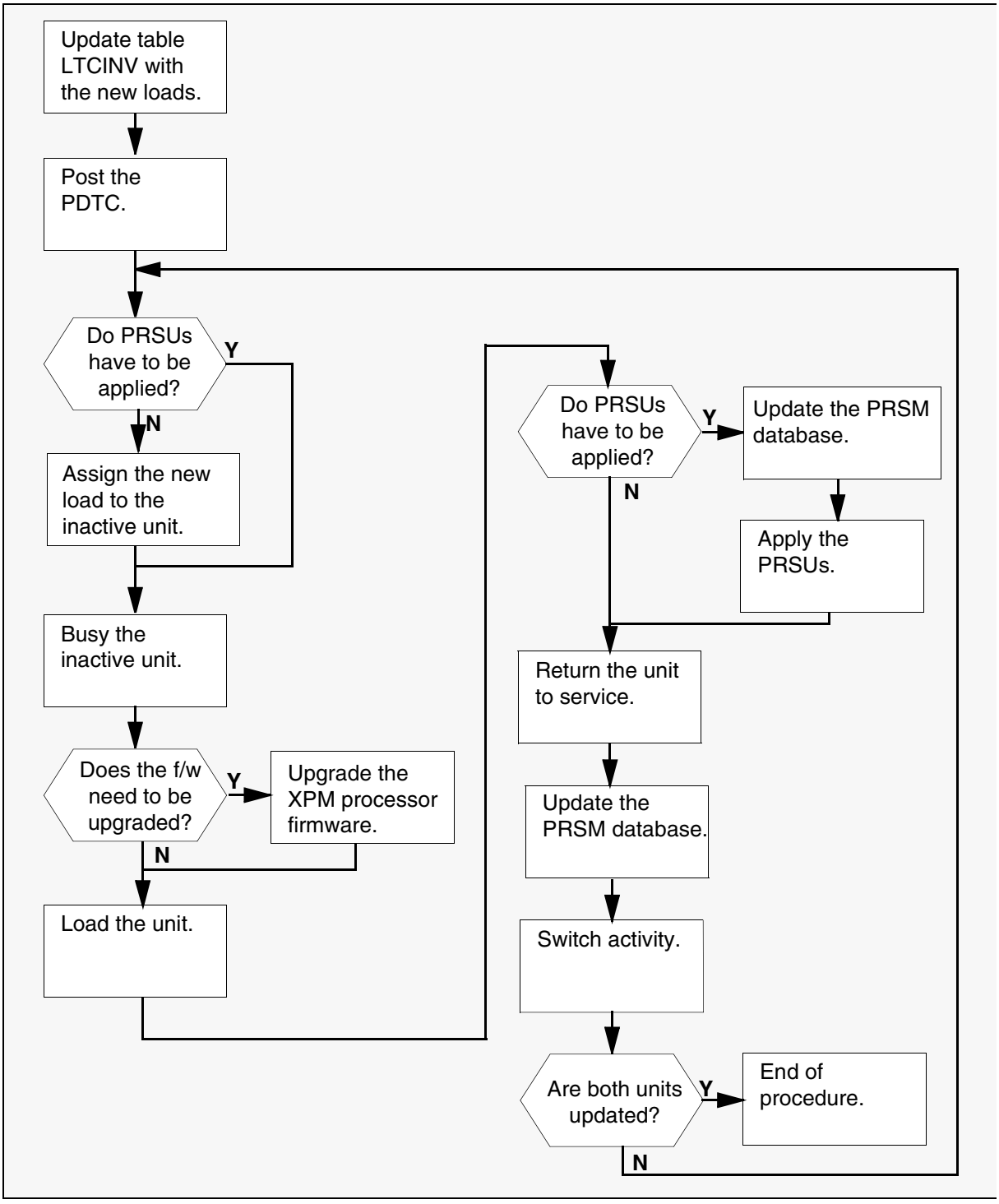
Node configuration for PDTC



Notes

None.

Summary of procedure



ATTENTION

Follow office policy is 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.

Steps of procedure

At the CI level of the MAP display

1 Select a PDTC to update

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

3 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE LTCINV

and press the Enter key.

If	To view the tuples in a	Do
	packed format	Step 4b.
	normal or expanded format	Step 3 Step c.

b. Change the format of the display to a packed format. Type

>FORMAT PACK

and press the Enter key.

c. Position on the datafill tuple for the PDTC. Type

>POS PDTC pdtc_no

and press the Enter key.

where

pdtc_no is the number of the PDTC

Example of command

```
>POS PDTC 0
```

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched XPM 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. 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 ODT08BC
```

e. Confirm the change. Type

>Y

and press the Enter key.

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

If you	Do
need to update the XPM processor firmware in the PDTC	Step 4
do not need to update the XPM processor firmware in the PDTC	Step 5

Note: Review the update schedules and checklists to determine if you must update the XPM processor firmware. The procedure “Preparing for a PM update" or “Preparing for a PM update using PMUPGRADE" determines the need for an update of XPM processor firmware.

4 Change the name of the XPM processor firmware load in the inventory table.

a. Change the name of the XPM processor firmware load to the new firmware load name. Type

>CHA E2LOAD fw_load

and press the Enter key.

where

fw_load is the name of the new XPM processor firmware load

Example of command

```
>CHA E2LOAD UPFWNJ03
```

b. Confirm the change. Type

>Y

and press the Enter key.

5 Close the table. Type

>QUIT

and press the Enter key.

6 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

7 Post the PDTC. Type

>POST PDTC pdtc_no

and press the Enter key.

where

pdtc_no is the number of the PDTC

Example of command

```
>POST PDTC 0
```

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

8 Identify the inactive unit. You will update this unit.

9 Review the update schedules for the office. 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.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b.

ATTENTION

After you perform 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 load to the inactive unit. Type

>ASSIGN UPGRADE_LD new_load IN DESTSET PDTC pdtc_no unit_no

and press the Enter key.

where

new_load is the name of the new load

pdtc_no is the number of the PDTC

unit_no is the number of the inactive unit

Example of commands

```
>ASSIGN UPGRADE_LD ODT08BC IN DESTSET PDTC 0 1
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

11 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	Step 12
do not need to update the XPM processor firmware in the inactive unit	Step 13

12 LOAD the new firmware into the PMs INACTIVE UNIT if applicable. Type

>LOADFW INACTIVE

>LOADFW INACTIVE UPGRADE

and press the Enter key.

13

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

Load the inactive unit. Type

>LOADPM INACTIVE

and press the Enter key.

If the inactive unit is	Do
the first unit in the office to use the new load	Step 14

If the inactive unit is	Do
not the first unit in the office to use the new load	Step 16

14 Review the PM update checklist for the office. Determine if you must apply PRSUs manually to the new load.

If you	Do
need to apply PRSUs manually to the new load	Step 15
do not need to apply PRSUs manually to the new load	Step 16

15

CAUTION
Possible service interruption
Apply PRSUs immediately after you load the PM. Failure to do so can increase administrative time and interrupt service.

Apply the PRSUs.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database with the new load name. Type

>DBAUDIT PDTC pdtc_no unit_no

and press the Enter key.

where

pdtc_no is the number of the PDTC

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT PDTC 0 1
```

c. Apply any PRSUs that need to be manually applied. Type

>APPLY 'prsu_id IN PDTC pdtc_no unit_no

and press the Enter key.

where

prsu_id is the name of the PRSU (repeat variable as required)

pdtc_no is the number of the PDTC

unit_no is the number of the inactive unit

Example of single-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 IN PDTC 0 1
```

Example of double-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +
>'XD02908 | XJL87X08 | XAH13X08 IN PDTC 0 1
```

Note: You do not need to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility. Type

>QUIT

and press the Enter key.

16 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

17 Wait for the unit to go InSv. The unit achieves achieves superframe sync and data sync when it goes InSv. The unit can take two to three minutes to go InSv.

18 Confirm the inactive unit has the correct patches.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database to reflect the current PRSU list for the PDTC. Type

>DBAUDIT PDTC pdtc_no unit_no

and press the Enter key.

where

pdtc_no is the number of the PDTC

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT PDTC 0 1
```

c. Display the PRSU list for the inactive unit. Type

>REPORT DEST PDTC pdtc_no unit_no

and press the Enter key.

where

pdtc_no is the number of the PDTC

unit_no is the number of the inactive unit

Example of command

```
>REPORT DEST PDTC 0 1
```

d. Confirm that 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 19
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 was not performed. Return to Step b. If you performed a DBAUDIT, contact the next level of support.

If	Do
PRSUs from the previous load are listed at NV status	Go to Step 19. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

19 Exit the utility. Type

>QUIT

and press the Enter key.

20 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the switch can not perform a warm switch of activity (SWACT), do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

21 Confirm the switch of activity. Type

>Y

22 Wait for the unit to go InSv. The unit achieves achieves superframe sync and data sync when it goes InSv. The unit can take two to three minutes to go InSv.

If	Do
one unit is updated	Step 8
both units are updated	Step 24
Note: If one unit is updated, the inactive unit will be ISTb due to the load mismatch between the unit and the PM inventory table. The node will remain ISTb until you update both units with the new load.	

23 If a flash loader card (SX06 for SX05 processor, NT7X05AA for MX77 processor) exists in a PM, it is necessary to copy the new PM load to the SX06/NT7X05AA card. Type

>XPMSTOR PM

and press the Enter key.

Note: This process will copy the new PM load to the flash loader without taking either side of the PM out of service. The PM will return to an InSv condition once the copying process is complete.

24 You have updated the PDTC and completed this procedure. Review the update schedule for the office.

If you have	Do
other PDTCs to update during this shift	Follow the guidelines in “Overview of manual update process" in this document. You can repeat this procedure, use broadcast mate loading, or use parallel loading on the remaining PDTCs.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no other PMs or hardware types to update during this shift	Go to the procedure “Finishing a PM update shift" in this document.

SCPM (PDTC) Upgrade Procedure

Application

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

Use this procedure to update the PCM30 Shrink Common Peripheral Module (SCPM).

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 names of all new loads for the PDTC are datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All peripheral module (PM) logs are enabled.
- The PDTC is in service.
- The PDTC passed its last routine exercise (REX) test within the last two weeks.
- All automatic REX tests are suspended in the office.
- No post-release software manager (PRSM) automated processes, such as DBAUDIT and AUTOAPP, are scheduled to run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. You need this information to complete this procedure.

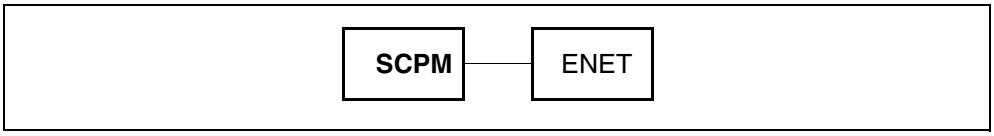
- Do you need to update the XPM processor firmware?
- Is the first unit you update the first unit in the office to use the new load?
- Do you have to apply any post-release software units (PRSU) manually to the new load?
- Is the new PM load a pre-patched XPM load (PPXL)?

For help, 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 SCPM.

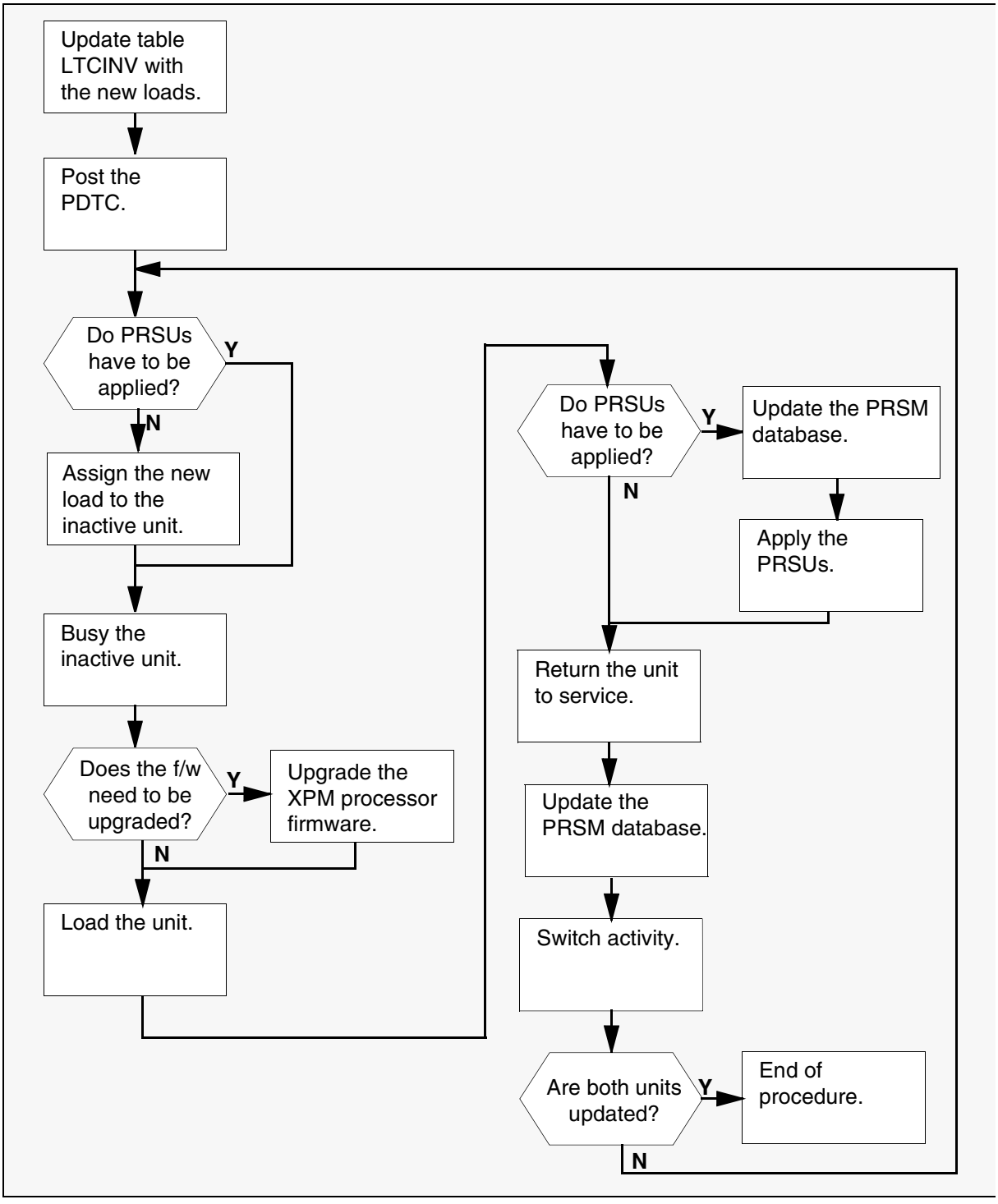
Node configuration for SCPM



Notes

None.

Summary of procedure



ATTENTION

Follow office policy is 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.

Steps of procedure

At the CI level of the MAP display

1 Select a PDTC to update

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

3 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE LTCINV

and press the Enter key.

If you wish to view the tuples in	Do
packed format	Step 3b
normal or expanded format	Step c.

b. Change the format of the display to a packed format. Type

>FORMAT PACK

and press the Enter key.

c. Position on the datafill tuple for the PDTC. Type

>POS PDTC pdtc_no

and press the Enter key.

where

pdtc_no is the number of the PDTC

Example of command

```
>POS PDTC 0
```

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched XPM 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. 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 BNKOSI05
```

e. Confirm the change. Type

>Y

and press the Enter key.

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

If you	Do
need to update the XPM processor firmware in the PDTC	Step 4
do not need to update the XPM processor firmware in the PDTC	Step 6

Note: Review the update schedules and checklists to determine if you must update the XPM processor firmware. The procedure "Preparing for a PM update" or "Preparing for a PM update using PMUPGRADE" determines the need for an update of XPM processor firmware.

4 Change the name of the XPM processor firmware load in the inventory table.

a. Change the name of the XPM processor firmware load to the new firmware load name. Type

>CHA E2LOAD (fw_load)

and press the Enter key.

where

fw_load is the name of the new XPM processor firmware load

Example of command

```
>CHA E2LOAD UPFWNS01
```

5 Confirm the change. Type

>Y

and press the Enter key.

6 Close the 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 PDTC # (or PLGC #). Type

>POST PDTC pdtc_no

and press the Enter key.

where

pdtc_no is the number of the PDTC

Example of command

```
>POST PDTC 0
```

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

9 Identify the inactive unit. You will update this unit.

10 Review the update schedules for the office. 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 12
not the first unit in the office to use the new load	Step 11

11 Use PRSM to assign the new load to the inactive unit.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b.

ATTENTION

After you perform 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 load to the inactive unit. Type

>ASSIGN UPGRADE_LD new_load IN DESTSET PDTC pdtc_no unit_no

and press the Enter key.

where

new_load is the name of the new load

pdtc_no is the number of the PDTC

unit_no is the number of the inactive unit

Example of commands

```
>ASSIGN UPGRADE_LD BNKOSI05 IN DESTSET PDTC 0 1
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

12 Busy the inactive unit. Type

>BSY INACTIVE FORCE

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	Step 13
do not need to update the XPM processor firmware in the inactive unit	Step 14

13 Load the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE

and press the Enter key.

14 Activate the firmware in the inactive unit. Type

>LOADFW INACTIVE UPGRADE

and press the Enter key.

15 Return to service the inactive unit. Type

>RTS INACTIVE FORCE

and press the Enter key.

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 17

16 Review the PM update checklist for the office. Determine if you must apply PRSUs manually to the new load.

If you	Do
need to apply PRSUs manually to the new load	Step 16
do not need to apply PRSUs manually to the new load	Step 17

17

> **CAUTION**
> **Possible service interruption**
> Apply PRSUs immediately after you load the PM. Failure to do so can increase administrative time and interrupt service.

Apply the PRSUs.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database with the new load name. Type

>DBAUDIT PDTC pdtc_no unit_no

and press the Enter key.

where

pdtc_no is the number of the PDTC

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT PDTC 0 1
```

c. Apply any PRSUs that need to be manually applied. Type

>APPLY 'prsu_id IN PDTC pdtc_no unit_no

and press the Enter key.

where

prsu_id is the name of the PRSU (repeat variable as required)

pdtc_no is the number of the PDTC

unit_no is the number of the inactive unit

Example of single-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 IN PDTC 0 1
```

Example of double-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +
>'XD02908 | XJL87X08 | XAH13X08 IN PDTC 0 1
```

Note: You do not need to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility. Type

>QUIT

and press the Enter key.

18 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

19 Wait for the unit to go InSv. The unit achieves superframe sync and data sync when it goes InSv. The unit can take two to three minutes to go InSv.

20 Confirm the inactive unit has the correct patches.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database to reflect the current PRSU list for the PDTC. Type

>DBAUDIT PDTC pdtc_no unit_no

and press the Enter key.

where

pdtc_no is the number of the PDTC

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT PDTC 0 1
```

c. Display the PRSU list for the inactive unit. Type

>REPORT DEST PDTC pdtc_no unit_no

and press the Enter key.

where

pdtc_no is the number of the PDTC

unit_no is the number of the inactive unit

Example of command

```
>REPORT DEST PDTC 0 1
```

d. Confirm that 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 20
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 was not performed. Return to step Step 19 Step b. If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step Step 20. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

21 Exit the utility. Type

>QUIT

and press the Enter key.

22 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the switch cannot perform a warm switch of activity (SWACT), do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

23 Confirm the switch of activity. Type

>Y

24 Busy the inactive unit. Type

>BSY INACTIVE FORCE

and press the Enter key

25 Load the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE

and press the Enter key.

26 Activate the firmware in the inactive unit. Type

>LOADFW INACTIVE UPGRADE

and press the Enter key.

27 Return to service the inactive unit. Type

>RTS INACTIVE FORCE

and press the Enter key.

28 Verify the firmware reloaded. Type

>QUERYPM CNTRS

and press the Enter key.

29

CAUTION
Firmware reload failed
If the firmware reload fails, repeat the procedure. If the firmware reload fails for the third time, then the processor card on this XPM unit must be changed. The failure rate for firmware reloads can be up to 20 per cent.

30 Wait for the unit to go InSv. The unit achieves superframe sync and data sync when it goes InSv. The unit can take two to three minutes to go InSv.

If	Do
one unit is updated	Step 9 to step 18
both units are updated	Step 24
Note: If one unit is updated, the inactive unit will be ISTb due to the load mismatch between the unit and the PM inventory table. The node will remain ISTb until you update both units with the new load.	

31 You have updated the PDTC and completed this procedure. Review the update schedule for the office.

If you have	Do
other PDTCs to update during this shift	Follow the guidelines in "Overview of manual update process" in this document. You can repeat this procedure, use broadcast mate loading, or use parallel loading on the remaining PDTCs.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no other PMs or hardware types to update during this shift	Go to the procedure "Finishing a PM update shift" in this document.

DTC Upgrade Procedure

Application

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

PM	Description
DTC	Digital trunk controller (DTC) DTC with Common Channel Signalling 7 (CCS7) (DTC7)

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 names of all new loads for the PM are data filled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The PM is in-service (INSV).
- The PM passed its last REX test within the last two weeks.
- All REX tests are suspended in the office.
- Post-release software manager (PRSM) automated processes will not run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. You need this information to complete this procedure.

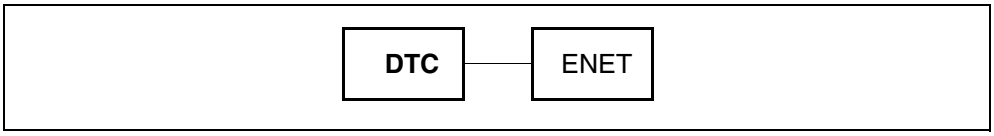
- Do you need to update the XPM processor firmware?
- Is the first unit you update the first unit in the office to use the new load?
- Do you have to apply any post-release software units (PRSU) manually to the new load?
- Is the new PM load a pre-patched XPM load (PPXL)?

For help, 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 DTC. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

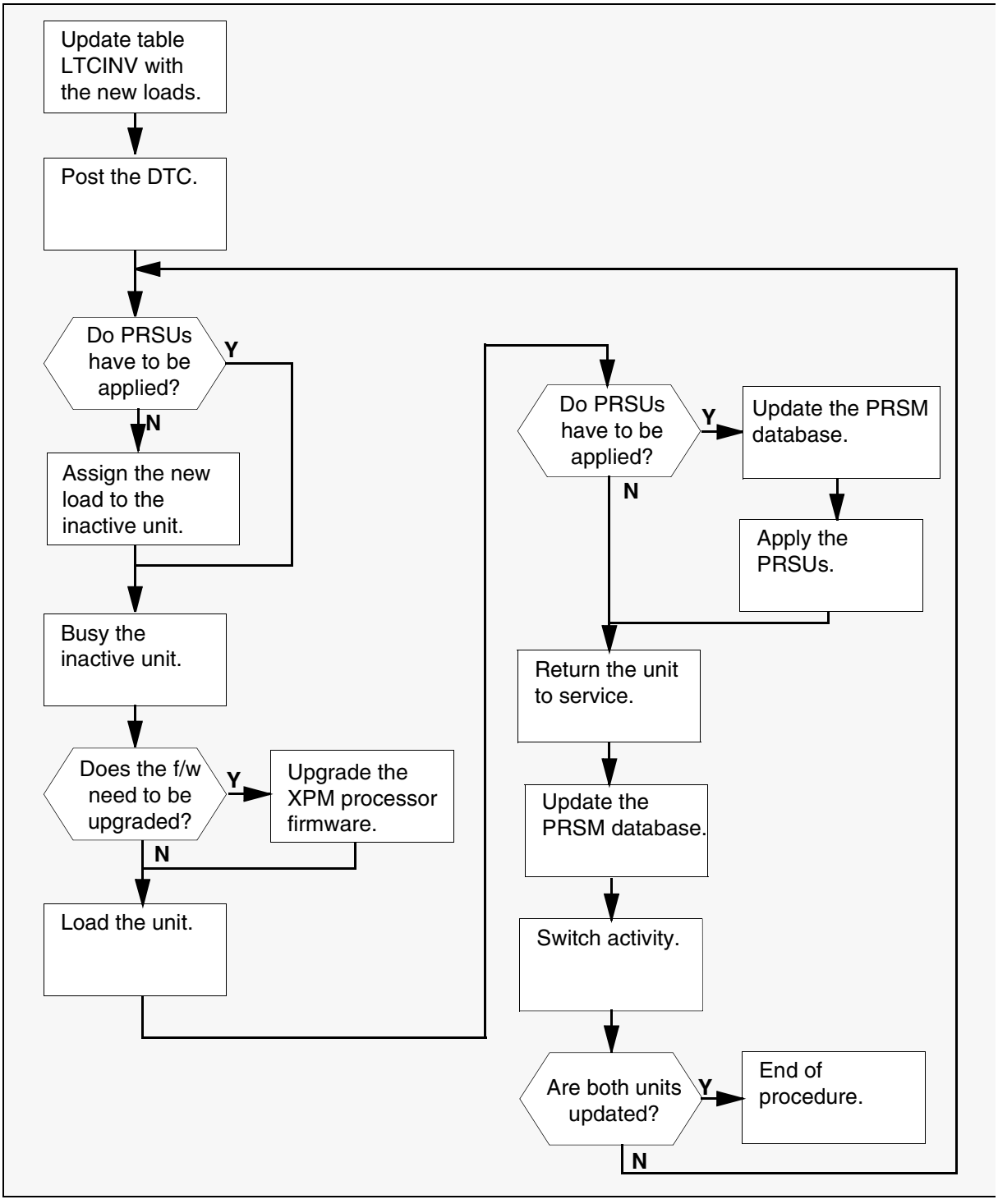
Node configuration for DTC



Notes

None.

Summary of procedure



Steps of procedure

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

ATTENTION
If this PM has a peripheral/remote loader (PRL) circuit card, use this procedure to update the first PM in the office that uses the new load. Use the procedure "Using a PRL card (NT7X05) to update an XPM" in this document to update remaining PMs.

ATTENTION
Follow office policy is 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 to update

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

3 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE LTCINV

and press the Enter key.

If you wish to view the tuples in	Do
packed format	Step 3b.
normal 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. Position on the datafill tuple for the DTC. Type

>POS DTC dtc_no

and press the Enter key.

where

dtc_no is the number of the DTC

Example of command

>POS DTC 0

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched XPM 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. 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 ED708BC

e. Confirm the change. Type

>Y

and press the Enter key.

Note: When you change the load name in the inventory table, you create a load mismatch between the inventory table and the PM. The load mismatch will cause the PM to go in-service trouble (ISTb). Continue this procedure.

If you	Do
need to update the XPM processor firmware in the DTC	Step 4.
do not need to update the XPM processor firmware in the DTC	Step 5.

Note: Review the update schedules and checklists to determine if you must update the XPM processor firmware. The procedure “Preparing for a PM update" or “Preparing for a PM update using PMUPGRADE" determines the need for an update of XPM processor firmware.

4 Change the name of the XPM processor firmware load in the inventory table.

a. Change the name of the XPM processor firmware load to the new firmware load name. Type

>CHA E2LOAD (fw_load)

and press the Enter key.

where

fw_load is the name of the new XPM processor firmware load

Example of command

>CHA E2LOAD UPFWNR04

b. Confirm the change. Type

>Y

and press the Enter key.

5 Close the table. Type

>QUIT

and press the Enter key.

6 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

7 Post the DTC. Type

>POST DTC dtc_no

and press the Enter key.

where

dtc_no is the number of the DTC

Example of command

>POST DTC 0

Note: The PM will be ISTb. If necessary, wait for the PM to change to ISTb before you continue this procedure. If the PM does not change to ISTb, confirm that you updated the PM inventory table correctly and posted the correct PM.

8 Identify the inactive unit. You will update this unit.

9 Review the update schedules for the office. 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 12.
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.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b.

ATTENTION

After you perform 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 load to the inactive unit. Type

>ASSIGN UPGRADE_LD new_load IN DESTSET DTC dtc_no unit_no

and press the Enter key.

where

new_load is the name of the new load

dtc_no is the number of the DTC

unit_no is the number of the inactive unit

Example of commands

>ASSIGN UPGRADE_LD ED708BC IN DESTSET DTC 0 1

c. Exit the utility. Type

>QUIT

and press the Enter key.

11 Determine which software release the office is currently at.

If	Do
the office is at ABSM009 or lower	Steps 12 through 14.
the office is at ISN04 or higher	Steps 15 through 18.

12 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	Step 13
do not need to update the XPM processor firmware in the inactive unit	Step 14

13 Load the XPM processor firmware in the inactive unit. Type

>LOADPM INACTIVE CC FIRMWARE

and press the Enter key.

14

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

Load the inactive unit. Type

>LOADPM INACTIVE

and press 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

ATTENTION
Perform steps 15, 16 and 17 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 15, 16 and 17. Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

15 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. Determine if you must apply PRSUs manually to the new load.

If you	Do
need to apply PRSUs manually to the new load	Step 20

If you	Do
do not need to apply PRSUs manually to the new load	Step 21

20

> **CAUTION**
> **Possible service interruption**
> Apply PRSUs immediately after you load the PM. Failure to do so can increase administrative time and interrupt service.

Apply the PRSUs.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database with the new load name. Type

>DBAUDIT DTC (dtc_no) (unit_no)

and press the Enter key.

where

dtc_no is the number of the DTC

unit_no is the number of the inactive unit

Example of command

>DBAUDIT DTC 0 1

c. Apply any PRSUs that need to be manually applied. Type

>APPLY 'prsu_id IN DTC (dtc_no) (unit_no)

and press the Enter key.

where

prsu_id is the name of the PRSU (repeat variable as required)

dtc_no is the number of the DTC

unit_no is the number of the inactive unit

Example of single-line command

>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 IN DTC 0 1

Example of double-line command

>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +

>'XD02908 | XJL87X08 | XAH13X08 IN DTC 0 1

Note: You do not need to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility. Type

>QUIT

and press the Enter key.

21 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

22 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

23 Confirm the inactive unit has the correct patches.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database to reflect the current PRSU list for the DTC. Type

>DBAUDIT DTC dtc_no unit_no

and press the Enter key.

where

dtc_no is the number of the DTC

unit_no is the number of the inactive unit

Example of command

>DBAUDIT DTC 0 1

c. Display the PRSU list for the inactive unit. Type

>REPORT DEST DTC (dtc_no) (unit_no)

and press the Enter key.

where

dtc_no is the number of the DTC

unit_no is the number of the inactive unit

Example of command

>REPORT DEST DTC 0 1

d. Confirm that 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 was not performed. Return to step 23b. If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 24. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

24 Exit the utility. Type

>QUIT

and press the Enter key.

25 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the switch can not perform a warm switch of activity (SWACT), do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

26 Confirm the switch of activity. Type

>Y

27 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

If	Do
one unit is updated	Step 8 to step 24
both units are updated	Step 28
Note: If one unit is updated, the inactive unit will be ISTb due to the load mismatch between the unit and the PM inventory table. The node will remain ISTb until you update both units with the new load.	

28 You have updated the DTC and completed this procedure. Review the update schedule for the office.

If you have	Do
other DTCs to update during this shift	Follow the guidelines in "Overview of manual update process" in this document. You can repeat this procedure, use broadcast mate loading, or use parallel loading on the remaining DTCs.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no other PMs or hardware types to update during this shift	Go to the procedure "Finishing a PM update shift" in this document.

DTCI Upgrade Procedure

Application

Use this procedure to update the digital trunk controller with ISDN (DTCI).

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 names of all new loads for the PM are data filled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All peripheral module (PM) logs are enabled.
- The PM is in-service (INSV).
- The PM passed its last REX test within the last two weeks.
- All REX tests are suspended in the office.
- Post-release software manager (PRSM) automated processes will not run during the PM update shift.

Required information

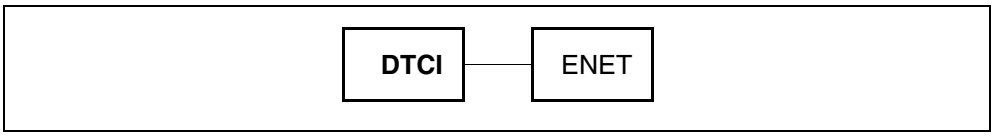
- Do you need to update the XPM processor firmware?
- Is the first unit you update the first unit in the office to use the new load?
- Do you have to apply any post-release software units (PRSU) manually to the new load?
- Is the new PM load a pre-patched XPM load (PPXL)?

For help, 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 DTCI. Update the PMs in the node in peripheral side (P-side) to central side (C-side) order.

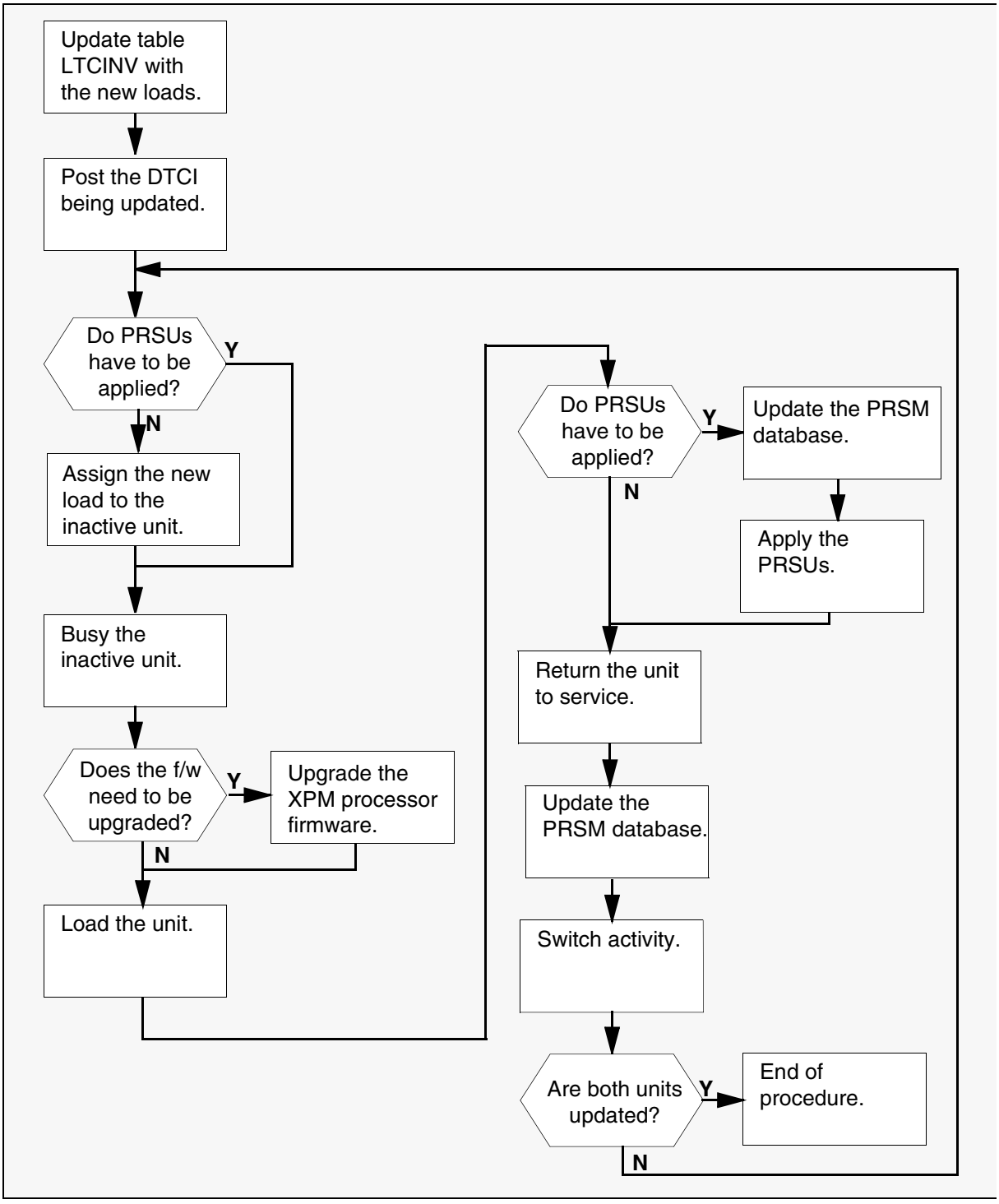
Node configuration for DTCI



Notes

None.

Summary of procedure



Steps of procedure

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

ATTENTION
If this PM has a peripheral/remote loader (PRL) circuit card, use this procedure to update the first PM in the office that uses the new load. Use the procedure "Using a PRL card (NT7X05) to update an XPM" in this document to update remaining PMs.

ATTENTION
Follow office policy is 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 DTCI to update

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

3 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE LTCINV

and press the Enter key.

If	To view the tuples in a	Do
	packed format	Step 3b.
	normal 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. Position on the datafill tuple for the DTCI. Type

>POS DTCI dtci_no

and press the Enter key.

where

dtci_no is the number of the DTCI

Example of command

```
>POS DTCI 0
```

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched XPM 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. 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 ELI08BC
```

e. Confirm the change. Type

>Y

and press the Enter key.

Note: When you change the load name in the inventory table, you create a load mismatch between the inventory table and the PM. The load mismatch will cause the PM to go in-service trouble (ISTb). Continue this procedure.

If you	Do
need to update the XPM processor firmware in the DTCI	Step 4
do not need to update the XPM processor firmware in the DTCI	Step 5

Note: Review the update schedules and checklists to determine if you must update the XPM processor firmware. The procedure “Preparing for a PM update" or “Preparing for a PM update using PMUPGRADE" determines the need for an update of XPM processor firmware.

4 Change the name of the XPM processor firmware load in the inventory table.

a. Change the name of the XPM processor firmware load to the new firmware load name. Type

>CHA E2LOAD (fw_load)

and press the Enter key.

where

fw_load is the name of the new XPM processor firmware load

Example of command

```
>CHA E2LOAD UPFWNJ03
```

b. Confirm the change. Type

>Y

and press the Enter key.

5 Close the table. Type

>QUIT

and press the Enter key.

6 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

7 Post the DTCI. Type

>POST DTCI (dtci_no)

and press the Enter key.

where

dtci_no

is the number of the DTCI

Example of command

```
>POST DTCI 0
```

Note: The PM will be ISTb. If necessary, wait for the PM to change to ISTb before you continue this procedure. If the PM does not change to ISTb, confirm that you updated the PM inventory table correctly and posted the correct PM.

8 Identify the inactive unit. You will update this unit.

9 Review the update schedules for the office. 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 12
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.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b.

ATTENTION

After you perform 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 load to the inactive unit. Type

>ASSIGN UPGRADE_LD new_load IN DESTSET DTCI dtci_no unit_no

and press the Enter key.

where

new_load is the name of the new load

dtci_no is the number of the DTCI

unit_no is the number of the inactive unit

Example of commands

```
>ASSIGN UPGRADE_LD ELI08BC IN DESTSET DTCI 0 1
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

11 Determine which software release the office is currently at.

If	Do
the office is at ABSK006 or lower	Steps 12 through 14
the office is at ABSK007 or higher	Steps 15 through 18

12 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	Step 13
do not need to update the XPM processor firmware in the inactive unit	Step 14

13 Load the XPM processor firmware in the inactive unit. Type

>LOADPM INACTIVE CC FIRMWARE

and press the Enter key.

14

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

Load the inactive unit. Type

>LOADPM INACTIVE

and press 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 21

ATTENTION

Perform steps 15, 16 and 17 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 31, 32 and 33. Repeat the firmware downgrade and upgrade process if the firmware does not update to the latest firmware load.

15 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. Determine if you must apply PRSUs manually to the new load.

If you	Do
need to apply PRSUs manually to the new load	Step 20
do not need to apply PRSUs manually to the new load	Step 21

20

CAUTION
Possible service interruption
Apply PRSUs immediately after you load the PM. Failure to do so can increase administrative time and interrupt service.

Apply the PRSUs.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database with the new load name. Type

>DBAUDIT DTCI dtci_no unit_no

and press the Enter key.

where

dtci_no is the number of the DTCI

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT DTCI 0 1
```

c. Apply any PRSUs that need to be manually applied. Type

>APPLY 'prsu_id IN DTCI dtci_no unit_no

and press the Enter key.

where

prsu_id is the name of the PRSU (repeat variable as required)

dtci_no is the number of the DTCI

unit_no is the number of the inactive unit

Example of single-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 IN DTCI 0 1
```

Example of double-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +
>'XD02908 | XJL87X08 | XAH13X08 IN DTCI 0 1
```

Note: You do not need to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility. Type

>QUIT

and press the Enter key.

21 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

22 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

23 Confirm the inactive unit has the correct patches.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database to reflect the current PRSU list for the DTCI. Type

>DBAUDIT DTCI dtci_no unit_no

and press the Enter key.

where

dtci_no is the number of the DTCI

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT DTCI 0 1
```

c. Display the PRSU list for the inactive unit. Type

>REPORT DEST DTCI dtci_no unit_no

and press the Enter key

where.

dtci_no is the number of the DTCI

unit_no is the number of the inactive unit

Example of command

```
>REPORT DEST DTCI 0 1
```

d. Confirm that 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 was not performed. Return to step 23b If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to step 24. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

24 Exit the utility. Type

>QUIT

and press the Enter key.

25 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the switch can not perform a warm switch of activity (SWACT), do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

26 Confirm the switch of activity. Type

>Y

27 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

If	Do
one unit is updated	Step 8 to step 24
both units are updated	Step 28

Note: If one unit is updated, the inactive unit will be ISTb due to the load mismatch between the unit and the PM inventory table. The node will remain ISTb until you update both units with the new load.

28 If a flash loader card (SX06 for SX05 processor, NT7X05AA for MX77 processor) exists in a PM, it is necessary to copy the new PM load to the SX06/NT7X05AA card. Type

>XPMSTOR PM

and press the Enter key.

This process will copy the new PM load to the flash loader without taking either side of the PM out of service. The PM will return to an InSv condition once the copying process is complete.

29 You have updated the DTCI and completed this procedure. Review the update schedule for the office.

If you have	Do
other DTCIs to update during this shift	Follow the guidelines in "Overview of manual update process" in this document. You can repeat this procedure, use broadcast mate loading, or use parallel loading on the remaining DTCIs.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no other PMs or hardware types to update during this shift	Go to the procedure "Finishing a PM update shift" in this document.

Upgrade the First PM (non-broadcast loading)
Observe the following notes before proceeding

- Due to an outstanding open CSR Using the command "LOADPM INACTIVE" will cause the unit to MATE LOAD even if it is appended with the "CC" sub-command. To make life easier, ensure that either UNIT 0 or UNIT 1, of a particular type of PM, is ACTIVE on all PMs. This can be done with a Warm SwAct.
- Ensure that the STs have been upgraded on the MSB7s before upgrading the MSB7.
- If the XPM type to be upgraded is PDTC with load ODT15AY then perform the following steps:

  1 Get a hard copy of the table IPMLINV

  >RECORD START ONTO <printer_device_name>

  >TABLE IPMLINV;FORMAT PACK

  >LIST ALL;QUIT

  >RECORD STOP ONTO <printer_device_name>

  2 From the printout, check that all carriers used for IPML mapping is INSV and not OFFL

  >MAPCI;MTC;TRKS,CARRIER

  >POST PDTC <pm_number> <carrier_number>

  If it is OFFL then:

  >BSY 0;RTS 0

Steps of Procedure

At the CI level of the MAP display

1 POST, BSY and RTS the INACTIVE UNIT of ONE of each peripheral type (for the in-service DTCs) as described below. Ensure that the unit selected has in-service circuits on it so that critical call tests can be carried out on that unit.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY UNIT <unit_number>

>RTS UNIT <unit_number>

Note: This will ensure that no obvious hardware faults are present before upgrading

2 BSY the INACTIVE UNIT of ONE of each peripheral type (for the in-service DTCs) as described below.

>MAPCI;MTC;PM

>POST <pm_type> <pm_number>

>PRSM

>ASSIGN UPGRADE_LD <load_name> IN DESTSET < pm_type> <pm_number> <unit_number>

3 LOAD the new firmware into the PMs INACTIVE UNIT if applicable.

Note: This step is not applicable to MSB7 peripherals as they have no processor firmware.

>LOADFW UNIT <unit_number>

>BSY UNIT <unit_number>

>LOADFW UNIT <unit_number> UPGRADE

4 LOAD the PMs INACTIVE UNIT.

>LOADPM UNIT <unit_number> CC

5 Perform this step if this is the very first unit to be upgraded for this XPM type.

>PRSM

>DBAUDIT <pm_type> <pm_number> <unit_number>

Repeat for all relevant PRSUs.

>APPLY <prsu_id> IN <pm_type> <pm_number> <unit_number>

>REPORT DEST <pm_type> <pm_number> <unit_number>

Ensure that all the PRSUs applied in the above steps are displayed.

6 You can RTS the PM or UNIT with the new load once the PRSUs have been set.

>RTS UNIT <unit_number>

The unit should pass out-of-service tests, return to an INSV state and pass in-service tests.

7 Once the PM or UNIT has been returned to service, update the CM with the PRSUs which are used by this PM or UNIT:

>PRSM

>DBAUDIT <pm_type> <pm_number> <unit_number>

>QUIT

8 SwAct the peripheral.

>SWACT

If the response is

A Warm SwAct will be performed

then proceed with the Warm SwAct

Note: This procedure will maintain all stable calls (talking), but will drop all unstable calls (dialling, etc.). If this considered undesirable, it may be performed at a suitable low traffic period. If calls are dropped over the SwAct then the procedure should be halted and the ETAS organisation notified.

>YES

If the response is

A Cold SwAct will be performed

then abort the by typing

>NO

Note: If the reason for the Cold SwAct cannot be determined and fixed then the procedure should be halted and the ETAS organisation notified.

9 **Allow a 10 to 30 minute soak-period before proceeding.**
Ensure the logs indicate no peripheral or call processing problems.

10 Perform Critical Verification Tests for the office. Repeat the Step 2 to Step 9 for the newly INACTIVE UNIT.

11 Check for any faults on either unit of the peripheral

>QUERYPM FLT

12 Confirm that the correct loadname appears in both units.

>QUERYPM CNTRS

13 Critical call processing tests should be run to confirm that the new load functions correctly.

14 You have completed this procedure.

Broadcast Loading

Observe the following notes before proceeding

- Ensure that all the inactive units to be loaded are of the same unit number i.e. all unit 0's or all unit 1's. If not then perform a warmswact on the peripheral:

  >MAPCI;MTC;PM

  >POST <pm_type> <pm_number>

  >SWACT

- It is recommended that the remaining peripherals of that type be loaded in groups of no more than 4 DTCOs at a time.
- These peripherals **must** have the same loadname and be of the same PM Type.
- In the case of MSBs, the upgrade should be performed and completed on one MSB at a time to prevent possible office degradation.

Steps of Procedure

At the CI level of the MAP display

1 Change the PDTC loadnames in TABLE LTCINV or MSBINV

>TABLE <table name>

where

<table name> is either LTCINV or MSBINV

>POS <pm_type> <pm_number>

>CHANGE LOAD <new_ loadname>

>QUIT

Once the loadname has been changed in LTCINV/MSBINV, each peripheral unit will be marked ISTB. This condition will remain until each unit of the peripheral is RTSed with the load indicated in LTCINV/MSBINV.

2 Perform this step if the firmware is to be upgraded at the same time as the peripheral.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE LTCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE E2LOAD <firmware_load>

>QUIT

3 Change the CMR loadnames in TABLE LTCINV for each peripheral with cards.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE LTCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE OPTCARD

change by stepping through the options using **<CR>** until

>CMRLOAD:

><new_ loadname>

Continue stepping through the options using **<CR>** until no further options are offered. Then enter the command:

>$

4 Ensure the previous step is carried out for all of the POSTed PMs.

5 This step will ensure that all the units will be loaded with the proper PRSUs applied:

>PRSM

Repeat this step for all the inactive units to be loaded:

>ASSIGN UPGRADE_LD <new_loadname> IN DESTSET <pm_type> <pm_number> <unit_number>

6 LOAD the INACTIVE UNIT of the POSTed PM set and return to service.

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1> <pm_no_2> ... <pm_no_4>

>LOADFW UNIT <unit_number> ALL

>BSY UNIT <unit_number> ALL

>LOADFW UNIT <unit_number> UPGRADE ALL

>LOADPM UNIT <unit_number> CC ALL

>RTS UNIT <unit_number> ALL

The yes or no will have to be entered for each peripheral

Note: If any of the INACTIVE UNITS of the DTCs, LGCs, or MSBs fail to reload, fails out-of-service tests, fails to RTS, or fails in-service tests then the BSY,LOADPM,RTS steps should be repeated on the failed units. If there is still a failure the above procedure should be to reload the previous load release to determine whether it is a hardware problem, or the load is corrupt or incompatible with the CC load. In the former case, the INACTIVE UNIT will have to be man-busied, in the latter case, the CC/PM loading application may have to be aborted manually.

7 SWACT all of the relevant peripherals

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1> <pm_no_2> ... <pm_no_4>

>SWACT All

Note: You will have to confirm YES or No for every peripheral in the post set. Take great care to study every switch response to ensure a Warm SwAct will be performed.

If the response is

A Warm SwAct will be performed

then proceed with the Warm SwAct

Note: This procedure will maintain all stable calls (talking), but will drop all unstable calls (dialling, etc.). If this considered undesirable, it may be performed at a suitable low traffic period. If calls are dropped over the SwAct then the procedure should be halted and the ETAS organisation notified.

>YES

If the response is

A Cold SwAct will be performed

then abort the by typing

>NO

Note: If the reason for the Cold SwAct cannot be determined and fixed then the procedure should be halted and the ETAS organisation notified.

8 Verify that the PM switches activity. Verify the newly ACTIVE UNIT returns to an INSV state (immediately in the case of a Warm SwAct) and the newly INACTIVE UNIT goes SYSB and is eventually Returned To Service by the system.

9 Check for any faults on either unit of the peripherals that have just been loaded

>QUERYPM FLT

10 Verify that the correct loadname appears in both units.

>QUERYPM CNTRS

11 Repeat Step 5 to Step 6 for the other unit.

12 Repeat the whole procedure until all XPMs for this type in the office are complete

13 Once you have loaded all of the PM or UNIT of a certain PM type you **must** match the PRSUs in the PM with the CM.

>PRSM

>DBAUDIT <pm type>

>RECORD START ONTO <printer_device>

>REPORT DEST <pm_type>

>QUIT

14 You have completed this procedure.

DTCOi, DTCo, DTCO2, DTCOi2 Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in all Series-II, two-unit XPMs.

This procedure is applicable to the following peripheral types:

- PDTC
- DTCOi

They are all characterised by having two units operating with full redundancy. There is always an ACTIVE and an INACTIVE unit.

Prerequisites

Perform the procedure "Starting an Upgrade Shift" to confirm that the following prerequisites have been met before continuing with this procedure.

- The new loadname has been datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- ALL PM logs are enabled.
- The peripheral/unit to be upgraded is in-service.
- The peripheral/unit to be upgraded has successfully passed its last REX test within the last two weeks.
- Automatic REX testing is suspended in the office.

Notes

Observe the following notes before proceeding with the procedure.

- If this peripheral is the first of its type to be loaded with a PPXL, set the new loadname first, in order to pick up the PRSUs in the PPXL, and follow the rest of the procedure as normal, including the last SET command in the procedure.
- For MSB7s where a new ST load is not required, you **must** still carry out step 2 of "ST (DPNSS) Upgrade Procedure on page 463.

Steps of Procedure

At the CI level of the MAP display

1 Before proceeding, See "Update Procedures" on page 74.

2 Add the new ISN07 PDTC loadnames (including any new firmware or CMR loadnames) in TABLE PMLOADS, specifying the disk volume containing the load.

>TABLE PMLOADS

>ADD <loadname> <active_file> <active_volume> <backup_file> <backup_volume> n

>QUIT

3 Change the PDTC loadnames in TABLE LTCINV or MSBINV

>TABLE <table name>

where

<table name> is either LTCINV or MSBINV

>POS <pm_type> <pm_number>

>CHANGE LOAD <new_ loadname>

>QUIT

Once the loadname has been changed in LTCINV/MSBINV, each peripheral unit will be marked ISTB. This condition will remain until each unit of the peripheral is RTSed with the load indicated in LTCINV/MSBINV.

4 Perform this step if the firmware is to be upgraded at the same time as the peripheral.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE LTCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE E2LOAD <firmware_load>

>QUIT

5 Change the CMR loadnames in TABLE LTCINV for each peripheral with cards.

Note: This step should only be run on the first unit of this peripheral type.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE LTCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE OPTCARD

change by stepping through the options using the Return key until

>CMRLOAD:

><new_ loadname>

Continue stepping through the options using the Return key until no further options are offered. Then enter the command:

>$

6 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

Upgrade the First PM (non-broadcast loading)
Observe the following notes before proceeding

- Due to an outstanding open CSR Using the command "LOADPM INACTIVE" will cause the unit to MATE LOAD even if it is appended with the "CC" sub-command. To make life easier, ensure that either UNIT 0 or UNIT 1, of a particular type of PM, is ACTIVE on all PMs. This can be done with a Warm SwAct.
- Ensure that the STs have been upgraded on the MSB7s before upgrading the MSB7.
- If the XPM type to be upgraded is PDTC with load ODT15AY then perform the following steps:

  1 Get a hard copy of the table IPMLINV

  >RECORD START ONTO <printer_device_name>

  >TABLE IPMLINV;FORMAT PACK

  >LIST ALL;QUIT

  >RECORD STOP ONTO <printer_device_name>

  2 From the printout, check that all carriers used for IPML mapping is INSV and not OFFL

  >MAPCI;MTC;TRKS,CARRIER

  >POST PDTC <pm_number> <carrier_number>

  If it is OFFL then:

  >BSY 0;RTS 0

Steps of Procedure

At the CI level of the MAP display

1 POST, BSY and RTS the INACTIVE UNIT of ONE of each peripheral type (for the in-service DTCs) as described below. Ensure that the unit selected has in-service circuits on it so that critical call tests can be carried out on that unit.

>MAPCI; MTC; PM

>POST <pm_type> <pm_number>

>BSY UNIT <unit_number>

>RTS UNIT <unit_number>

Note: This will ensure that no obvious hardware faults are present before upgrading

2 BSY the INACTIVE UNIT of ONE of each peripheral type (for the in-service DTCs) as described below.

>MAPCI;MTC;PM

>POST <pm_type> <pm_number>

>BSY UNIT <unit_number>

3 LOAD the new firmware into the PMs INACTIVE UNIT if applicable.

Note: This step is not applicable to MSB7 peripherals as they have no processor firmware.

>LOADFW UNIT <unit_number>

>LOADFW UNIT <unit_number> UPGRADE

4 LOAD the PMs INACTIVE UNIT.

>LOADPM UNIT <unit_number> CC

5 Perform this step if this is the very first unit to be upgraded for this XPM type.

>PRSM

>DBAUDIT <pm_type> <pm_number> <unit_number>

Repeat for all relevant PRSUs.

>APPLY <prsu_id> IN <pm_type> <pm_number> <unit_number>

>REPORT DEST <pm_type> <pm_number> <unit_number>

Ensure that all the PRSUs applied in the above steps are displayed.

6 Repeat this step for all the inactive units to be loaded:

>ASSIGN UPGRADE_LD <load_name> IN DESTSET < pm_type> <pm_number> <unit_number>

The volume in which the XPM patches reside must be entered in table PADNDEV before the other DTCOs are upgraded as only then will the XPM patches will be applied in the DTCO after loading.

7 You can RTS the PM or UNIT with the new load once the PRSUs have been set.

>RTS UNIT <unit_number>

The unit should pass out-of-service tests, return to an INSV state and pass in-service tests.

8 Once the PM or UNIT has been returned to service, update the CM with the PRSUs which are used by this PM or UNIT:

>PRSM

>DBAUDIT <pm_type> <pm_number> <unit_number>

>QUIT

9 SwAct the peripheral.

>SWACT

If the response is

A Warm SwAct will be performed

then proceed with the Warm SwAct

Note: This procedure will maintain all stable calls (talking), but will drop all unstable calls (dialling, etc.). If this considered undesirable, it may be performed at a suitable low traffic period. If calls are dropped over the SwAct then the procedure should be halted and the ETAS organisation notified.

>YES

If the response is

A Cold SwAct will be performed

then abort the by typing

>NO

Note: If the reason for the Cold SwAct cannot be determined and fixed then the procedure should be halted and the ETAS organisation notified.

10 Allow a 10 to 30 minute soak-period before proceeding. Ensure the logs indicate no peripheral or call processing problems.

11 Perform Critical Verification Tests for the office. Repeat Step1 to Step 9 for the newly INACTIVE UNIT.

12 Check for any faults on either unit of the peripheral

>QUERYPM FLT

13 Confirm that the correct loadname appears in both units.

>QUERYPM CNTRS

14 Critical call processing tests should be run to confirm that the new load functions correctly.

15 You have completed this procedure.

Broadcast Loading

Observe the following notes before proceeding

- Ensure that all the inactive units to be loaded are of the same unit number ie. all unit 0's or all unit 1's. If not then perform a warmswact on the peripheral:

  >MAPCI;MTC;PM

  >POST <pm_type> <pm_number>

  >SWACT

- It is recommended that the remaining peripherals of that type be loaded in groups of no more than 4 DTCOs at a time.
- These peripherals **must** have the same loadname and be of the same PM Type.
- In the case of MSBs, the upgrade should be performed and completed on one MSB at a time to prevent possible office degradation.

Steps of Procedure

At the CI level of the MAP display

1 Change the PDTC loadname in TABLE LTCINV.

>TABLE <table name>

where

<table name> is LTCINV

>POS <pm_type> <pm_number>

>CHANGE LOAD <new_ loadname>

>QUIT

Once the loadname has been changed in LTCINV each peripheral unit will be marked ISTB. This condition will remain until each unit of the peripheral is RTSed with the load indicated in LTCINV.

2 Perform this step if the firmware is to be upgraded at the same time as the peripheral.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE LTCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE E2LOAD <firmware_load>

>QUIT

3 Change the CMR loadnames in TABLE LTCINV for each peripheral with cards.

Note: Failure to perform this command correctly will cause an outage. Read and understand it before proceeding.

>TABLE LTCINV

position on the selected PM

>POS <pm_name> <pm_number>

>CHANGE OPTCARD

change by stepping through the options using the Return key until

>CMRLOAD:

><new_ loadname>

Continue stepping through the options using the Return key until no further options are offered. Then enter the command:

>$

4 Ensure the previous step is carried out for all of the POSTed PMs.

5 This step will ensure that all the units will be loaded with the proper PRSUs applied:

>PRSM

Repeat this step for all the inactive units to be loaded:

>ASSIGN UPGRADE_LD <new_loadname> IN DESTSET <pm_type> <pm_number> <unit_number>

6 LOAD the INACTIVE UNIT of the POSTed PM set and return to service.

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1> <pm_no_2> ... <pm_no_4>

>LOADFW UNIT <unit_number> ALL

>BSY UNIT <unit_number> ALL

>LOADFW UNIT <unit_number> UPGRADE ALL

>LOADPM UNIT <unit_number> CC ALL

>RTS UNIT <unit_number> ALL

The yes or no will have to be entered for each peripheral

Note: If any of the INACTIVE UNITS of the DTCs, LGCs, or MSBs fail to reload, fails out-of-service tests, fails to RTS, or fails in-service tests then the BSY,LOADPM,RTS steps should be repeated on the failed units. If there is still a failure the above procedure should be to reload the previous load release to determine whether it is a hardware problem, or the load is corrupt or incompatible with the CC load. In the former case, the INACTIVE UNIT will have to be man-busied, in the latter case, the CC/PM loading application may have to be aborted manually.

7 SWACT all of the relevant peripherals

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1> <pm_no_2> ... <pm_no_4>

>SWACT All

Note: You will have to confirm YES or No for every peripheral in the post set. Take great care to study every switch response to ensure a Warm SwAct will be performed.

If the response is

A Warm SwAct will be performed

then proceed with the Warm SwAct

Note: This procedure will maintain all stable calls (talking), but will drop all unstable calls (dialling, etc.). If this considered undesirable, it may be performed at a suitable low traffic period. If calls are dropped over the SwAct then the procedure should be halted and the ETAS organisation notified.

>YES

If the response is

A Cold SwAct will be performed

then abort the by typing

>NO

Note: If the reason for the Cold SwAct cannot be determined and fixed then the procedure should be halted and the ETAS organisation notified.

8 Verify that the PM switches activity. Verify the newly ACTIVE UNIT returns to an INSV state (immediately in the case of a Warm SwAct) and the newly INACTIVE UNIT goes SYSB and is eventually Returned To Service by the system.

9 Check for any faults on either unit of the peripherals that have just been loaded

>QUERYPM FLT

10 Verify that the correct loadname appears in both units.

>QUERYPM CNTRS

11 Repeat Step 5 to Step 6 for the other unit.

12 Repeat the whole procedure until all XPMs for this type in the office are complete

13 Once you have loaded all of the PM or UNIT of a certain PM type you **must** match the PRSUs in the PM with the CM.

>PRSM

>DBAUDIT <pm type>

>RECORD START ONTO <printer_device>

>REPORT DEST <pm_type>

>QUIT

14 You have completed this procedure.

LTC Upgrade Procedure

Application

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

PM	Description
LTC	Line trunk controller (LTC)
	LTC with subtending remote cluster controller (RCC)
	LTC with subtending remote cluster controller 2 (RCC2)
	LTC with subtending RCC and RCC2
	LTC with ISDN (LTCI)
	LTCI with subtending RCC
	LTCI with subtending RCC2
	LTCI with subtending RCC and RCC2

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

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 names of all new loads for the LTC are datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The PM is in-service (INSV).
- The PM passed its last REX test within the last two weeks.
- All REX tests are suspended in the office.
- Post-release software manager (PRSM) automated processes will not run during the PM update shift.

Required information

Review the update checklists and schedules to answer the following questions. You need this information to complete this procedure.

- Do you need to update the XPM processor firmware?
- Do you need to update the CLASS modem resource (CMR) load?
- Is the first unit you update the first unit in the office to use the new load?
- Do you have to apply any post-release software units (PRSU) manually to the new load?
- Is the new PM load a pre-patched XPM load (PPXL)?

For help, refer to "Overview of release" and "Overview of manual update process" in this document.

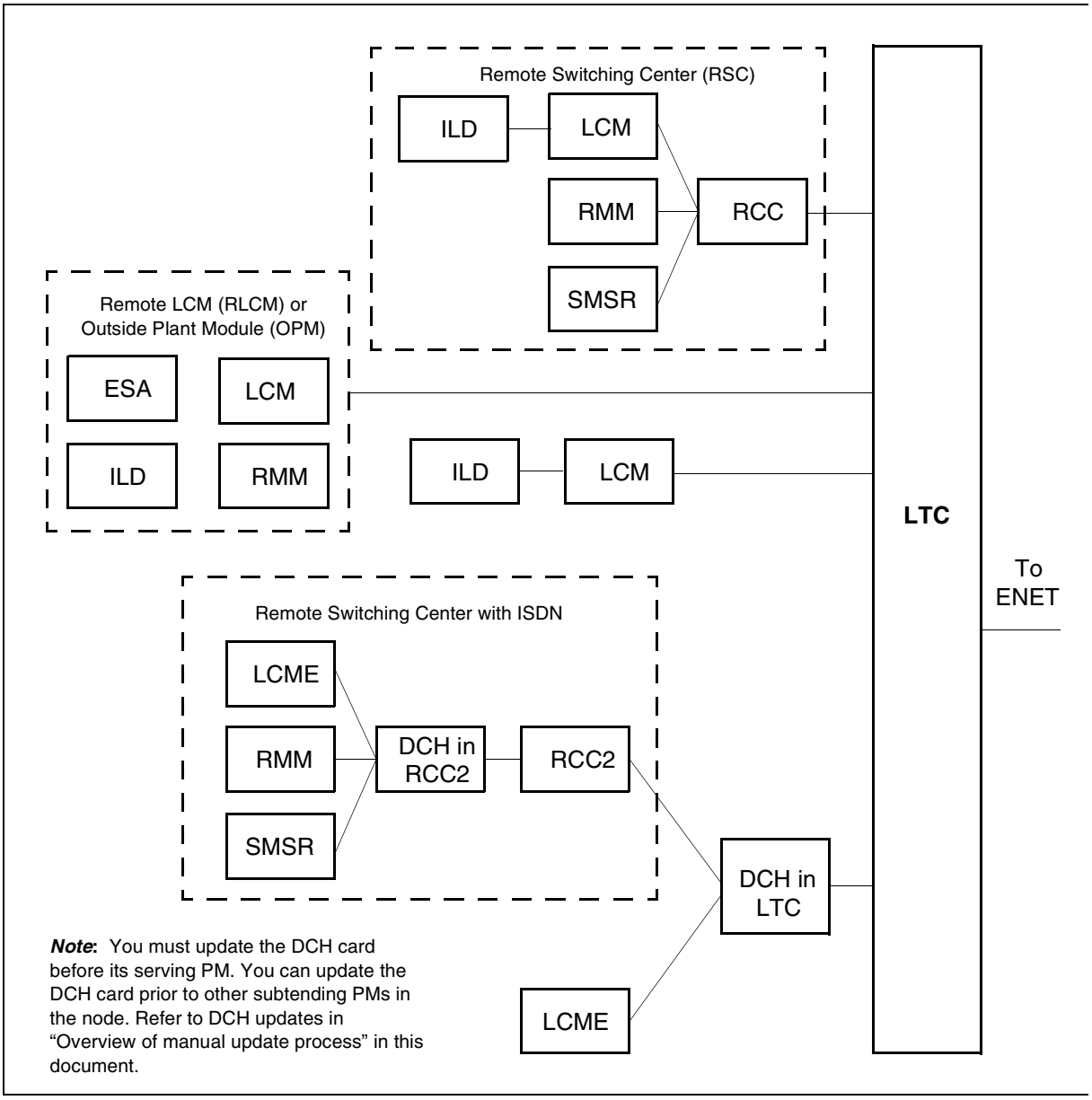
Update sequence

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

Notes

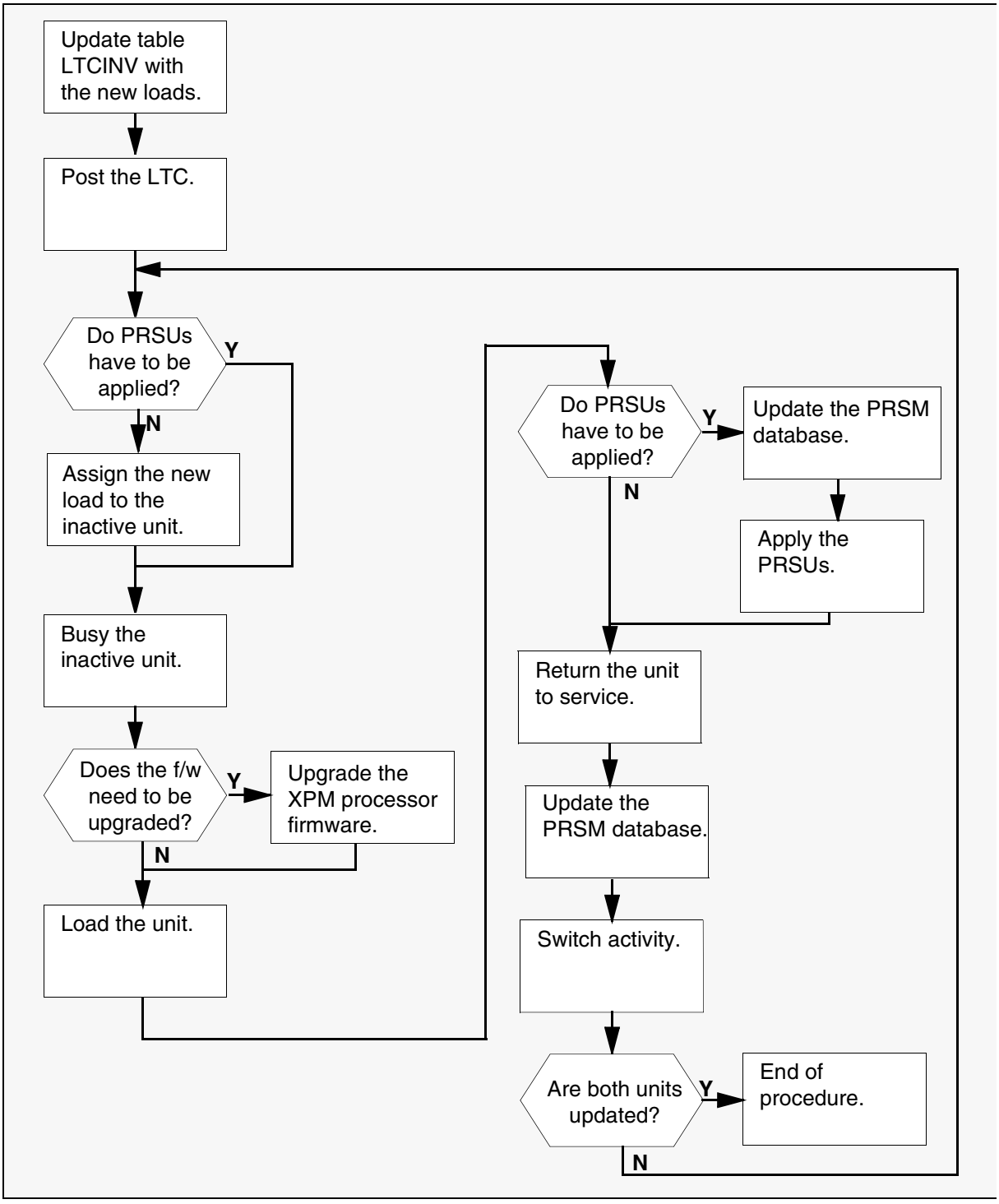
None.

Node configuration for LTC



***Note*:** You must update the DCH card before its serving PM. You can update the DCH card prior to other subtending PMs in the node. Refer to DCH updates in "Overview of manual update process" in this document.

Summary of procedure



ATTENTION

Follow office policy is 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.

ATTENTION

If this PM has a peripheral/remote loader (PRL) circuit card, use this procedure to update the first PM in the office that uses the new load. Use the procedure "Using a PRL card (NT7X05) to update an XPM" in this document to update remaining PMs.

Steps of Procedure

At the CI level of the MAP display

1 Select an LTC to update

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

3 POST the selected groups of LCM, RLCM, ILCM, RLCM, LCME, SRU.

>MAPCI; MTC; PM

>POST <pm_type> <pm_no_1> <pm_no_2> ... <pm_no_10>

4 Update the PM inventory table.

a. Open the PM inventory table. Type

>TABLE LTCINV

and press the Enter key.

If	To view the tuples in a	Do
	packed format	Step 4b.
	normal or expanded format	Step 4c.

b. Change the format of the display to a packed format. Type

>FORMAT PACK

and press the Enter key.

c. Position on the datafill tuple for the LTC. Type

>POS LTC ltc_no

and press the Enter key.

where

ltc_no is the number of the LTC

Example of command

```
>POS LTC 0
```

d.

ATTENTION

If the load name has a date extension, the load is a pre-patched XPM 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. 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 ECL08BC
```

e. Confirm the change. Type

>Y

and press the Enter key.

Note: When you change the load name in the inventory table, you create a load mismatch between the inventory table and the PM. The load mismatch will cause the PM to go in-service trouble (ISTb). Continue this procedure.

If you	Do
need to update the XPM processor firmware in the LTC	Step 5
do not need to update the XPM processor firmware in the LTC	Step 6

Note: Review the update schedules and checklists to determine if you must update the XPM processor firmware. The procedure “Preparing for a PM update" or “Preparing for a PM update using PMUPGRADE" determines the need for an update of XPM processor firmware.

5 Change the name of the XPM processor firmware load in the inventory table.

a. Change the name of the XPM processor firmware load to the new firmware load name. Type

>CHA E2LOAD fw_load

and press the Enter key.

where

fw_load is the name of the new XPM processor firmware load

Example of command

```
>CHA E2LOAD UPFWNJ03
```

b. Confirm the change. Type

>Y

and press the Enter key.

6 Determine if the PM has a CMR load to be updated.

If you	Do
need to update the CMR load in the LTC	Step 7
do not need to update the CMR load in the LTC	Step 8

7 Update the name of the CMR load in the inventory table.

a. Enter the OPTCARD field. Type

>CHA OPTCARD

and press the Enter key.

b. Press the Enter key to scroll through the fields until the MAP display prompts you for the CMR load name.

c. Enter the new CMR load name. Type

>cmr_load

and press 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 MAP display shows the blank OPTCARD prompt.

e. Exit the OPTCARD field. Type

>$

and press the Enter key.

f. Confirm the change. Type

>Y

and press the Enter key.

8 Close the table. Type

>QUIT

and press the Enter key.

9 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

10 Post the LTC. Type

>POST LTC ltc_no

and press the Enter key.

where

ltc_no is the number of the LTC

Example of command

```
>POST LTC 0
```

Note: The PM will be ISTb. If necessary, wait for the PM to change to ISTb before you continue this procedure. If the PM does not change to ISTb, confirm that you updated the PM inventory table correctly and posted the correct PM.

11 Identify the inactive unit. You will update this unit.

12 Review the update schedules for the office. 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 13

13 Use PRSM to assign the new load to the inactive unit.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b.

ATTENTION

After you perform 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 for the previous load to the new PM load.

Assign the new load to the inactive unit. Type

>ASSIGN UPGRADE_LD new_load IN DESTSET LTC ltc_no unit_no

and press the Enter key.

where

new_load is the name of the new load

ltc_no is the number of the LTC

unit_no is the number of the inactive unit

Example of commands

```
>ASSIGN UPGRADE_LD ECL08BC IN DESTSET LTC 0 1
```

c. Exit the utility. Type

>QUIT

and press the Enter key.

14 Determine which software release the office is currently at.

If	Do
the office is at ABSK006 or lower	Steps 15 through 17
the office is at ABSK007 or higher	Steps 18 through 21

15 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

If you	Do
need to update the XPM processor firmware in the inactive unit	Step 16
do not need to update the XPM processor firmware in the inactive unit	Step 17

16 Load the XPM processor firmware in the inactive unit. Type

>LOADPM INACTIVE CC FIRMWARE

and press the Enter key.

17

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

Load the inactive unit. Type

>LOADPM INACTIVE

and press the Enter key.

If the inactive unit is	Do
the first unit in the office to use the new load	Step 18
not the first unit in the office to use the new load	Step 24

ATTENTION

Perform steps 18, 19 and 20 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 18, 19 and 20. Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

18 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 Initialize the firmware in the inactive unit by typing

>LOADFW INACTIVE UPGRADE

and pressing the Enter key.

21 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 24

22 Review the PM update checklist for the office. Determine if you must apply PRSUs manually to the new load.

If you	Do
need to apply PRSUs manually to the new load	Step 23
do not need to apply PRSUs manually to the new load	Step 24

23

> **CAUTION**
> **Possible service interruption**
> Apply PRSUs immediately after you load the PM. Failure to do so can increase administrative time and interrupt service.

Apply the PRSUs.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database with the new load name. Type

>DBAUDIT LTC ltc_no unit_no

and press the Enter key.

where

ltc_no is the number of the LTC

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT LTC 0 1
```

c. Apply any PRSUs that need to be manually applied. Type

>APPLY 'prsu_id IN LTC ltc_no unit_no

and press the Enter key.

where

prsu_id is the name of the PRSU (repeat variable as required)

ltc_no is the number of the LTC

unit_no is the number of the inactive unit

Example of single-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 IN LTC 0 1
```

Example of double-line command

```
>APPLY 'XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +
>'XD02908 | XJL87X08 | XAH13X08 IN LTC 0 1
```

Note: You do not need to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs if they are applied as a set.

d. Exit the utility. Type

>QUIT

and press the Enter key.

24 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

25 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

26 Confirm the inactive unit has the correct patches.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database to reflect the current PRSU list for the LTC. Type

>DBAUDIT LTC ltc_no unit_no

and press the Enter key.

where

ltc_no is the number of the LTC

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT LTC 0 1
```

c. Display the PRSU list for the inactive unit. Type

>REPORT DEST LTC ltc_no unit_no

and press the Enter key.

where

ltc_no is the number of the LTC

unit_no is the number of the inactive unit

Example of command

```
>REPORT DEST LTC 0 1
```

d. Confirm that 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 was not performed. Return to Step 26b. If you performed a DBAUDIT, contact the next level of support.
PRSUs from the previous load are listed at NV status	Go to Step 27. The PRSM automated processes will run after the PM update shift and remove these PRSUs.

27 Exit the utility. Type

>QUIT

and press the Enter key.

28 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the switch can not perform a warm switch of activity (SWACT), do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

29 Confirm the switch of activity. Type

>Y

30 Wait for the unit to go INSV. The unit achieves superframe sync and data sync when it goes INSV. The unit can take two to three minutes to go INSV.

If	Do
one unit is updated	Step 30
both units are updated	Step 31
Note: If one unit is updated, the inactive unit will be ISTb due to the load mismatch between the unit and the PM inventory table. The node will remain ISTb until you update both units with the new load.	

31 You have updated the LTC and completed this procedure. Review the update schedule for the office.

If you have	Do
other LTCs to update during this shift	Follow the guidelines in "Overview of manual update process" in this document. You can repeat this procedure, use broadcast mate loading, or use parallel loading on the remaining LTCs.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no other PMs or hardware types to update during this shift	Go to the procedure "Finishing a PM update shift" in this document.

ENET Upgrade Procedure

Application

Use this procedure to upgrade the software load in the Enhanced Network (ENET) module.

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

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure:

- The new load name is data filled in table PMLOADS.

  >TABLE PMLOADS

  >ADD <new load> <act file> <act volume> <backup file> <backup volume> N

  Example:

  >ADD ENC09BE ENC09BE S00DPMLD ENC09BE S01DPMLD N

- An office image has been taken in the last 24 hours.
- The ENET is in-service.
- The ENET successfully passed its last REX test.
- All ENET logs are enabled.
- Automatic REX testing is suspended in the office.
- The PRSM automated process does not run during this shift.

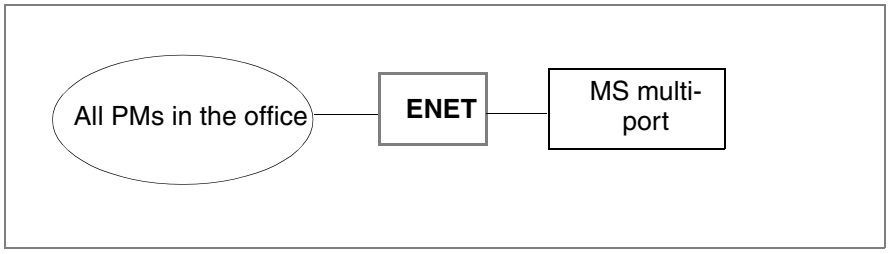
Required information

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 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 ENET?

Update sequence

The following figure illustrates the ENET node configuration.



Note: The MS multi-port card (NT9X17) should be updated one to two days after the ENET is successfully updated. Office policy may require an immediate update.

Notes

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 will occur during the one-night process (ONP) if table PMLOADS contains both load names.

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 Confirm all prerequisites for this procedure have been met.

2 Update the ENET inventory table by performing the following steps.

a. Access the ENET inventory table by typing

>TABLE ENINV

and pressing the Enter key.

b. Position on the datafill tuple for the first ENET shelf to be updated by typing

>POS shelf_no

and pressing the Enter key.

where

shelf_no is the number of the shelf

Example

>POS 0

c. Change the load name in the plane 0 to the new load name by typing

>CHA LOAD0 new_load

and pressing the Enter key.

where

new_load is the name of the new load

Example

>CHA LOAD0 ENC07BM

ATTENTION

The MAP will display a warning the ENET load does not match the current system file. This warning is for information only; no action is required. Continue with this procedure.

d. Confirm the change by typing

>Y

and pressing the Enter key.

e. Change the load name in plane 1 to the new load name by typing

>CHA LOAD1 new_load

and pressing the Enter key.

where

new_load is the name of the new load

Example

>CHA LOAD1 ENC07BM

ATTENTION

The MAP will display a warning the ENET load does not match the current system file. This warning is for information only, no action is required. Continue with this procedure.

f. Confirm the change by typing

>Y

and pressing the Enter key.

g. Repeat these steps for each shelf in the ENET.

3 Exit the table by typing

>QUIT

and pressing the Enter key.

4 Access the SYSTEM level of the MAP display by typing

>MAPCI; MTC; NET; SYSTEM

and pressing the Enter key.

5 Select an ENET plane to update.

6 Set the deload in the first shelf in the plane by typing

>DELOAD plane_no shelf_no SET

and pressing the Enter key.

where

plane_no is the number of the plane

shelf_no is the number of the first shelf

Example

>DELOAD 0 0 SET

7 Repeat step 6 for each shelf in the plane.

8 Wait 30 minutes before continuing with this procedure to avoid network integrity problems.

9 Busy all the shelves in the plane by typing

>BSY plane_no ALL

and pressing the Enter key.

where

plane_no is the number of the plane

Example

>BSY 0 ALL

10 Confirm the action by typing

>Y

and pressing the Enter key.

11 Load all the shelves in the plane by typing

>LOADENALL plane_no

and pressing the Enter key.

where

plane_no is the number of the plane

Example

>LOADENALL 0

Note: The MAP display will respond with a message indicating a mismatch with a BCS. Continue with the procedure.

12 Confirm the action by typing

>Y

and pressing the Enter key.

13 Return all the shelves in the plane to service by typing

>RTS plane_no ALL

and pressing the Enter key.

where

plane_no is the number of the plane

Example

>RTS 0 ALL

14 If PRSM is enabled in the office, go to step 25.

CAUTION
Possible service interruption
Apply PRSUs immediately after updating the load. Failure to do so increases administrative time and could lead to service interruption.

15 Access the PRSM utility by typing

>PRSM

and pressing the Enter key.

If the plane being updated is	Do
the first ENET plane in the office to use the new load	Step 26
not the first ENET plane in the office to use the new load	Step 28

16 Review the PM update checklist and determine if PRSUs must be applied to the new load.

If the new load	Do
has PRSUs that must be manually applied	Step 17
does not have PRSUs to be manually applied	Step 18

17 Apply the PRSUs by performing the following steps.

a. Update the PRSM database according to the ENET plane's current database by typing

>DBAUDIT ENET plane_no

and pressing the Enter key.

where plane_no is the number of the ENET plane being updated

Example

>DBAUDIT ENET 0

b. Apply the PRSUs by typing

>APPLY 'prsu_name IN ENET plane_no

and pressing the Enter key.

where

prsu_name is the name of the PRSU

plane_no is the number of the ENET plane being updated

Example

>APPLY XAJ13X08 I XRP29X08 I XBA45X08 IN ENET 0

Note: It is not necessary to apply the PRSUs in a particular order. PRSM automatically sorts the PRSUs.

18 Confirm the ENET plane is properly patched by performing the following steps.

a. Update the PRSM database according to the ENET plane's current database by typing

>DBAUDIT ENET plane_no

and pressing the Enter key.

where

plane_no is the number of the ENET plane being updated

Example

>DBAUDIT ENET 0

b. Display the PRSU list by typing

>REPORT DEST ENET plane_no

and pressing the Enter key.

where

plane_no is the number of the ENET plane being updated

Example

>REPORT DEST ENET 0

If	Do
all PRSUs for the new load are applied to the plane	Step 19
all PRSUs for the new load are not applied to the plane	Troubleshoot the problem or contact the next level of support.
PRSUs fom the previous load are listed at VA status	A DBAUDIT has not been peformed. Return to Step a. 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 19. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

19 Exit the utility by typing

>QUIT

20 Access the SYSTEM level of the MAP display by typing

>SYSTEM

and pressing the Enter key.

21 Clear the deload in the first shelf in the plane by typing

>DELOAD plane_no shelf_no CLEAR

and pressing the Enter key.

Where

plane_no is the number of the plane

shelf_no is the number of the first shelf

Example

>DELOAD 0 0 CLEAR

22 Repeat Step 31 for each shelf in the plane.

23 **Allow the plane to soak at least four hours.**

Note: Check local office policy. Some offices require a longer soak period.

If an image	Do
needs to be taken of this ENET and the office is a Base09 or higher a PCL	Step 24
needs to be taken of this ENET and the office is a Base08 or lower PCL	Step 25
does not need to be taken of this ENET	Step 32

Note: Take an image of the first ENET plane to be updated with the new load. Office policy will determine the need for additional images.

24 Confirm an image was automatically taken of the ENET 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 ENET.

If an image	Do
was automatically taken	Step 32
was not automatically taken	Troubleshoot the problem or contact your next level of support. Troubleshooting activities include checking table PMLOADS and related alarms.

ATTENTION

The following steps describe how to take an image of a newly patched ENET load. Take an image immediately after patching, and use this image to reload the ENET with the patched load. If an image is not taken, PRSUs have to be manually applied each time an ENET is reloaded.

25 Access the disk utility by typing

>DISKUT

and pressing the Enter key.

26 Take an image of the new patched ENET load by typing

>DUMP file_name dev_name ACTIVE RETAIN NODE ENET plane_no shelf_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

plane_no is the number of the plane

shelf_no is the number of the shelf

Example

>DUMP ENC02AO S000PMLOADS ACTIVE RETAIN NODE ENET 0 0

27 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 S000PMLOADS

Note: The suffix "_ENET" will be appended to the file name.

28 Delete the previous ENET load file by typing

>DDF old_file

and pressing the Enter key.

where

old_file is the name of the previous ENET load file

Example

>DELETEFL ETC06BP

29 Eliminate the "_ENET" extension on the new ENET load file by typing

>RNF cur_name new_name

and pressing 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

>RENAMEFL ENC07BM_ENET ENC07BM

30 Exit the disk utility by typing

>QUIT

and pressing the Enter key.

31 Perform a NIL change to the ENET 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 ENET load by typing

>POS load_name

and pressing the Enter key.

where

load_name is the name of the ENET load

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.

32 Determine if both ENET planes are updated.

If	Do
one ENET plane is updated	Return to Step 6 and update the second plane.
both ENET planes are updated	Step 33

33 You have successfully updated the ENET and completed this procedure. Review the update schedule.

If there are	Do
additional ENETs to update during this shift	Repeat this procedure.
no additional PMs or hardware types to update during this shift	You have completed this procedure.

MS Chain (NT9X17) Firmware Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in the Message Switch (MS) multi-port (NT9X17) cards.

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- The firmware loadname **must not** be datafilled in Table PMLOADS.
- An office image has been taken in the last 24 hours.
- All MS logs are enabled.
- The MS to be upgraded is in-service.
- The MS to be upgraded has successfully passed its last REX test.
- The ENET has been upgraded and using the new ENET load for at least 24 hours.
- Automatic REX testing is suspended in the office.

Notes

The firmware load **must not** be added to Table PMLOADS as it will generate and alarm.

Change load name

Steps of Procedure

At the CI level of the MAP display

1 List the SLM disk volume where the firmware loads are kept.

```
>DISKUT

>LF <volume_name>

>QUIT
```

2 In TABLE MSFWLOAD, position on NT9X17DA or NT9X17BB, or NT9X17CA, whichever is applicable to the office and step through the TUPLE making the correct changes. (This step does not aply to NTX17AD because it does not need firmware upgrade.)

```
>TABLE MSFWLOAD

>pos <pec_code>
```

>CHA

>DEV <device>

>FILENAME <ms_firmware_load>

>QUIT

3 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

Determine if CHAIN software is present
Steps of Procedure

At the CI level of the MAP display

1 To determine if chain software is present in the office, go to the MS SHELF level of the MAP.

>MAPCI; MTC; MS; SHELF 0;

2 Look at the CHAIN configuration line of this MAP level.

3 If there are no ‘|‘ or ‘< >’ symbols indicating CHAINs, then CHAIN software is not present and you must use “Upgrade Procedure when chain software is NOT present” on page 432.

4 If there are ‘|‘ or ‘< >’ symbols indicating CHAINs, then CHAIN software is present and you must use “Upgrade Procedure when chain software is present.” on page 433

5 You have completed this procedure. Use this procedure again to upgrade another similar peripheral/unit or set of peripherals/units if required.

Upgrade Procedure when chain software is NOT present
Steps of Procedure

At the CI level of the MAP display

1 If chain software is used then use “Upgrade Procedure when chain software is present.” on page 433.

2 BSY and reload each 9X17 card on one MS. (Either MS can be chosen).

>BSY <ms_number> <card_number>

>LOADCD <ms_number> <card_number>

Note: only interface cards can be down-loaded.

Note: A warning may be given during the LOADCD whenever the load is different than the release of the front end. This is normal for upgrades.

>TST <ms_number> <card_number>

>RTS <ms_number> <card_number>

3 Repeat above procedure for each interface card on shelf 0.

4 If there is more than one shelf on this MS then repeat the entire procedure for each shelf on the MS.

5 You have completed this procedure.

Upgrade Procedure when chain software is present.
Steps of Procedure

Note: Not applicable for the NT9X17AD (SDM) card as this card has no firmware to download.

At the CI level of the MAP display

1 If the office contains chain software then the procedure to BSY and return the cards to service is different than in section on page 431.

2 Select the first shelf to be upgraded

>MAPCI; MTC; MS; SHELF <shelf_number>

3 Start with the MS containing the slaveclock (S) first followed by the MS containing the masterclock (M).

4 A chain may consist of one or more cards which **must** be busied out and returned to service as a unit. Observe the chains and note the position numbers of the first card in each chain.

The first card in each chain is identified by a 'I' or '<' symbol.

The last card in each chain is identified by a '>' symbol

Note the numbers of the first card in each chain and any other cards in each chain.

5 POST, BSY and LOAD the chains on this plane.

>BSY <ms_number> <no_of_first_card_in_chain> CHAIN

>LOADCD <ms_number> <card_no>

>QUERYCD <ms_number> <card_no>

Repeat the load and query commands for each card in the chain.

>RTS <ms_number> <no_of_first_card_in_chain> CHAIN

6 Repeat step 5 for the each chain on the same MS.

7 If there is more than one shelf on this MS then repeat steps 4 to 6 for each shelf.

Note: The cards on the other MS that have not been updated will be in an ISTB state due to the mismatch between the firmware and the load datafilled in TABLE MSFWLOAD.

8 **At this point a soak-period of 4 hours should be observed before loading the interface cards on the other MS.**

9 If no problems have been observed after the soak-period, the cards on the other MS can be loaded using the same procedure/s above.

10 You have completed this procedure.

Message Switch Upgrade Procedure

Application

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

Use this procedure to upgrade the software load in the Message Switch (MS).

Prerequisites

Confirm that the following prerequisites have been met before continuing with this procedure.

- An office image has been taken in the last 24 hours.
- All MS logs are enabled.
- The MS to be upgraded is in-service.
- The MS to be upgraded has successfully passed its last REX test .
- Automatic REX testing is suspended in the office.
- All MS multi-port (NT9X17) cards have been upgraded to the latest software load.
- Office policy may require that you inform your network control centre before starting this procedure and upon completion. Ensure you know and follow your office policy.

Notes

Read and understand the following notes before proceeding with this procedure.

- The MS is normally upgraded as a preliminary step of the One Night Process (ONP) and will be the last peripheral upgrade before the CM is upgraded.
- The new MS load is backwards compatible with the MS load for the previous two releases.
- This upgrade should be done during a maintenance window or period of low traffic but can be done at any time .
- Ideally, the MS should be clear alarms for at least 24 hours prior to this upgrade.

Steps of Procedure

At the CI level of the MAP display

1 Restore the new MS load from cartridge to image volume if not already performed.

>DISKUT

>IT <tape_device_name>

>LF <tape_device_name>

>RE FILE <image_volume> <tape_device_name> <ms_loadname>

>ET <tape_device_name>

>LF <image_volume>

>QUIT

2 You have completed this procedure.

Update the MS

Steps of Procedure

At the CI level of the MAP display

1 At the MS MAP level, determine which MS contains the slave clock.

>MAPCI; MTC; MS

2 At the MS MAP level, BSY MS containing the SLAVE CLOCK

>BSY <ms_number>

3 List the SLM disk volume where the MS loads are kept.

>DISKUT

>LF <volume_name>

>QUIT

4 At the MS MAP level, reload the MS. Verify that the MS was successfully reloaded and tested.

>LOADMS <ms_number> <file_name>

>TST <ms_number>

5 RTS the Message Switch.

>RTS <ms_number>

6 APPLY all of the PRSUs required:

>PRSM

>DBAUDIT MS <ms_number>

>APPLY <prsu_id> IN MS <ms_no>

Repeat this step for each PRSU

Note: Make sure the PRSUs match the list provided unless additional PRSUs have been added to the load after the upgrade.

7 Match update the plane and shelf

>PRSM

>DBAUDIT MS <ms_number>

>QUIT

8 You **must** now take an image of the new MS load with the PRSUs applied. This can easily be done by invoking the AUTODUMP MANUAL command.

9 Verify that both MSs are fully in-service. Perform a SWITCH MASTER on the clock to switch mastership to the newly reloaded MS.

>MAPCI; MTC; MS; SWMAST

10 **Soak new load for one hour while monitoring logs and making critical calls.**

11 Repeat Step 2 to Step 7 for the other MS.

12 **Soak new load for one hour while monitoring logs and making critical calls.**

13 You have completed this procedure.

Update Procedures

SDM Upgrade Procedure for Operating System and Firmware

For the SuperNode Data Manager (SDM) Platform Software Upgrade, please refer to the following document:

NN10059-461 Preliminary 02.01 May 2002

SPM Upgrade Procedure for Operating System and Firmware

For the Spectrum Peripheral Module (SPM) Release Document Upgrade, please refer to the following document:

NN10053-461 Standard 04.01 May 2002

XPM Processor Circuit Card Firmware Upgrade Procedure

XPM Processor Circuit Card Firmware Upgrade Procedure

Application

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

CAUTION
Loss of service
To Perform XPM processor firmware installations or planned protocol changes, refer to the appropriate installation method (IM) described in the following paragraphs:

Use IM 65-0260, *NTSX05AA/CA Processor Upgrade*, to upgrade from NTMX77AA or NTAX74AA to NTSX05AA or NTSX05CA peripheral processors and optional NTSX06BA or NTSX06CA peripheral remote loader (PRL) for host-ISDN or host non-ISDN peripherals.

Use IM 65-6364, *LGC/LTC, RCC2 Remote Firmware Upgrade*, to upgrade processor firmware for host-ISDN or host non-ISDN peripherals provisioned with NTMX76 supporting HDLC protocol.

Failure to follow these installation methods results in an interruption of service.

CAUTION
Possible service interruption to subscribers linked to RC02

The following issue was noticed in MMP15:

When upgrading an LGCOi from MX77 to the SX05 processor to use the QGI15AY load, caution must be observed when using the following hardware configuration:

An LGCOi (OGI15AY load, with UPFWNS01 firmware) that is communicating with a Pside RC02 (WRI15AY load, with UPFWNS01 firmware) using the optional HDLC protocol (NTMX76 card).

When using this configuration, the PSIDE RC02 drops SYSB after the PLGC has been upgraded to SX05. This is because the SX05 firmware uses a different HDLC protocol from the AX74 and MX77 firmware.

In order to correct this, the RC02 must have the UPFWQK01 firmware before upgrading the PLGC.

Use this procedure to update the firmware on the XPM processor card (NTAX74 or 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 is updated when the serving PM is updated.

Prerequisites

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

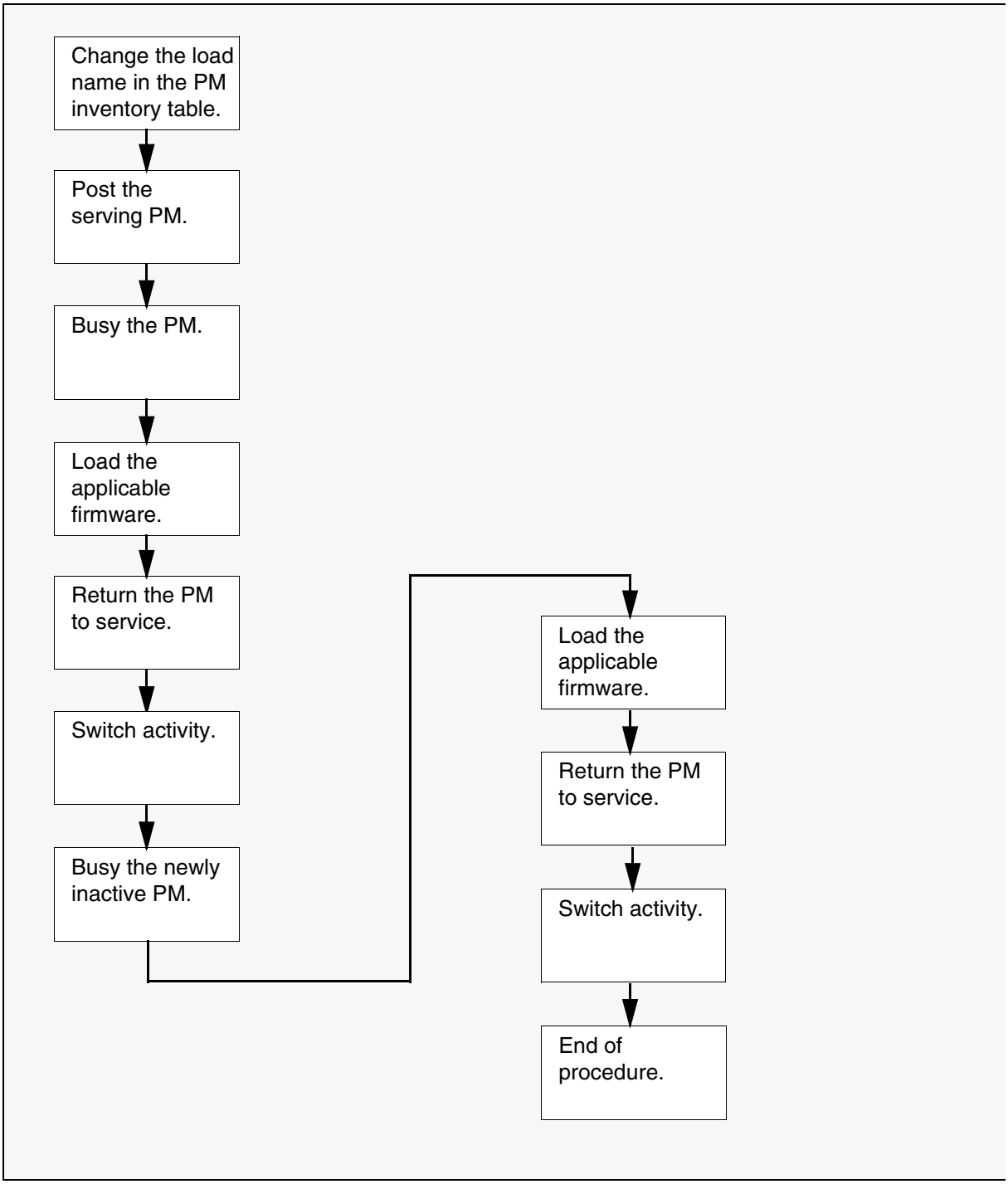
- The new load name is datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The PM is in-service (InSv).
- The PM passed its last REX test within the last two weeks.
- All REX tests are suspended in the office.

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

3 Open the PM inventory table. Type

>TABLE pm_inv

and press the Enter key.

where

pm_inv is the inventory table for the PM

4 Position on the datafill tuple for the PM. Type

If the serving PM is not an RCC, RCC2, or RCO2

>POS 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

5 Position on the datafill tuple for the PM. Type

If the serving PM is an RCC, RCC2, or RCO2

>POS site_name pm_type pm_no

and press the Enter key.

where

site_name is the name of the PM's site

pm_type is RCC, RCC2, or RCO2

pm_no is the number of the PM

6 Change the current firmware load name to the new load name. Type

>CHA E2LOAD fw_load

and press the Enter key.

where

fw_load is the name of the new firmware load

7 Confirm the change. Type

>Y

and press the Enter key.

8 Exit the table. Type

>QUIT

and press the Enter key.

9 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

10 Post the PM. 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

Note: The PM changes status to in-service trouble (ISTb). If the PM does not change to ISTb, confirm the PM inventory table is updated correctly

and the correct PM is posted. Do not continue this procedure until the PM is ISTb.

11

ATTENTION

Perform steps 11, 12 and 13 consecutively to ensure the new firmware load updates properly. Do not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 11, 12 and 13. Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

Load the firmware in the inactive unit. Type

>LOADFW INACTIVE

and press 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 inactive unit. Type

>BSY INACTIVE

and press the Enter key.

13 Load the firmware into the inactive unit. Type

>LOADFW INACTIVE UPGRADE

and press the Enter key.

14 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

15 Wait for the MAP display to show the unit is InSv. This ensures superframe sync and data sync are achieved. The unit may take two to three minutes to display INSv.

16 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the DMS-100 switch cannot perform a warm switch of activity (SWACT), do not continue this procedure. The DMS-100 switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

17 Confirm the switch of activity. Type

>Y

and press the Enter key.

18

ATTENTION

Perform steps 18, 19 and 20 consecutively to ensure the new firmware load updates properly. Do not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 18, 19 and 20. Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

Load the firmware in the inactive unit. Type

>LOADFW INACTIVE

and press 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. Type

>BSY INACTIVE

and press the Enter key.

20 Load the firmware into the inactive unit. Type

>LOADFW INACTIVE UPGRADE

and press the Enter key.

21 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

22 Wait for the MAP display to show the unit is InSv. The ensures superframe sync and data sync are achieved. The unit can take two to three minutes to display InSv.

23 Switch activity between the units and return them to their original service states. Type

>SWACT

and press the Enter key.

Note: If the DMS-100 switch cannot perform a warm switch of activity (SWACT), do not continue this procedure. The DMS-100 switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

24 Confirm the switch of activity. Type

>Y

and press the Enter key.

25 You have updated the XPM processor card 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 update procedure in this document.

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

XA-Core Component at the PE, IOP or CMIC level Firmware Upgrade Procedure

Application

Use this procedure to update the firmware on an XA-Core component.

Prerequisites

Perform this procedure as required.

Required information

This procedure does not refer to any common procedures.

Update sequence

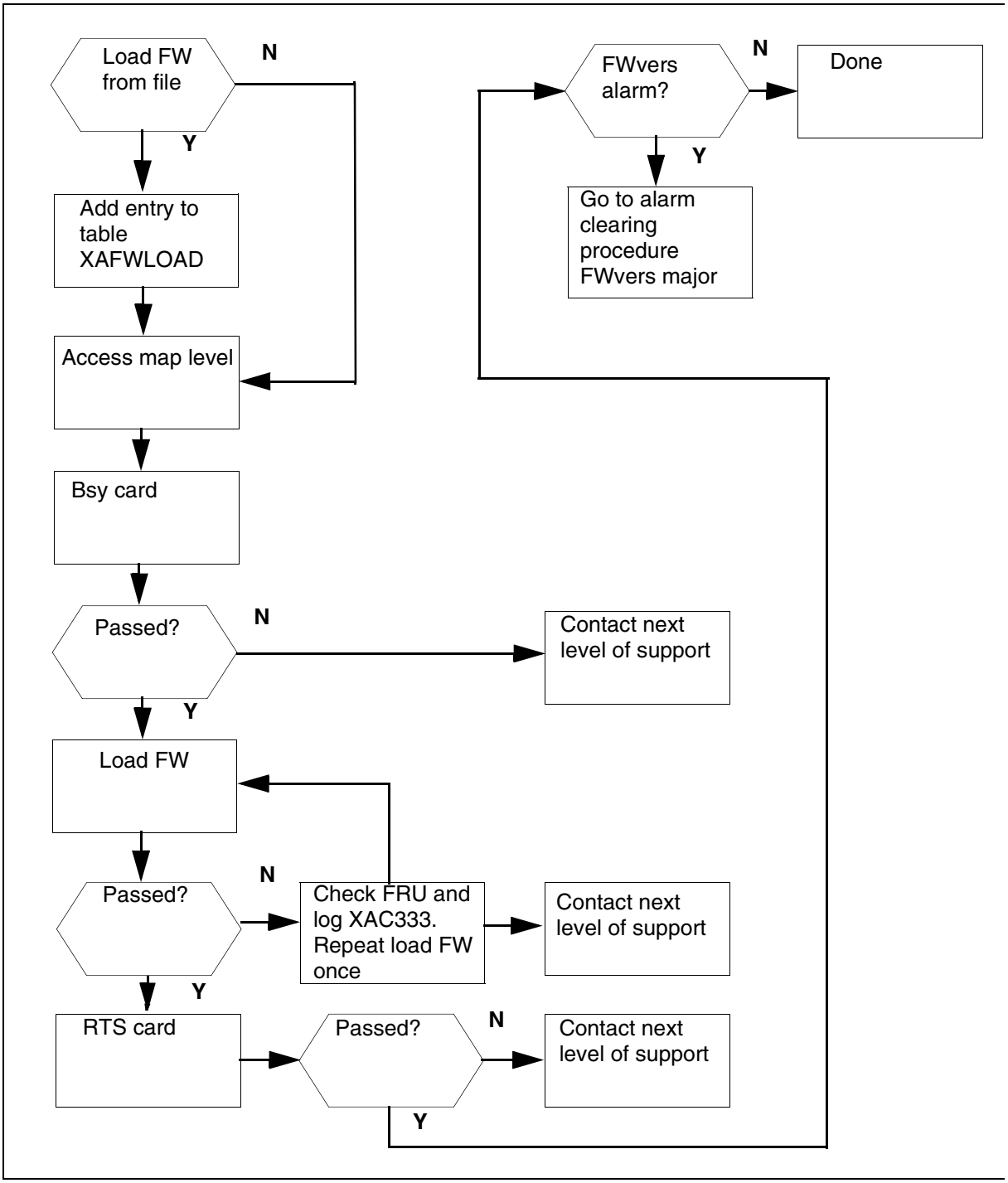
Not applicable

Notes

None

The flowchart that follows provides a summary of this procedure. Use the instructions in the step action procedure that follows the flowchart to perform the routine maintenance procedure.

Summary of procedure for upgrading firmware on an XA-Core component



Steps of Procedure

At the CI level of the MAP display

1 Determine the next action.

If	Do
you want to load the firmware (FW) from a file	Step 2
you want to clone the firmware (FW) from another component of the same type	Step 15

2 To access the table XAFWLOAD, type

>TABLE XAFWLOAD

and press the Enter key.

Map response

```
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: XAFWLOAD
```

3 To add a tuple to the table, type

>ADD

and press the Enter key.

Map response

```
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

4 To confirm the action, type

>Y

and press the Enter key.

Map response

```
INDEX:
```

5 To enter the index number, type

>index

where

index is a currently unused index key (0 to 40) for the tuple in table XAFWLOAD

and press the Enter key.

Map response

```
FRU:
```

6 To enter the field replaceable unit (FRU), type

>fru

where

fru is the FRU of the new component (PE, IOP or CMIC)

and press the Enter key

Map response

```
PEC:
```

7 To enter the product equipment code (PEC), type

>pec

where

pec is the PEC code of the new component (for example, NTLX02AA)

and press the Enter key.

Map response

```
VERSION:
```

8 To enter the version, type

>version

where

version is the version of the new component (for example, XAPE01BA)

and press the Enter key.

Map response

```
VOLUME:
```

9 To enter the volume name, type

>volume

where

volume is the volume of the new component (for example, F02LFWLOADS)

and press the Enter key.

Map response

```
FILE:
```

10 To enter the file name, type

>file

where

file is the name of the file (for example, PEFW424)

and press the Enter key.

Map response

```
LOADTYPE:
```

11 To enter the load, type

>loadtype

where

loadtype is the type of file entered

type fw and press the Enter key.

Map response

```
STATUS:
```

12 To enter the status, type

>status

where

status is the status of the entry (new)

and press the Enter key.

Map response

```
SOAK:
```

13 To enter the soak time, type

>soak

where

soak is the soak time measured in hours (for example, 48)

and press the Enter key.

Map response

```
TUPLE TO BE CHANGED:
3 IOP NTLX03AB XAI01AK F17LXACFWLD IOPFW_AK FW
CURRENT 48
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
```

14 To confirm the action, type

>Y

and press the Enter key.

Map response

```
FW TUPLE ADDED
JOURNAL FILE INACTIVE
```

15 To review the table entries, type

>LIST ALL

and press the Enter key.

Map response:

```
INDEX FRU PEC VERSION VOLUME FILE STATUS SOAK
-------------------------------------------
1 PE NTLX02CA XAPE01AG F17LXACFWLD XAPE01AG FW CURRENT 48
2 IOP NTLX03BB XAIO01AK F17LXACFWLD IOPFW_AK FW CURRENT 48
3 IOP NTLX03AB XAIO01AK F17LXACFWLD IOPFW_AK FW CURRENT 48
4 CMIC NTLX05AB PK12CE12 F17LXACFWLD PK12CE12 FW CURRENT 1

BOTTOM
```

16 To access the PE, IOP or CMIC map level, type

>MAPCI; MTC; XAC; map level

and press the Enter key.

where

map level is the name of the map level

17

CAUTION
Possible service interruption
The busy command may jeopardize redundancy. Perform this procedure during time periods of low traffic.

To manually busy the card, type

>BSY slot

Note: If this command reduces redundancy, you must use the Force option. Use the Force option with caution.

and press the Enter key.

where

slot is the slot position of the card (for example, 4 Front)

Map response

```
Warning: Bsy command will take it out of service.
Proceed (Y or N)?
Please confirm ('YES', 'Y', 'NO', or 'N'):
```

18 To confirm the action, type

>Y

and press the Enter key.

If	Do
the reponse is Command Submitted. Bsy 4 front completed	Step 18
the response is Command Submitted. Bsy 4 front failed	Step 25

19 To load the firmware, type

>LOADFW slot FILE NEW

or

>LOADFW slot CLONE from_slot

and press the Enter key.

Note: The clone option is not available at the CMIC map level.

where

slot is the slot position of the card (for example 4 Front) being upgraded

from_slot is the slot position of the card (for example 16 Front) being cloned

If	Do
the reponse is Command Submitted. LoadFW 4 front completed.	Step 19
the response is Command Submitted. LoadFW 4 front failed and for example, reason is Volume non-existent.	confirm the FRU information in table XAFWLOAD and record log XAC333 then repeat this step again. If the loading process continues to fail, go to Step 25.

20 To return the card to service, type

>RTS slot

and press the Enter key.

where

slot is the slot position of the card (for example, 4 Front)

If	Do
the reponse is Command Submitted. RTS 4 front passed.	Step 20
the response is Command Submitted. RTS 4 front failed.	Step 25

21 Determine the next action.

If	Do
you want to upgrade another component with the same FW	Step 15
all components are upgraded	Step 21

22 To change the status of an FRU in table XAFWLOAD, type

>CHANGE entire_tuple

and press the Enter key.

where

entire_tuple is the entire tuple with the changed status (for example, 1 PE NTLX02CA XAPE01AG F17LXACFWLD XAPE01AG FW CURRENT 48)

Map response

```
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

23 To confirm the action, type

>Y

and press the Enter key.

Map response

```
FW TUPLE CHANGED
JOURNAL FILE INACTIVE
```

24 To review the table entries, type

>LIST ALL

and press the Enter key.

Map response example:

```
INDEX FRU PEC VERSION VOLUME FILE STATUS SOAK
-------------------------------------------
1 PE NTLX02CA XAPE01AG F17LXACFWLD XAPE01AG FW CURRENT 48
2 IOP NTLX03BB XAIO01AK F17LXACFWLD IOPFW_AK FW CURRENT48
3 IOP NTLX03AB XAIO01AK F17LXACFWLD IOPFW_AK FW CURRENT48
4 CMIC NTLX05AB PK12CE12 F17LXACFWLD PK12CE12 FW CURRENT 1
BOTTOM
```

25 Determine the next action.

If	Do
the system detects a firmware mismatch and raises a FWvers major alarm	record the FW version of the FRU and information recorded on the XAC330 log. Go to the alarm clearing procedure “FWvers major” and clear the FWvers alarm.
there is no FWvers alarm	Step 26

26 Contact your next level of support.

27 You have completed the procedure.

Using the 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
Refer to the appropriate update procedure in this document to update the first unit in the office to use the new load. Use this procedure to update the remaining XPMs.

Use this procedure “Using the peripheral remote loader (PRL) circuit card to update an XPM” to update the following XPM types equipped with a PRL circuit card:

- DTC
- DTCI
- DTCO
- DTCOi
- DTCO2
- DTCOi2
- GPP
- LGC
- LGCI
- LTC
- LTCI
- RCC
- RCC2
- TMS

Prerequisites

Perform the procedures “Preparing for a manual PM update” or “Preparing for an automated PM update using PMUPGRADE" and “Start a PM update

shift" in this document to meet the following prerequisites for this procedure:

- All new load names for the PM are datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The XPM is in-service (InSv).
- The XPM passed its last REX test within the last two weeks.
- All REX tests are suspended in the office.
- The post-release software manager (PRSU) automated processes do not start during the PM update shift

Review the update checklists and schedules to answer the following questions (this information is required to complete this procedure):

- Does the PM have a CLASS modem resource (CMR) load that requires an update?
- Does the XPM processor firmware require an update?
- Do any PRSUs need to be applied manually?
- Is the PM part of a dual RCC or RCC2 configuration?

Required information

Further information can be obtained by refering to chapters "Overview of release" and "Overview of update process".

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 can load the PRL circuit cards with XPMSTOR during business hours with periods of low traffic. The NOWAIT parameter can be used to load a single PRL circuit card.

The flowchart that follows provides a summary of this procedure. Use the instructions in the step action procedure that follows the flowchart to perform the routine maintenance procedure.

Steps of Procedure

At the CI level of the MAP display

> **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.

1 Select an XPM to update. Review and confirm the completion of all prerequisites for this procedure.

2 Open the PM inventory table. Type

>TABLE pm_inv

and press the Enter key.

where

pm_inv is LTCINV (for a DTC, DTCI, LGC, LGCI, LTC, LTCI, or TMS) is RCCINV (for an RCC or RCC2)

Example of a command

>TABLE LTCINV

3 Change the format of the display to a packed format. Type

>FORMAT PACK

and press the Enter key.

4 Determine the next action

If	Do
the PM is an RCC or RCC2	Step 5
the PM is not an RCC or RCC	Step 6

5 Position on the datafill tuple for the RCC or RCC2 to be updated. 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 and pm_no is the number of the PM being updated

Example of command

>POS REMO RCC 1

Go to step 7

6 Position on the datafill tuple for the PM to be updated.

>Type POS pm_type pm_no

and press the Enter key.

where

pm_type is the type of PM and pm_no is the number of the PM being updated

Example of command

>POS DTC 0

ATTENTION

If the load name has a date extension, the load is a pre-patched XPM load (PPXL). Enter the load name only. Refer to chapter "Overview of release" for more information on PPXLs..

7 Change the load name 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 ECL81AZ

8 Confirm the change. Type

>Y

and press the Enter key.

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

If	Do
the XPM processor firmware requires an update	Step 9
the XPM processor firmware does not require an update	Step 10

Note: Refer to section “Peripheral module to XPM processor firmware cross-reference” in chapter “Overview of release to determine if the processor firmware needs an update. Review the PM update schedule and checklist.

9 Update the XPM processor firmware load name in the inventory table. Perform the following steps:

a. Change the XPM processor firmware load name to the new firmware load. Type

>CHA E2LOAD fw_load

and press the Enter key.

where

fw_load is the new XPM processor firmware load name

Example of command

>CHA E2LOAD UPFWNK01

b. Confirm the change. Type

>Y

and press the Enter key.

10 Review the PM update schedule and checklist. Determine if the PM has a CMR load that requires an update.

If	Do
the CMR load requires an update	Step 11
the CMR load does not require an update	Step 12

11 Change the CMR load in the inventory table. Perform the following steps:

a. Access the OPTCARD field. Type

>CHA OPTCARD

and press the Enter key.

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

c. Enter the new CMR load name. Type

>cmr_load

and press the Enter key.

where

cmr_load is the CMR load name

Example of command

>CMR07A

d. Press the Enter key to schroll through the fields until the blank OPTCARD prompt appears.

e. Exit the OPTCARD field. Type

>$

and press the Enter key.

f. Confirm the change. Type

>Y

and press the Enter key.

12 Close the table. Type

>QUIT

and press the Enter key.

13 Access the PM level of the MAP display. Type

>MAPCI ; MTC ; PM

and press the Enter key.

14 Post the PM. Type

>POST pm_type pm_no

and press the Enter key.

where

pm_type is the type of PM and pm_no is the number of the PM being updated.

Example of command

>POST DTC 0

Note: The PM changes status to ISTb. If the PM does not change to ISTb, confirm the PM inventory table is updated correctly and the correct PM is posted. Do not continue this procedure until the PM is ISTb.

ATTENTION

This step loads both PRL circuit cards. This reduces loading time but can increase risks for ISDN XPMs if a recovery is required.

15 Load the PRL circuit cards. Type

>XPMSTOR PM

and press the Enter key.

Note: The PM remains ISTb because of the load mismatch with the PRL circuit cards and the PM. The PM remains ISTb until the PMs are updated with the new PM load. Continue this procedure.

16 Determine if the PM is an RCC or RCC2.

If	Do
the PM is an RCC or RCC2	Step 17
the PM is not an RCC or RCC2	Step 20

17 Determine if the RCC or RCC2 is part of a dual configuration.

If	Do
the RCC or RCC2 is part of a dual RCC configuration	Step 18
the RCC or RCC2 is not part of a dual RCC configuration	Step 19

18 Busy the interlinks. Perform the following steps:

a. Access the IRLINK level of the MAP display. Type

>IRLINK

and press the Enter key.

b. Display the interlinks. Type

>QUERYIR

and press the Enter key.

c. Disable the interswitching. Type

>INTERSWITCH DISABLE

d. Select and busy an interlink. Type

>BSY link_no

and press the Enter key.

where

link_no is the number of the interlink

Example of command

>BSY 1

e. Repeat step 18d for each interlink.

f. Exit the IRLINK level. Type

>QUIT

and press the Enter key.

19 Assign the load to the inactive unit. Perform the following steps:

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

> **ATTENTION**
> 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 links PRSUs from the previous load to the new PM load.

b. Assign the new load. Type

>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 fo the PM being updated

unit_no is the number of the inactive unit

Example of command

>ASSIGN UPGRADE_LD ECL81AZ IN DESTSET DTC 0 1

c. Exit the utility. Type

>QUIT

and press the Enter key

20 Determine if a change to the XPM processor firmware load name was performed in step 9 during this update shift.

If	Do
the XPM processor firmware load name was changed	Step 21
the XPM processor firmware load name was not changed	Step 25

ATTENTION

Perform steps 21, 22 and 23 consecutively to ensure the new firmware load updates properly. Do not enter the PMRESET or LOADPM command.
If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.
Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 21, 22 and 23. Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

21 Load the XPM processor firmware in the inactive unit. Type

>LOADFW INACTIVE

and press the Enter key.

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

22 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

23 Activate the XPM processor frimware in the inactive unit. Type

>LOADFW INACTIVE UPGRADE

and press the Enter key.

24 Go to step 26.

25 Busy the inactive unit. Type

>BSY INACTIVE

and press the Enter key.

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

26 Load the inactive unit. Type

>LOADPM INACTIVE LOCAL LOADFILE

and press the Enter key.

27 Confirm the PRSU status of the inactive unit. Perform the following steps:

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database. Type

>DBAUDIT pm_type pm_no unit_no

and press 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 of command

>DBAUDIT DTC 0 1

c. Display the PRSU list. Type

>REPORT DEST pm_type pm_no unit_no

and press 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 of command

>REPORT DEST DTC 0 1

d. Compare the displayed PRSM database for the inactive unit with the list of PRSUs for the new load.

If	Do
all PRSUs for the new load are applied to the inactive unit	Step 27i
all PRSUs for the new load are not applied to the inactive unit	Step 27e

e. Apply the PRSUs to the inactive unit. Type

>APPLY prsu_id IN pm_type pm_no unit_no

and press the Enter key.

where

prsu_id is the name of the PRSU (repeat variable as required)

pm_type is the type of PM

pm_no is the number of the PM

unit_no is the number of the inactive unit

Example of single line command

>APPLY XAJ13X08 | XRP29X08 | XBA45X08 IN DTC 0 1

Note: It is not necessary to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs when applied as a set.

f. Update the PRSM database. Type

>DBAUDIT pm_type pm_no unit_no

and press 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 of command

>DBAUDIT DTC 0 1

g. Display the PRSU list. Type

>REPORT DEST pm_type pm_no unit_no

and press 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 of command

>REPORT DEST DTC 0 1

h. Compare the displayed PRSM database with the list of PRSUs for the new load.

If	Do
the PRSU list matches the PRSM database	Step 27i
the PRSU does not match the PRSM database	Step 27e

i. Exit the utility. Type

>QUIT

and press the Enter key.

28 Return the inactive unit to service. Type

>RTS INACTIVE

and press the Enter key.

Note: A non-ISDN XPM can change status to ISTb after it returns to service while a new image is taken. Wait for the image to be taken, then continue this procedure.

29 Wait for the MAP display to show the unit is InSv. This ensures superframe sync and data sync are achieved. The unit can take two to three minutes to display InSv.

30 Switch activity between the units. Type

>SWACT

and press the Enter key.

Note: If the DMS switch can not perform a warm switch of activity (SWACT) do not continue this procedure. The DMS switch possibly detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

31 Confirm the switch of activity. Type

>Y

and press the Enter key.

32 Wait for the MAP display to show the unit is InSv. This ensures superframe synce and data sync are achieved. The unit can take two to three minutes to display InSv.

If	Do
one unit is updated	Step 19
both units are updated	Step 33

Note: If one unit is updated, the inactive unit is ISTb because of the load mismatch with the inventory table. The node remains ISTb until both units are updated with the new load.

33 Determine if the PM is an RCC or an RCC2.

If	Do
the PM is an RCC or RCC2	Step 34
the PM is not an RCC or RCC2	Step 36

34 Determine if the RCC or RCC2 is part of a dual configuration.

If	Do
the RCC or RCC2 is part of a dual RCC configuration	Step 35
the RCC or RCC2 is not part of a dual RCC configuration	Step 36

35 Return the interlinks to service. Perform the following steps:

a. Access the IRLINK level of the MAP display. Type

>IRLINK

and press the Enter key.

b. Display the interlinks. Type

>QUERYIR

and press the Enter key.

c. Return an interlink to service. Type

>RTS link_no

and press the Enter key.

where

link_no is the number of the interlink

Example of command

>RTS 1

d. Repeat step 35c. for each interlink.

e. Enable interswitching. Type

>INTERSWITCH ENABLE

f. Exit the IRLINK level. Type

>QUIT

and press the Enter key.

36 You have used the PRL circuit card to update an XPM and have completed this procedure. Review the update schedule for the office.

If	Do
there are additional XPMs with PRL circuit cards to update during this shift	repeat this procedure
there are other PMs or hardware types to update during this shift	go to the appropriate update procedure in this document
there are no other PMs or hardware types to update during this shift	go to the procedure "Finish a PM update shift" in this document

Use the PRL circuit 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 XPMs. Refer to the appropriate update procedure in this document to update the first unit in the office to use the the new load. Use this procedure to update the remaining XPMs.

Use this procedure to use the peripheral remote loader (PRL) circuit card for the following:

- Parallel load a set of two to ten XPMs.
- All units of the same number (0 or 1) can be updated with XPM parallel loading.
- Only inactive units can be updated, therefore activity can be switched in some XPMs to align all the units in the set.
- During XPM parallel loading, the computing module (CM) sends messages directly to each inactive unit.

Prerequisites

Perform the procedures “Prepare for a manual PM update” or “Prepare for an automated PM update using PMUPGRADE” amd “Start a PM update shift” in this document to meet the following prerequisites:

- All new load names for the PMs are entered in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- Eac PM is in-service (InSv)
- Each PM passed its last REX test within the last two weeks.
- 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

Refer to the appropriate PM update procedure in this document.

Update sequence

Refer to the appropriate PM update procedure in this document.

Notes

This procedure assumes that all post-release software updates (PRSUs) for the load are applied. If all PRSUs are not applied, update one unit and apply any PRSUs. The unit can be 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 remote 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 can use the DTC with timing links as the first DTC in the office to be updated with the new load.

Parallel loading can 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.

Office parameter MAX_FIRMWARE_LOAD_MAIN_TASK in table OFCOPT determines the maximum number of XPMs in the set. The default value is 10 and the range 1 to 128.

> ***Note:*** With the BASE10 software release, office parameter MAX_FIRMWARE_LOAD_MAIN_TASKS in table OFCOPT is deleted.

Steps of Procedure

At the CI level of the MAP display

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.

1 Select the PMs 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 pm_inv

and press the Enter key

where

pm_inv is the name of the inventory table

Example of command

>TABLE LTCINV

If	Do
you wish to view the tuples in a packed format	Step 3b
you wish to view the tuples in 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. Position on the datafill tuple for one of the PMs to be updated. Type

>POS 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

Example of command

>POS DTC 0

ATTENTION

If the load name has a date extension, the load is a pre-patched XPM load (PPXL). Enter the load name only. Refer to chapter "Overview of release" for more information on PPXLs.

d. Change the load name 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 ECL81AZ

e. Confirm the change. Type

>Y

and press the Enter key.

Note 1: The PM changes status to in-service trouble (ISTb) because of the load mismatch with the inventory table. Continuethis procedure.

If	Do
the XPM processor requires an update	Step 4
the XPM processor does not require an update	Step 5

Note 2: Refer to section “Peripheral module to XPM processor firmware cross reference” in chapter “Overview of release” to determine if the processor firmware needs an update. Review the PM update schedule.

4 Update the XPM processor firmware load name in the inventory table. Perform the following steps:

a. Change the XPM processor firmware load name to the new firmware load name. Type

>CHA E2LOAD fw_load

and press the Enter key.

where

fw_load is the new XPM processor firmware load name

Example of command

>CHA E2LOAD UPFWNK01

b. Confirm the change. Type

>Y

and press the Enter key.

5 Review the PM update schedule and checklist. Determine if the PM has a CMR load that requires an update.

If	Do
the CMR load requires an update	Step 6
the CMR load does not require an update	Step 7

6 Change the CMR load name in the inventory table. Perform the following steps:

a. Access the OPTCARD field. Type

>CHA OPTCARD

and press the Enter key.

b. Press the Enter key to schroll through the fields until the MAP display prompts for the CMR load name.

c. Enter the new CMR load name. Type

>cmr_load

and press the Enter key.

where

cmr_load is the CMR load name

Example of command

>CMR07A

d. Press the Enter key to schroll through the fields until the MAP display shows the blank OPTCARD prompt.

e. Exit the OPTCARD field. Type

>$

and press the Enter key

f. Confirm the change. Type

>Y

and press the Enter key.

7 Repeat steps 3c. through 6f. for each PM to be updated in the selected set.

8 Close the table. Type

>QUIT

and press the Enter key.

9 Access the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

ATTENTION

If parallel firmware loading is used to update the XPM processor firmware, post four or less XPMs at this step.

10 Post the PMs. Type

>POST pm_type pm_set

and press the Enter key.

where

pm_type is the type of PM

pm_set is the set of PMs

Example of command

>POST DTC 0 1 2 3 4 5

Note 3: The PMs change status to ISTb. If the PMs do not change to ISTb, confirm the PM inventory table is updated correctly and the correct PMs are posted. Do not continue this procedure until the PMs are ISTb.

11 Use the NEXT command to schroll through the posted set and identify any active unit 1s.

12 Post all the PMs with an active unit 1. Type

>POST pm_type pm_set

and press the Enter key.

where

pm_type is the type of PM

pm_set is the the number of the PM with an active unit 1

Example of command

>POST DTC 0 2 3 5

13 Switch activity in the PMs. Type

>SWACT ALL

and press the Enter key.

14 Post the entire PM set again. Type

>POST pm_type pm_set

and press the Enter key.

where

pm_type is the type of PM

pm_set is the set of PMs

Example of command

>POST DTC 0 1 2 3 4 5

ATTENTION

This step loads both PRL circuit cards. This reduces loading time but can increase risks for ISDN XPMs if a recovery is required..

15 Load the PRL circuit cards. Type

>XPMSTOR PM ALL

and press the Enter key.

Note 4: The PMs remain ISTb because of the load mismatch with the PRL circuit cards and the PMs. The PMs remain ISTb until the PMs are updated with the new PM load. continue this procedure.

ATTENTION

Office policy can support the use of destination sets to simplify the parallel loading of XPMs.

16 Assign the load to all unit 1s in the posted set. Perform the following:

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

ATTENTION

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 links PRSUs from the prvious load to the new PM load.

b. Assign the new load to all unit 1s in the posted set. Type

>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

Example of command

>ASSIGN UPGRADE_LD ECL81AZ IN DESTSET DTC 0 1| +

>DTC 1 1 | DTC 2 1 | DTC 3 1 | DTC 4 1

c. Exit the utility. Type

>QUIT

and press the Enter key.

17 Determine if a change to the XPM processor firmware load name was performed in step 4 during this update shift.

If	Do
the XPM processor firmware load name was changed	Step 18
the XPM processor firmware load name was not changed	Step 25

ATTENTION

Perform steps 18, 19, 20, 21, 22 and 23 consecutively to ensure the new firmware load updates properly. Do not enter the PMRESET or LOADPM command.
If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.
Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 18, 19, 20, 21, 22 and 23.
Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

18 Load the XPM processor firmware in all unit 1s in the posted set. Type

>LOADFW INACTIVE ALL

and press the Enter key.

Note 5: If the firmware_file is not specified with the LOADFW command, the command applies the firm_file entered in the appropriate inventory table.

19 Confirm the command. Type

>Y

and press the Enter key.

20 Busy all unit 1s. Type

>BSY UNIT 1 ALL

and press the Enter key.

Note 6: The PM does not trespond to this command when a maintenance audit is in progress. Wait a few seconds and enter the command again. Do not use the FORCE parameter.

21 Confirm the command. Type

>Y

and press the Enter key.

22 Activate the XPM processor firmware in all unit 1s. Type

>LOADFW INACTIVE UPGRADE ALL

and press the Enter key.

23 Confirm the command. Type

>Y

and press the Enter key.

24 Go to step 27.

25 Busy all unit 1s. Type

>BSY UNIT 1 ALL

and press the Enter key.

Note 7: The PM does not respond to this command when a maintenance audit is in progress. Wait a few seconds and enter the command again. Do not use the FORCE parameter.

26 Confirm the command. Type

>Y

and press the Enter key.

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

27 Load all unit 1s in the posted set. Type

>LOADPM UNIT 1 ALL

and press the Enter key.

28 Confirm the command. Type

>Y

and press the Enter key.

29 Confirm the PRSU status of each unit 1 in the posted set. Perform the following steps:

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database. Type

>DBAUDIT pm_type pm_no 1

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

>DBAUDIT DTC 0 1 | DTC 1 1 | DTC 2 1 | +

>DTC 3 1 | DTC 4 1

c. Display the PRSU list for one unit 1. Type

>REPORT DEST pm_type PM_no 1

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

>REPORT DEST DTC 0 1

d. Repeat step 29c. for each updated unit 1.

e. Compare the displayed PRSM database for each unit 1 with the list of PRSUs for the new load.

If	Do
all PRSUs for the new load are applied to each unit 1	Step 29l
all PRSUs for the new load are not applied to each unit 1	Step 29f
any PRSUs from the previous load are listed at VA status	Step 29b. If a DBAUDIT was performed, contact the next level of support.
any PRSUs from the previous load are listed at NV status	Step 29l. The PRSM daily FILEAUDIT removes these PRSUs.

f. Apply the PRSUs to any applicable unit 1. Type

>APPLY prsu_id IN pm_type pm_no 1

and press the Enter key.

where

prsu _id is the name of the PRSU (repeat variable as required)

pm_type is the type of PM

pm_no is the number of the PM

Example of single-line command

>APPLY XAJ13X08 | XRP29X08 | XBA45X08 in DTC 0 1

Example of double-line command

>APPLY XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +

>XD02908 | XJL87X08 | XAH13X08 IN DTC 0 1

Note 8: It is not necessary to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs when applied as a set.

g. Repeat step 29f as required for each updated unit 1.

h. Update the PRSM database. Type

>DBAUDIT pm_type pm_no 1

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

>DBAUDIT DTC 0 1 | DTC 1 1 | DTC 2 1 | +

>DTC 3 1 | DTC 4 1

i. Display the PRSU list for one unit 1. Type

>REPORT DEST pm_type PM_no 1

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

>REPORT DEST DTC 0 1

j. Repeat step 29i. for each updated unit 1.

k. Compare the displayed PRSM database with the list of PRSUs for the new load.

If	Do
the PRSU list matches the PRSM database	Step 29l
the PRSU does not match the PRSM database	Step 29f

l. Exit the utility. Type

>QUIT

and press the Enter key.

30 Return all unit 1s in the posted set to service. Type.

>RTS UNIT 1 ALL

and press the Enter key.

31 Confirm the command. Type

>Y

and press the Enter key.

32 Wait for the MAP display to show the units are InSv. This ensures superframe sync and data sync are achieved. The units can take two to three minutes to dispaly InSv.

33 Switch activity from the unit 1s to the unit 0s. Type

>SWACT ALL

and press the Enter key.

Note 9: If the DMS switch cannot perform a warm switch of activity (SWACT), do not continue this procedure. The DMS switch possibly detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

34 Confirm the switch of activity. Type

>Y

and press the Enter key.

ATTENTION

Office policy can support the use of destination sets to simplify the parallel loading of XPMs.

35 Assign the load to all unit 0s in the posted set. Perform the following steps:

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

ATTENTION

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 links PRSUs from the previous load to the new PM load.

b. Assign the new load to all unit 0s in the posted set. Type

>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

Example of command

>ASSIGN UPGRADE_LD ECL81AZ IN DESTSET DTC 0 0 | +

>DTC 1 0 | DTC 2 0 | DTC 3 0 | DTC 4 0

c. Exit the utility. Type

>QUIT

and press the Enter key.

36 Determine if a change to the XPM processor firmware load name was performed in step 4 during this update shift.

If	Do
the XPM processor firmware load name was changed	Step 37
the XPM processor firmware load name was not changed	Step 44

ATTENTION

Perform steps 37, 38, 39, 40, 41 and 42 consecutively to ensure the new firmware load updates properly. Do not enter the PMRESET or LOADPM command.
If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.
Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 37, 38, 39, 40, 41and 42.
Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

37 Load the XPM processor firmware in all unit 0s in the posted set. Type

>LOAD INACTIVE ALL

and press the Enter key.

Note 10: If the firmware_file is not specified with the LOADFW command, the command applies the firmware_file entered in the appropriate inventory table.

38 Confirm the command. Type

>Y

and press the Enter key.

39 Busy all unit 0s. Type

>BSY UNIT 0 ALL

and press the Enter key.

40 Confirm the command. Type

>Y

and press the Enter key.

41 Activate the XPM processor firmware in all unit 0s in the posted set. Type

>LOADFW INACTIVE UPGRADE ALL

and press the Enter key.

42 Confirm the command. Type

>Y

and press the Enter key.

43 Go to step 46.

44 Busy all unit 0s. Type

>BSY UNIT 0 ALL

and press the Enter key.

Note 11: The PM does not respond to this command when a maintenance audit is in progress. Wait a few seconds and enter the command again. Do not use the FORCE parameter.

45 Confirm the command. Type

>Y

and press the Enter key.

> **CAUTION**
> **Possible service interruption**
> Do not use the LOADPM CC with the file name parameter to update a PM with a PPXL. Obsolete PRSUs can be loaded and PRSUs not included in the PPXL are not loaded.

46 Load all unit 0s in the posted set. Type

>LOADPM UNIT 0 ALL

and press the Enter key.

47 Confirm the command. Type

>Y

and press the Enter key.

48 Confirm the PRSU status of each unit 0 in the posted set. Perform the following steps:

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database. Type

>DBAUDIT pm_type pm_no 0

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

>DBAUDIT DTC 0 0 | DTC 1 0 | DTC 2 0 | +

>DTC 3 0 | DTC 4 0

c. Display the PRSU list for one unit 0. Type

>REPORT DEST pm_type PM_no 0

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

>REPORT DEST DTC 0 0

d. Repeat step 48c. for each updated unit 0

e. Compare the displayed PRSM database for each unit 0 with the list of PRSUs for the new load.

If	Do
all PRSUs for the new load are applied to each unit 0	Step 48l
all PRSUs for the new load are not applied to each unit 0	Step 48f
any PRSUs from the previous load are listed at VA status	Step 48b. If a DBAUDIT was performed, contact the next level of support.
any PRSUs from the previous load are listed at NV status	Step 48l. The PRSM daily FILEAUDIT removes these PRSUs.

f. Apply the PRSUs to any applicable unit 0. Type

>APPLY prsu_id IN pm_type pm_no 0

and press the Enter key.

where

prsu _id is the name of the PRSU (repeat variable as required)

pm_type is the type of PM

pm_no is the number of the PM

Example of single-line command

>APPLY XAJ13X08 | XRP29X08 | XBA45X08 in DTC 0 0

Example of double-line command

>APPLY XAJ13X08 | XRP29X08 | XBA45X08 | XDJ02X08 | +

>XD02908 | XJL87X08 | XAH13X08 IN DTC 0 0

Note 12: It is not necessary to apply the PRSUs in an exact order. PRSM automatically sorts the PRSUs when applied as a set.

g. Repeat step 48f as required for each updated unit 0.

h. Update the PRSM database. Type

>DBAUDIT pm_type pm_no 0

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

>DBAUDIT DTC 0 0 | DTC 1 0 | DTC 2 0 | +

>DTC 3 0 | DTC 4 0

i. Display the PRSU list for one unit 0. Type

>REPORT DEST pm_type PM_no 0

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

>REPORT DEST DTC 0 0

j. Repeat step 48i. for each updated unit 0.

k. Compare the displayed PRSM database with the list of PRSUs for the new load.

If	Do
the PRSU list matches the PRSM database	Step 48l
the PRSU does not match the PRSM database	Step 48f

l. Exit the utility. Type

>QUIT

and press the Enter key.

49 Return all unit 0s in the posted set to service. Type.

>RTS UNIT 0 ALL

and press the Enter key.

50 Confirm the command. Type

>Y

and press the Enter key.

51 Wait for the MAP display to show the units are InSv. This ensures superframe sync and data sync are achieved. The units can take two to three minutes to dispaly InSv.

52 Switch activity between the units. Type

>SWACT ALL

and press the Enter key.

Note 13: If the DMS switch cannot perform a warm switch of activity (SWACT), do not continue this procedure. The DMS switch possibly detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

53 Confirm the switch of activity. Type

>Y

and press the Enter key.

54 You have used the PRL circuit card to parallel load the set of XPMs and have completed this procedure. Review the update schedule..

If	Do
there are 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 update procedure in this document
there are other PMs or hardware types to update during this shift	go to the appropriate update procedure in this document
there are no other PMs or hardware types to update during this shift	go to the procedure "Finish 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

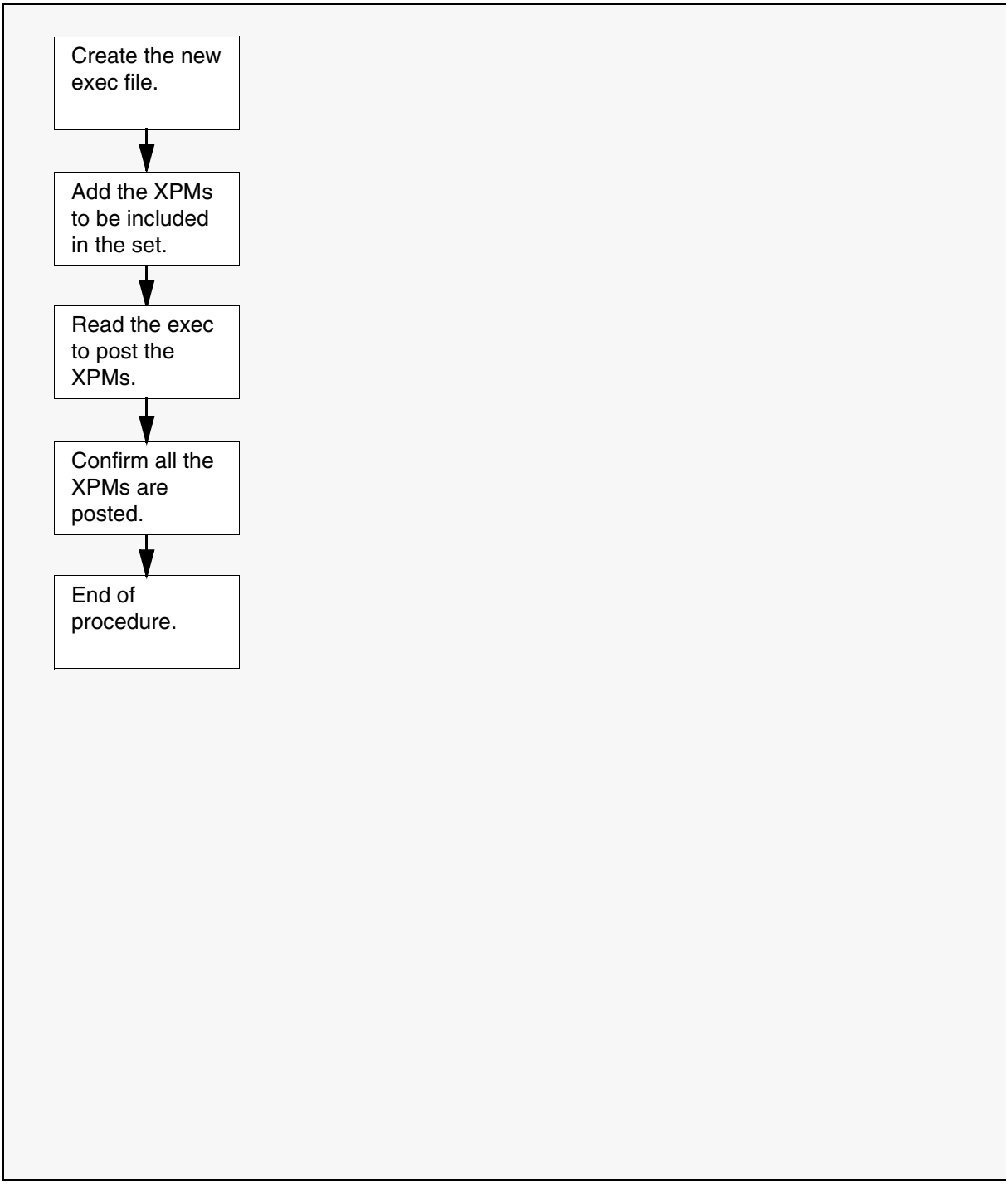
Update sequence

Not applicable

Notes

None

Summary of procedure



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.

Steps of procedure

At the CI level of the MAP display

1 Select the XPMs to update.

2 Create the new exec file. Type

>EDIT exec_name

and press the Enter key.

where

exec_name is the name of the exec

Example of command

```
>EDIT DTC35
```

Example of MAP response

```
NEW  FILE

EDIT:
```

3 Enter the input mode. Type

>INPUT

and press the Enter key.

Example of MAP response

```
INPUT:
```

4 Enter the file input. Type

>POST pm_type pm_no pm_no pm_no pm_no + pm_no pm_no pm_no pm_no pm_no pm_no

and press the Enter key twice.

wherewhere

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
>
```

Example of MAP response

```
EDIT
```

5 File the exec to the store file device. Type

>FILE SFDEV

and press the Enter key.

6

ATTENTION

Use the command LISTSF ALL if the MAP terminal you use at this step is different from the terminal you used when you created the exec.

Add the exec to the user directory. Type

>LISTSF

and press the Enter key.

7 Enter the PM level of the MAP display. Type

>MAPCI;MTC;PM

and press the Enter key.

8 Use the exec to post the set of XPMs. Type

>READ exec_name

and press the Enter key.

where

exec_name is the name of the exec

Example of command

```
>READ DTC35
```

9 Display the list of posted XPMs. Type

>LISTSET

and press the Enter key.

10 Review the list of posted XPMs and confirm that all XPMs in the set are posted.

11 You have used an exec to post a large set of XPMs. Go the required broadcast mate loading or parallel loading procedure in this document.

Using parallel loading to update LCM-type PMs

Application

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

Use this procedure to update a set of up to 50 of the following peripheral modules (PM).

PM	Description
LCM	Line concentrating module (LCM) (64 Kbyte)
	LCM (256 Kbyte)
LCME	Enhanced line concentrating module with ISDN (LCME)
ILCM	International line concentrating module (ILCM)

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.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- The LCM, LCMEs or ILCMs are in service.
- The LCMs, LCMEs, or ILCMs passed their last routine exercise (REX) test within the last two weeks.
- All automatic REX tests are suspended in the office.

Required information

None

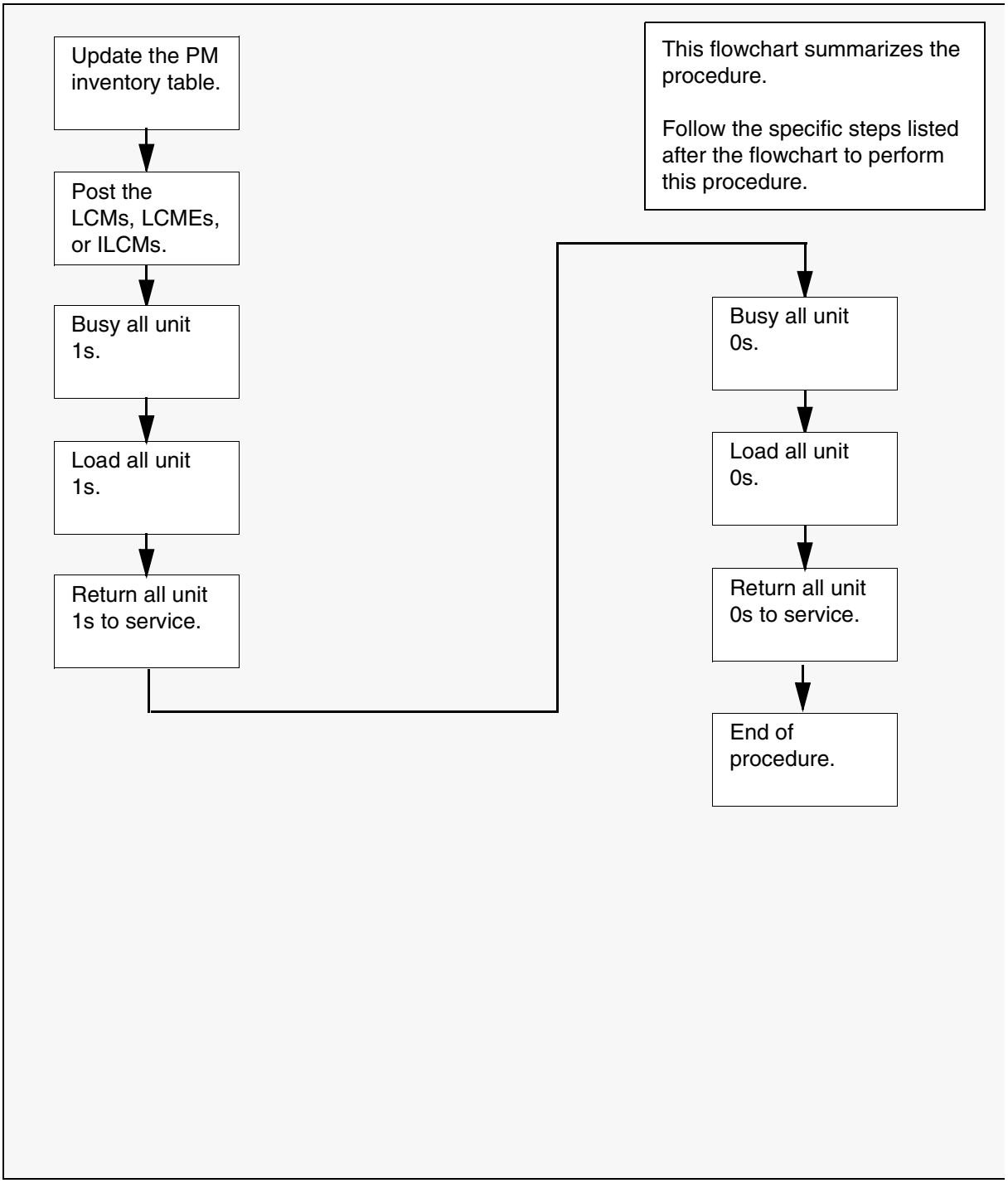
Update sequence

Refer to the update procedure in this document for the type of PM you will update.

Notes

None

Summary of procedure



ATTENTION

Do not use this procedure to update remote LCMs. Update each remote LCM individually.

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.

Steps of procedure

At the MAP display

1 Select the LCMs, LCMEs, or ILCMs to update.

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

3 Update the PM load in the inventory table.

a. Access the LCM inventory table. Type

>TABLE LCMINV

and press the Enter key.

IfTo view the tuples in a	Do
packed format	Step 3b.
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. Position on the datafill tuple for one RMTYPof the PMs to be updated. Type

>POS site_name frame_no lcm_no

and press 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 LCM, LCME, or ILCM

d. Change the load name 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

e. Confirm the change. Type

>Y

and press the Enter key.

f. Repeat the previous steps for each LCM, LCME, or ILCM you will update this shift.

g. Exit the table. Type

>QUIT

and press the Enter key.

4 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

5 Post the PMs. Type

>POST lcm_type site_name frame_no lcm_no

and press the Enter key.

where

lcm_type is LCM, LCME, or ILCM

site_name is the site of the LCM, LCME, or ILCM

frame_no is the number of the frame

lcm_no is the number of the LCM, LCME, or ILCM

Note: The field SITE_NAME is optional with host-based LCMs.

Note: The PMs will be ISTb due to the load mismatch with the inventory table. If necessary, wait for the PMs to change to ISTb before you continue this procedure. If the PMs do not change to ISTb, confirm that you updated the PM inventory table correctly and posted the correct PMs.

Example of command

```
POST LCM REM1 9 0 REM1 9 1 REM1 10 0
```

6 Busy all units 1. Type

>BSY UNIT 1 ALL

and press 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.

7 Confirm the command. Type

>Y

and press the Enter key.

8 Load all unit 1s. Type

>LOADPM UNIT 1 CC ALL

and press the Enter key.

9 Confirm the command. Type

>Y

and press the Enter key.

10 Return all unit 1s to service. Type

>RTS UNIT 1 FORCE ALL

and press the Enter key.

11 Confirm the action. Type

>Y

and press the Enter key.

12 Confirm the number of PMs. Type

>Y

and press the Enter key.

13 Test all unit 1s. Type

>TST UNIT 1 ALL

and press the Enter key.

14 Confirm the command. Type

>Y

and press the Enter key.

15 Busy all unit 0s. Type

>BSY UNIT 0 ALL

and press 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. Type

>Y

and press the Enter key.

17 Load all units 0. Type

>LOADPM UNIT 0 CC ALL

and press the Enter key.

18 Confirm the command. Type

>Y

and press the Enter key.

19 Return all unit 0s to service. Type

>RTS UNIT 0 FORCE ALL

and press the Enter key.

20 Confirm the action. Type

>Y

and press the Enter key.

21 Confirm the number of PMs. Type

>Y

and press the Enter key.

22 Test all unit 0s. Type

>TST UNIT 0 ALL

and press the Enter key.

23 Confirm the command. Type

>Y

and press the Enter key.

24 You have updated the set of LCMs, LCMEs, or ILCMs and completed this procedure. Review the update schedule.

If you have	Do
other LCMs, LCMEs, or ILCMs to update during this shift	Follow the recommendations in "Overview of manual update process" in this document. Use the procedure in this document to update each PM, or repeat this procedure.
other PMs or hardware types to update during this shift	Go to the procedure in this document.
no other PMs or hardware types to update during this shift	Go to "Finishing a PM update shift" 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.

Use this procedure to update a set of 11 to 35 XPMs. Broadcast mate loading allows a technician to load the inactive units of a set of like peripheral modules (PM).

Unlike parallel loading, broadcast mate loading requires only one loader resource for a set of like peripherals. 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 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 data filled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All PM logs are enabled.
- Each PM is in-service (INSV).
- Each PM passed its last REX test within the last two weeks.
- All REX tests are suspended in the office.
- Post-release software manager (PRSM) automated processes will not run during the PM update shift.

  Note: Depending on the size of the set, you may need 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 type of PM you will update.

Update sequence

Refer to the update procedure in this document for the type of PM you will update.

Notes

You can only use broadcast mate loading on XPMs that have one unit in-service and one unit manually busy.

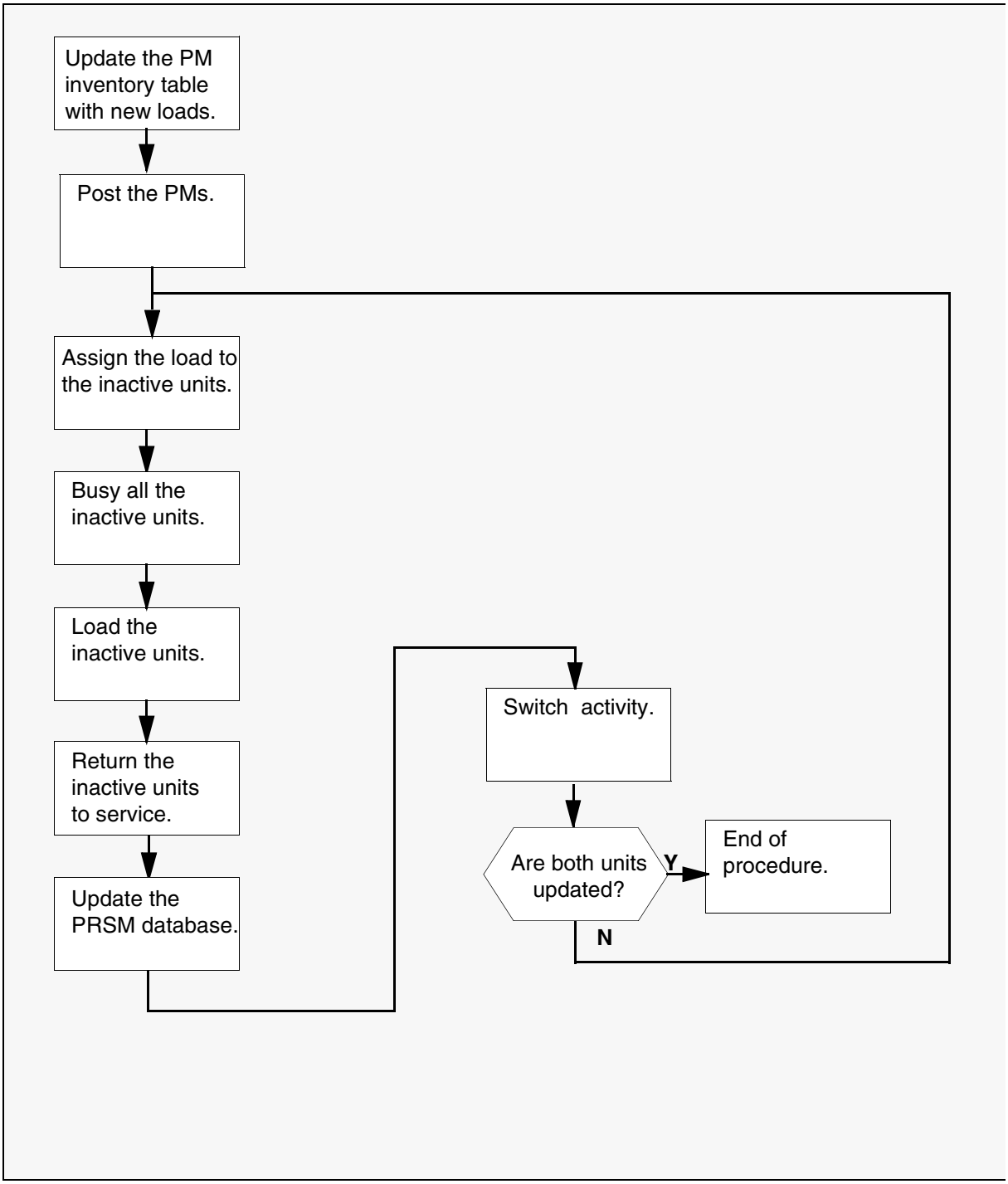
This procedure assumes that all post release software units (PRSU) for the load are applied. If all PRSUs are not applied, update one unit and apply any PRSUs The unit can be in one of the XPMs in the set to be updated.

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. You can use the DTCs with timing links as the first PMs in the office to be updated with the new load.

Use parallel loading to update the XPM processor firmware in a set of up to 4 XPM units. The set can include up to 10 XPMs, but 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.

Summary 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.

Steps of procedure

At the MAP display

1 Select the PMs to update.

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

3 Update the PM load in the inventory table.

a. Open the PM inventory table. Type

>TABLE pm_inv

and press the Enter key.

where

pm_inv is the name of the inventory table

Example of command

```
>TABLE LTCINV
```

If	To view the tuples in a	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. Position on the datafill tuple for one of the PMs to be updated. Type

>POS 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

Example of command

```
>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. 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 ECL08BC
```

e. Confirm the change. Type

>Y

and press the Enter key.

Note: When you change the load name in the inventory table, you create a load mismatch between the inventory table and the PMs. The load mismatch will cause the PMs to go in-service trouble (ISTb). Continue this procedure

4 .

If you	Do
need to update the XPM processor firmware in the PM	Step 5
do not need to update the XPM processor firmware in the PM	Step 6

5 Change the name of the XPM processor firmware load in the inventory table.

a. Change the firmware load name. Type

>CHA E2LOAD fw_load

and press the Enter key.

where

fw_load is the name of the XPM processor firmware load

Example of command

```
>CHA  E2LOAD  UPFWNJ03
```

b. Confirm the change. Type

>Y

and press the Enter key.

6 Determine if the PM has a CMR load to be updated

If you	Do
need to update the CMR load in the PM	Step 7
do not need to update the CMR load in the PM	Step 8

7 Change the name of the CMR load in the inventory table.

a. Enter the OPTCARD field. Type

>CHA OPTCARD

and press the Enter key.

b. Press the Enter key to scroll through the fields until the MAP display prompts you for the CMR load name.

c. Enter the new CMR load name. Type

>cmr_load

and press the Enter key.

where

cmr_load is the name of the new CMR load

Example of command

```
>CMR07A
```

d. Press the Enter key to scroll through the fields until the MAP display shows the blank OPTCARD prompt.

e. Exit the OPTCARD field. Type

>$

and press the Enter key.

f. Confirm the change. Type

>Y

and press the Enter key.

8 Repeat steps 3c.c. to 6 for each PM to be updated in the selected set.

9 Close the table. Type

>QUIT

and press the Enter key.

10 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

11

ATTENTION

If you will use parallel firmware loading to update the XPM processor firmware, post four or less XPMs at this step.

Post the PMs. Type

>POST pm_type pm_set

and press the Enter key.

where

pm_type is the type of PM

pm_set is the set of PMs

Example of command

```
>POST DTC 0 1 2 3 4 5 6 7 8 9 10 11 12
```

Note: The PMs will be ISTb. If necessary, wait for the PMs to change to ISTb before you continue this procedure. If the a PM does not change to ISTb, confirm that you updated the PM inventory table correctly and posted the correct PM.

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.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b.

ATTENTION

After you perform 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 load to the inactive units. Type.

>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

unit_no is the number of the PM unit

Example of command

```
>ASSIGN UPGRADE_LD ECL08BC IN DESTSET DTC 0 1 | +
>'DTC 1 0 | DTC 2 0 | DTC 3 1 | DTC 4 0
```

14 Exit the utility. Type

>QUIT

and press the Enter key.

15 Determine which software release the office is currently at.

If	Do
the office is at ABSM009 or lower	Steps 16 through 19
the office is at ABSM010 or higher	Steps 20 through 23

16 Busy all the inactive units. Type

>BSY INACTIVE ALL

and press 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. Type

>Y

and press the Enter key.

If you	Do
need to update the XPM processor firmware	Step 18
do not need to update the XPM processor firmware	Step 24

18

ATTENTION

If the set is larger than 4 XPMs, 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 units. Type

>LOADPM INACTIVE CC FIRMWARE ALL

and press the Enter key.

19 Confirm the command by typing

>Y

and pressing the Enter key.

Go to step 24.

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.

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. Type

>Y

and press the Enter key.

24

> **CAUTION**
> **Possible service interruption**
> Do not use the LOADPM CC command with the file name parameter when you update a PM with a PPXL. Obsolete PRSUs may be loaded, and PRSUs not included in the PPXL will not be loaded.

Load all the inactive units. Type

>LOADPM INACTIVE ALL

and press the Enter key.

25 Confirm the command. Type

>Y

and press the Enter key.

26 Return all the inactive units to service. Type

>RTS INACTIVE ALL

and press the Enter key.

27 Confirm the command. Type

>Y

and press the Enter key.

28 Wait for the units to go in service (InSv). The units achieve superframe sync and data sync when they go InSv. Each unit can take two to three minutes to go InSv.

If the new load	Do
has PRSUs	Step 29
does not have PRSUs	Step 33

29 Confirm each inactive unit has been properly patched.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database according to the unit's current database. Type

>DBAUDIT pm_type pm_no unit_no

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

unit_no is the number of the inactive unit

Example of command

```
>DBAUDIT 'DTC 0 1 | DTC 1 0 | DTC 2 0 | +
>'DTC 3 1 | DTC 4 0
```

c. Display the PRSU list for one inactive unit. Type

>REPORT DEST pm_type pm_no unit_no

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

unit_no is the number of the inactive unit

Example of command

```
>REPORT DEST DTC 0 1
```

d. Repeat step 29c. for each inactive unit that you 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 30
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 was not performed. Return to Step 29b. If you performed a DBAUDIT, 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. Type

>QUIT

and press the Enter key.

31 Switch activity between the units. Type

>SWACT ALL

and press the Enter key.

Note: If the switch can not perform a warm switch of activity (SWACT), do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

32 Confirm the switch of activity. Type

>Y

and press the Enter key.

If	Do
one unit in the set of PMs is updated	Step 12
both units in the set of PMs are updated	Step 33

33 You have updated the set of XPMs and have completed this procedure. Review the update schedule.

If you have	Do
other XPMs to update during this shift	Follow the recommendations in "Overview of manual update process" in this document. Repeat this procedure or go to the correct procedure in this document.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no other 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.

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. However, only inactive units can be updated. You may need to switch activity in some XPMs to align all the units in the set. During XPM parallel loading, the computing module (CM) messages directly to each inactive unit.

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 names of all new loads for the PMs are datafilled in table PMLOADS.
- The office recorded an office image in the last 24 hours.
- All peripheral module (PM) logs are enabled.
- Each PM is in-service (INSV).
- Each PM passed its last REX test within the last two weeks.
- All REX tests are suspended in the office.
- Post-release software manager (PRSM) automated processes will not run during the PM update shift.

Required information

Refer to the update procedure in this document for the type of PM you will update

Update sequence

Refer to the update procedure in this document for the type of PM you will update.

Notes

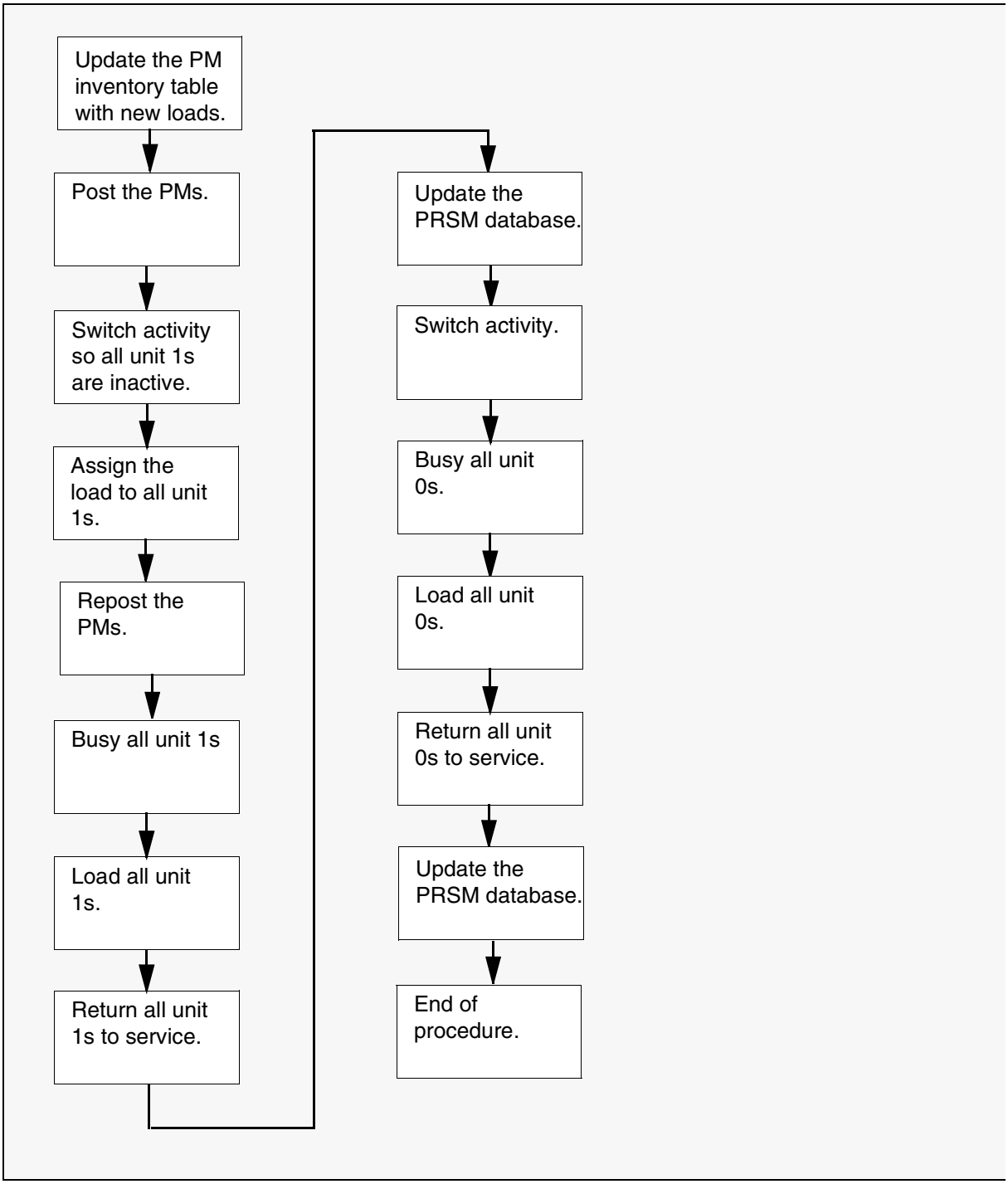
This procedure assumes that all post release software units (PRSU) for the load are applied. If all PRSUs are not applied, update one unit and apply any PRSUs The unit can be in one of the XPMs in the set to be updated.

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. You can use the DTC with timing links as the first PMs in the office to be updated with the new load.

Use parallel loading to update the XPM processor firmware in a set of up to 4 XPM units. The set can include up to 10 XPMs, but 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.

Summary 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.

Steps of procedure

At the MAP display

1 Select the PMs to update.

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

3 Update the PM load in the inventory table.

a. Open the PM inventory table. Type

>TABLE pm_inv

and press the Enter key.

where

pm_inv is the name of the inventory table

Example of command

```
>TABLE LTCINV
```

If	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. Position on the datafill tuple for one of the PMs to be updated. Type

>POS 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

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. 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 ECL08BC
```

e. Confirm the change. Type

>Y

and press the Enter key.

Note: When you change the load name in the inventory table, you create a load mismatch between the inventory table and the PMs. The load mismatch will cause the PMs to go in-service trouble (ISTb). Continue this procedure.

4 Change the name of the XPM processor firmware load in the inventory table.

If you	Do
need to update the XPM processor firmware	Step 5
do not need to update the XPM processor firmware	Step 5

a. Change the firmware load name. Type

>CHA E2LOAD fw_load

and press the Enter key.

where

fw_load is the name of the XPM processor firmware load

Example of command

```
>CHA E2LOAD UPFWNJ03
```

b. Confirm the change. Type

>Y

and press the Enter key.

5 Determine if the PM has a CMR load to be updated

If you	Do
needs to update the CMR load	Step 7
do not need to update the CMR load	Step 8

6 Change the CMR load in the inventory table.

a. Enter the OPTCARD field. Type

>CHA OPTCARD

and press the Enter key.

b. Press the Enter key to scroll through the fields until the MAP display prompts you for the CMR load name.

c. Enter the new CMR load name. Type

>cmr_load

and press the Enter key.

where

cmr_load is the name of the new CMR load

Example of command

```
>CMR07A
```

d. Press the Enter key to scroll through the fields until MAP display shows the blank OPTCARD prompt.

e. Exit the OPTCARD field. Type

>$

and press the Enter key.

f. Confirm the change. Type

>Y

and press the Enter key.

7 Repeat steps 3c.c. to 6 for each PM to be updated in the selected set.

8 Exit the table. Type

>QUIT

and press the Enter key.

9 Enter the PM level of the MAP display. Type

>MAPCI; MTC; PM

and press the Enter key.

10

ATTENTION

If you will use parallel firmware loading to update the XPM processor firmware, post four or less XPMs at this step.

Post the PMs. Type

>POST pm_type pm_set

and press the Enter key.

where

pm_type is the type of PM

pm_set is the set of PMs

Example of command

```
POST DTC 0 1 2 3 4 5
```

Note: The PMs will be ISTb. If necessary, wait for the PM to change to ISTb before you continue this procedure. If a PM does not change to ISTb, confirm that you updated the PM inventory table correctly and posted the correct PM.

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. Type

>POST pm_type pm_set

and press 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 of command

```
POST DTC 0 2 3 5
```

13 Switch activity in the PMs. Type

>SWACT ALL

and press the Enter key.

14 Repost the entire PM set. Type

>POST pm_type pm_set

and press the Enter key.

where

pm_type is the type of PM

pm_set is the set of PMs

Example of command

```
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 broadcast mate loading of XPMs.

Assign the load to all unit 1s in the posted set.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b.

ATTENTION
After you perform 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 load to all unit 1s in the posted set. Type

>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

Example of command

```
>ASSIGN 'UPGRADE_LD ECL08BC IN DESTSET DTC 0 1 | +
>'DTC 1 1 | DTC 2 1 | DTC 3 1 | DTC 4 1
```

16 Exit the utility. Type

>QUIT

and press the Enter key.

17 Determine which software release the office is currently at.

If	Do
the office is at ABSM009 or lower	Steps 18 through 21
the office is at ABSM010 or higher	Steps 22 through 24

18 Busy all unit 1s in the posted set. Type

>BSY UNIT 1 ALL

and press 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. Type

>Y

and press the Enter key.

If you	Do
need to update the XPM processor firmware	Step 20
do not need to update the XPM processor firmware	Step 25

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.

Load the firmware into all unit 1s in the posted set. Type

>LOADPM UNIT 1 CC FIRMWARE ALL

and press the Enter key.

21 Confirm the command. Type

>Y

and press the Enter key.

Go to step 25.

ATTENTION

Perform steps 22, 23 and 24 consecutively to ensure the new firmware load updates properly. Do Not enter the PMRESET or LOADPM command.

If the user enters the PMRESET command, the LOADFW INACTIVE UPGRADE command passes the step, but the firmware does not update.

Verify the active firmware load if the user enters the PMRESET or LOADPM command between steps 22, 23 and 24. Repeat the firmware download and upgrade process if the firmware does not update to the latest firmware load.

22 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 you update a PM with a PPXL. Obsolete PRSUs may be loaded, and PRSUs not included in the PPXL will not be loaded.

Load all unit 1s in the posted set. Type

>LOADPM UNIT 1 ALL

and press the Enter key.

26 Confirm the command. Type

>Y

and press the Enter key.

27 Return all unit 1s in the posted set to service. Type

>RTS UNIT 1 ALL

and press the Enter key.

28 Confirm the command. Type

>Y

and press the Enter key.

29 Wait for the units to go in service (InSv). The units achieve superframe sync and data sync when they go InSv. Each unit can take two to three minutes to go InSv.

If the new load	Do
has PRSUs	Step 30
does not have PRSUs	Step 32

30 Confirm each unit 1 in the posted set has been properly patched.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database according to the unit's current database. Type

>DBAUDIT pm_type pm_no 1

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

```
>DBAUDIT 'DTC 0 1 | DTC 1 1 | DTC 2 1 | +
>'DTC 3 1 | DTC 4 1
```

c. Display the PRSU list for one unit 1. Type

>REPORT DEST pm_type pm_no 1

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

```
>REPORT DEST DTC 0 1
```

d. Repeat step 30c. 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 31
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 was not performed. Return to Step 30b. If you performed a DBAUDIT, contact the next level of support.
any PRSUs from the previous load are listed at NV status	Go to Step 31. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

31 Exit the utility. Type

>QUIT

and press the Enter key.

32 Switch activity between the units. Type

>SWACT ALL

and press the Enter key.

Note: If the switch can not perform a warm switch of activity (SWACT), do not continue this procedure. The switch may have detected a fault not related to the software update. Troubleshoot the condition or contact the next level of support.

33 Confirm the switch of activity. Type

>Y

and press the Enter key.

If the new load	Do
has PRSUs	Step 34
does not have PRSUs	Step 36

34

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.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Assign the new load to all unit 0s in the posted set. Type

>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

Example of command

```
>ASSIGN 'UPGRADE_LD ECL08BC IN DESTSET DTC 0 0 | +
>'DTC 1 0 | DTC 2 0 | DTC 3 0 | DTC 4 0
```

35 Exit the utility. Type

>QUIT

and press the Enter key.

36

If	Do
the office is at ABSM009 or lower	Steps 37 through 40
the office is at ABSM010 or higher	Steps 41 through 43

37 Busy all unit 0s in the posted set. Type

>BSY UNIT 0 ALL

and press 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.

38 Confirm the command. Type

>Y

and press the Enter key.

If you	Do
need to update the XPM processor firmware	Step 39
do not need to update the XPM processor firmware	Step 44

39

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 0s in the posted set. Type

>LOADPM UNIT 0 CC FIRMWARE ALL

and press the Enter key.

40 Confirm the command. Type

>Y

and press the Enter key.

Go to step 44.

41 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.

42 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 43
does not need to be updated	Step 44

43 Activate the firmware into all unit 0s in the posted set by typing

>LOADFW INACTIVE UPGRADE ALL

and pressing the Enter key.

44

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

Load all unit 0s in the posted set. Type

>LOADPM UNIT 0 ALL

and press the Enter key.

45 Confirm the command. Type

>Y

and press the Enter key.

46 Return all unit 0s in the posted set to service. Type

>RTS UNIT 0 ALL

and press the Enter key.

47 Confirm the command. Type

>Y

and press the Enter key.

48 Wait for the units to go InSv. The units achieve superframe sync and data sync when they go InSv. Each unit can take two to three minutes to go InSv.

If the new load	Do
has PRSUs	Step 49
does not have PRSUs	Step 51

49 Confirm each unit 0 in the posted set is properly patched.

a. Enter the PRSM utility. Type

>PRSM

and press the Enter key.

b. Update the PRSM database according to the unit's current database. Type

>DBAUDIT pm_type pm_no 0

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

```
>DBAUDIT 'DTC 0 0 | DTC 1 0 | DTC 2 0 0 | +
>'DTC 3 0 | DTC 4 0
```

c. Display the PRSU list for one unit 0. Type

>REPORT DEST pm_type pm_no 0

and press the Enter key.

where

pm_type is the type of PM

pm_no is the number of the PM

Example of command

```
>REPORT DEST DTC 0 0
```

d. Repeat step 49c. for each unit 0 that you 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 50
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 was not performed. Return to Step 49b. If you performed a DBAUDIT, contact the next level of support.
any PRSUs from the previous load are listed at NV status	Go to Step 50. These PRSUs are removed when PRSM automated processes run after the completion of this PM upgrade shift.

50 Exit the utility. Type

>QUIT

and press the Enter key.

51 Switch activity between the units. Type

>SWACT ALL

and press the Enter key.

Note: If the DMS switch is unable to perform a warm SWACT, do not continue 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.

52 Confirm the switch of activity. Type

>Y

and press the Enter key.

53 You have updated the set of XPMs and have completed this procedure. Review the update schedule.

If you have	Do
other XPMs to update during this shift	Follow the recommendations in "Overview of manual update process" in this document and repeat this procedure or go to the update procedure in this document.
other PMs or hardware types to update during this shift	Go to the update procedure in this document.
no other 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 to finish a shift to update PMs in an office.

Prerequisites

Perform the procedure “Starting a PM update shift” in this document before you perform this procedure.

Required information

Determine if the time of PRSM automated processes was changed when the procedure “Starting a PM update shift” was performed.

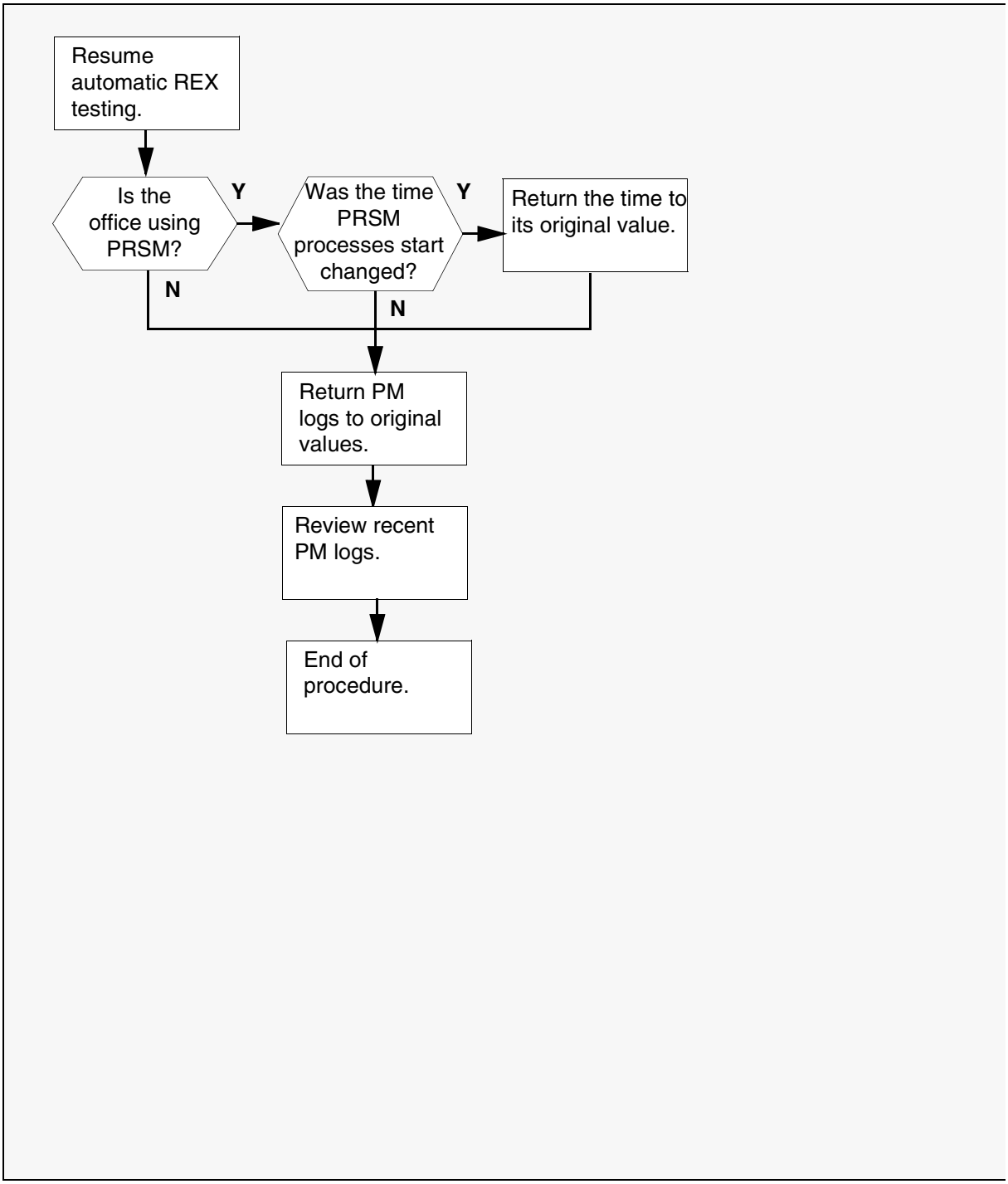
Update sequence

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 can 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 policy on alarms can 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 was	Do
changed at the start of this shift	Step 3
not changed at the start of this shift	Step 4

3 Change the time to the original time.

a. Open table AUTOOPTS. Type

>TABLE AUTOOPTS

and press the Enter key.

4 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

a. Confirm the change. Type

>Y

and press the Enter key.

b. Display the table and confirm the change was made. Type

>LIS

and press the Enter key.

c. Exit the table. Type

>QUIT

and press the Enter key.

5 Return the PM logs to their original states.

Note: Modify and repeat this step, depending on the hardware types you updated this shift. If you updated an ESA, return all ESA logs to their original states. If you updated an MPC, return all MPC logs to their original states. If you updated an ENET, return all ENET logs their original states. If you updated an MS bus port circuit card (NT9X17), return all MS logs to their original states.

a. Enter 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: You can suspend multiple logs with a single SUPPRESS command and the log numbers. You can suspend all PM logs with the command SUPPRESS PM and no log numbers.

Example of command

```
>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: You can threshold multiple logs with a single THRESHOLD command and the log numbers. You can threshold all PM logs with the command THRESHOLD PM and no log numbers.

Example of command

```
>THRESHOLD 10 PM 129 181
```

d. Exit LOGUTIL. Type

>QUIT

and press the Enter key.

6 Review any recent logs. Verify the PMs and hardware types that were updated during this shift have remained in-service.

7 You have completed this procedure and finished a PM update shift.

Overview of automated update process

ATTENTION

Nortel (Northern Telecom) 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

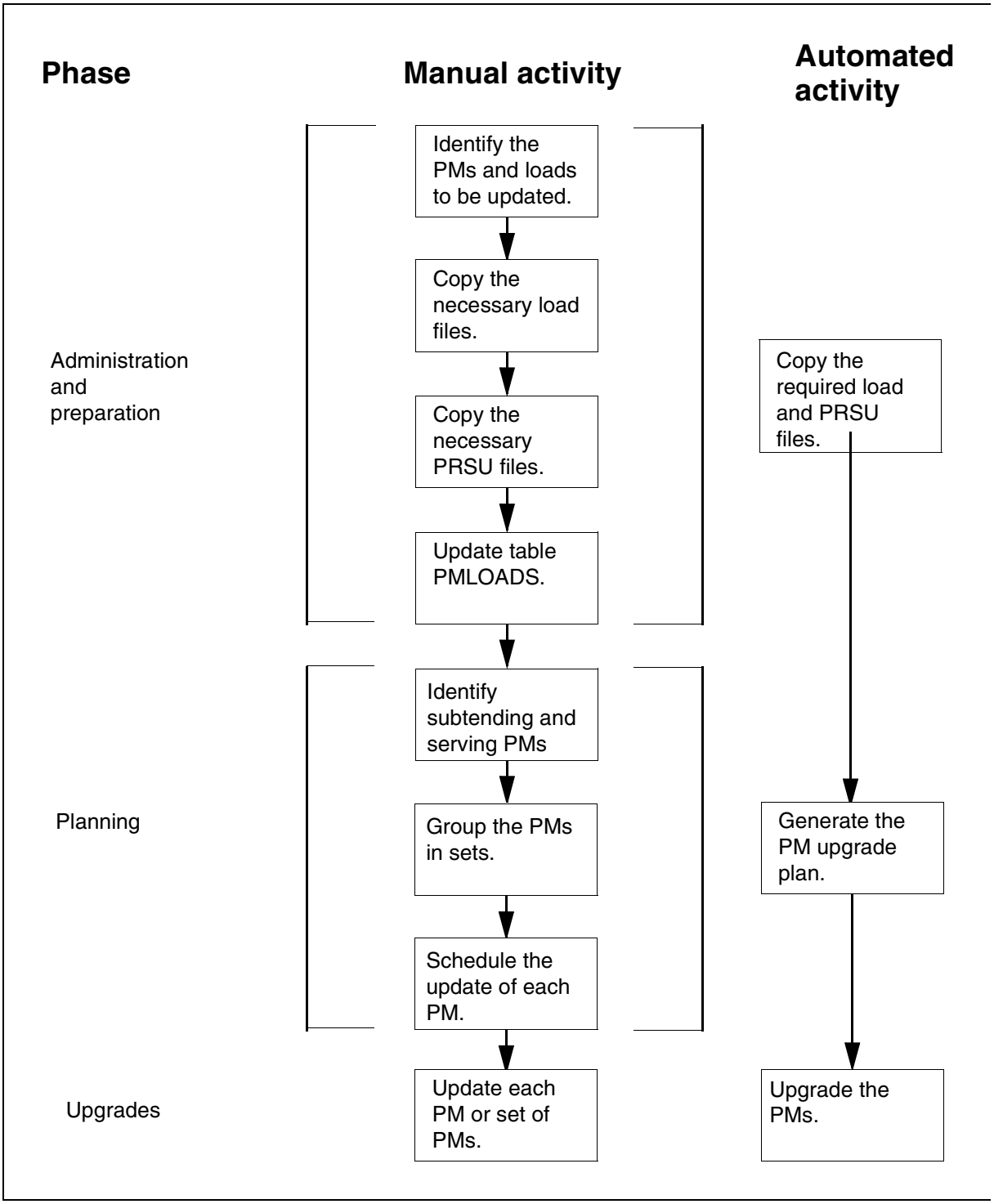
The PM update consists of the following phases and activities.

- Administration and preparation
  - — Identify the load and post release software update (PRSU) files required by the office.
  - — Copy the required load and PRSU files.
  - — 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 an Overview of automated update 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
BASE12	MMP12	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
BASE13	MMP13	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
Note: Soft ware release indicates the current software release in the office.			

Available automated functionality

BASE layer	Software release	Automated functionality	Automated activities
BASE14	MMP14	Administration and preparation	Select load and PRSU files
			Copy load and PRSU files
			Update table PMLOADS
			Allow operating company personnel to set loads in the PM load selection
		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 upgrade plan for MS multi-port card (NT9X17)
BASE15	MMP15	Administration and preparation	Select load and PRSU files
			Copy load and PRSU files
			Update table PMLOADS
			Allow operating company personnel to set loads in the PM load selection
		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 upgrade plan for MS multi-port card (NT9X17)
Note: Soft ware release indicates the current software release in the office.			

Automated administration and preparation

PMUPGRADE automates the following administrative activities of PM updates.

- Select load files
- Select PRSU files
- Copy load and PRSU files
- Update 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 SLM tape cartridge label indicates *Patches:Yes*, the tape includes the required PRSUs for XPM and 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 later 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 XPMxxRTP$XREF patch control file to select PRSUs. This file is included when PRSUs are delivered to the office on a 9-track tape or a SLM tape cartridge labeled *Patches:Yes*. The $XREF file is not available with all methods of patch delivery.

PMUPGRADE uses a patch control file on the patch file tape to select the PRSUs for the required loads. The name of the patch control file is XPMxxRTP$XREF, where xx is the version of the XPM release.

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 system load module (SLM) volume with the new SLM tape. 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.

Update of table PMLOADS

PMUPGRADE adds a new tuple in table PMLOADS for each new load that is copied to the Digital Multiplex System (DMS). 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, 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 pre-patched XPM loads (PPXL) do not reside on the DMS 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
  - CSCINV (for BASE08 and lower PCLs)
  - CCHINV (for BASE09 and higher PCLs)
  - CSMINV (for BASE09 and higher PCLs)
  - DCHINV
  - DCMINV
  - DLMINV
  - DPP
  - DSPMINV (for BASE09 and higher PCLs)
  - ENINV
  - EXNDINV
  - ICRMINV (for BASE09 and higher PCLs)
  - IPEINV (for BASE08 and higher PCLs)
  - LCMINV
  - LCRINV (for BASE09 and higher PCLs)
  - LIMINV
  - LIUINV
  - LMINV
  - LTCINV
  - LTCRINV
  - MDBSINV (for BASE09 and higher PCLs)
  - MNCKTPAK (for BASE08 and higher PCLs)
  - MPC
  - MSBINV
  - MSFWLOAD
  - NIUINV
  - OFCVAR
    - tuple DTULDINFO
    - tuple DTUOHBTLD
    - tuple EDTULDFILE

  - tuple MTULDINFO
- RCCINV
- RMMINV
- STINV
- TMINV
- TPCINV
- TSTEQUIP
- VCHINV (for BASE09 and higher PCLs)
- 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 DMS 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 DMS 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

ATTENTION
Offices updating from a BASE08 or higher PCL may perform automated upgrades on some PMs in the office.

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

- DCHINV (BASE09 or higher PCL)
- DSPMINV (BASE09 or higher PCL)
- ICRMINV (BASE09 or higher PCL)
- LCMINV
- LIUINV (EIUs, FRIUs, and XLIUs only, BASE09 or higher PCL)
- LTCINV
- LTCRINV
- RCCINV
- XESAINV

The automated PM upgrade provides the following functionality.

- Follows the recommended PM upgrade processes and procedures defined in this document.
- Updates the PM inventory table.
- Busies the PM unit or units.
- Upgrades 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 PMUPGRADE settings.
	LOADS		List the PM loads in the DMS switch and the active file, active volume, and inventory table for each load.
	NODES		List the PMs and loads for each PM, as entered in the inventory tables.

PMUPGRADE commands

Command	Parameter	Variable	Description
	PLAN		Display the PM Upgrade Plan built by PMUPGRADE.
	ALL		Display all previous reports.
HELP			Access on-line information on PMUPGRADE commands.
PMUPGRADE			Access the PMUPGRADE utility.
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 BASE09 or higher PCL.
	LOADDEST	<volume_name>	Set the load destination volume, which is the volume that holds the copied PM loads.
	XPMPATCH	<volume_name>	Set the XPM patch destination volume, which is the volume that holds the copied XPM PRSU files.
	ISNPATCH	<volume_name>	Set the ISN patch destination volume, which is the volume that holds the copied ISN PRSU files.
	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.
	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.

PMUPGRADE commands

Command	Parameter	Variable	Description
START	**FILECOPY**		Start the PMUPGRADE process of copying files, copying PRSUs, and updating table PMLOADS.
	PLAN		Build the PM Upgrade plan.

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 BASE09 or lower PCL.
	VAR ALL		Display SWUPGRADE PM environment variables. Applicable to BASE10 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.

SWUPGRADE PM commands

Command	Parameter	Variable	Description
		<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 DMS system pauses after each automated step to allow the next step to be selected. Prompting ON is the default value.
	OFF		The DMS system does not pause after each automated step.
QUIT			Quit from the SWUPGRADE PM level.
RUNSTEP		<step_name>	Run or execute a specific step.
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			Start the automated PM upgrade process.
SWUPGRADE	**PM**		Enter the SWUPGRADE increment for PM upgrades.

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
                         syntax of that command.

   STEP <step>         - Displays a brief description of
                         the behaviour of that step.
   VAR <variables>     - 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:*** Any steps completed by SWUPGRADE PM remain as completed. The SWUPGRADE PM session is resumed using the SET SHIFT STARTED command with the next shift.

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 DMS system 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 DMS system to pause after each automated step.	**PROMPTING ON**
The DMS system does not pause after each automated step.	**PROMPTING OFF**

Messages

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

- PMUPGRADE error messages
- Other PMUPGRADE messages

PMUPGRADE error messages

The next table lists some of the error messages generated by the DMS 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 PMLOADSReason: 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.
`ERROR: Failed to add tuple for <load_name> to table PMLOADSReason: <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 messages

Message	Description	Action
`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 DMS memory`	The DMS 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.
`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.

PMUPGRADE warning messages

The next table lists some of the warning messages generated by the DMS 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.

Warning messages

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.
`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 messages

Message	Description	Action
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.
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 messages

Message	Description	Action
`WARNING: No Patch Control File Found`	PMUPGRADE can not find the patch cross-reference file on the Patch Distribution volume. PMUPGRADE recognizes a patch cross-reference file with the naming convention XPMxxRTP$XREF, where x is a digit.	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 Patch Distribution volume. The volume could busied or out of service.	Troubleshoot the problem or contact the next level of support.
`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 messages

Message	Description	Action
`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.

Other PMUPGRADE messages

The following table lists other messages the DMS switch may generate during the automated PM update process. This table provides a description and action for each message.combination of the two processes. Many of the procedures in this document provide step-by-step instructions to perform a manual update. The command interpreter (CI) utilities PMUPGRADE and SWUPGRADE PM support the automated process.

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 DMS 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.

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)s for the new release are received.

Prerequisites

Meet the following prerequisites before using this procedure.

$XREF patch control file

PMUPGRADE uses the XPMxxRTP$XREF patch control file to select the required PRSUs. This file is included when PRSUs are delivered to the office on 9-track tape or a SLM tape cartridge labeled *Patches:Yes*. The $XREF file is not included when PRSUs are downloaded directly to the office. PMUPGRADE does not select or copy any PRSUs when the XREF file is not available. The MAP display generates the following message:

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

Note: In the file name XPMxxRTP$XREF, xx refers to the XPM release version. For example, the file XPM09RTP$XREF supports XPM09

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 Digital Multiplex Switch (DMS) 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

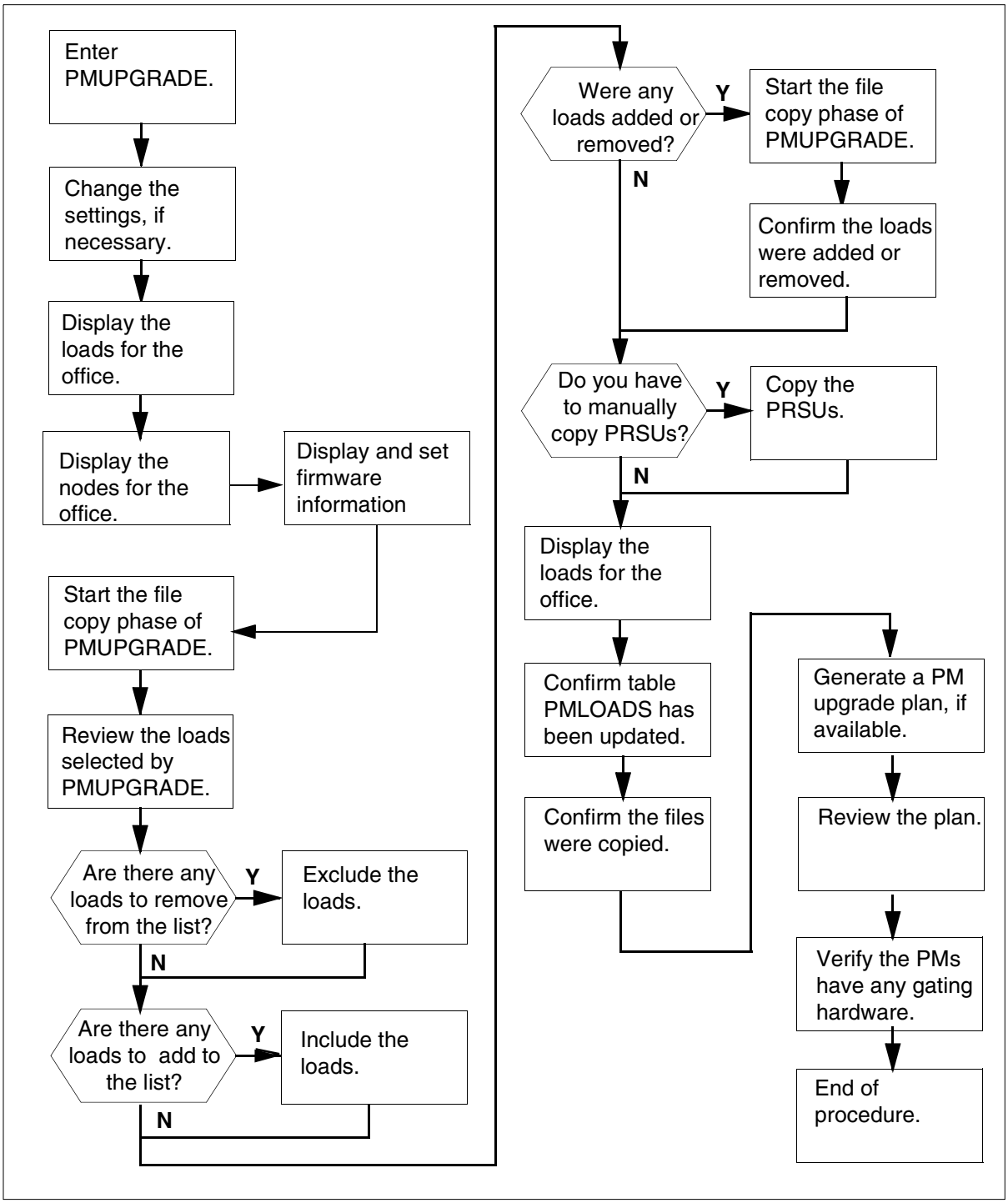
PRSUs associated with the previous ISN loads may remain at a status of Not Validated (NV). A problem occurs if the office used PATCHER to apply the patches and PRSM cannot access the patch files. This problem is not service

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
Include Loads:
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 DMS 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 BASE09 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 14: 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

Example of response

```
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, keep a copy of the PRSU files for the new XPM and ISN PM loads until the

office completes the overnight process (ONP). PRSM will use these files on the new side to populate the PRSM database.

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.

1 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 :  LIMINV
---------------------------------------------------------------
Nodename          Loads Used
---------------------------------------------------------------
1                   LPC07BM

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.

2 The objective of step 7 is to specify the preferred firmware load for each load in the firmware loads report.

These preferences are used by the START FILECOPY command to select and copy the appropriate firmware loads from the PM load tape.

Some firmware loads may have a baseline load and a new release load on the PM load tape. Office policy determines which of the loads (if any) are used during the PM upgrade. It is recommended that firmware loads in the office that are not at the baseline level are upgraded.

Note: The commands in step 7 are applicable to BASE11 or higher PCL.

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 3.

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 CPMAX74are 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 following:

- 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 table
-------------------------------------------------------------------------
 FIRMWARE        TYPE                          BASELINE        NEW RELEASE
 TYPE            DESCRIPTION                   LOAD            LOAD
-------------------------------------------------------------------------
 STDMX77         Standard MX&& 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. Determine the baseline load and the new release load for XPM processors, NTAX74, NTMX77 and NTSX05.

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 table
-------------------------------------------------------------------------
 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 table
-------------------------------------------------------------------------
 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 DMS 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 table
-------------------------------------------------------------------------
 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
```

3

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 DMS 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 contains an X, the tape includes the required PRSUs for XPM and ISN load files.

If the SLM tape cartridge label text indicates *Patches:Yes,* 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.

4 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
```

5

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. Note: PMUPGRADE can request several replacement loadnames during a single FILECOPY.	The MC7 load is manufacture discontinued for MSB7.	Enter S.
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. Note: PMUPGRADE can request several replacement loadnames during a single FILECOPY.	The IOM$LOAD value in table MPCINV. The IOM$LOAD value is used as a filler PM loadname.	Enter S.

6 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"):
```

7 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

8 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

9 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 3: The list of excluded loads is not cumulative; it is reset with each use of the SET EXCLUDELOADS command.

Note 4: 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

10 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
```

11 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"):
```

12 Confirm if any loads have been included or excluded from the list of selected loads.

13 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

14

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

15 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

16 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"):
```

17

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.
```

18 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
```

19 Review the load report and confirm the selected new loads have been added to the report.

20

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 DMS 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.

21

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 21b 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.

22 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.
```

23 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
```

24 Review the PMUPGRADE Plan Report

a. 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” to determine the appropriate location for manually upgrading PMs in the plan report.

b. 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.

c. Confirm offline PMs that are being commissioned in the office are not included in the plan report. If an offline OM is included in the plan report:

i. update the appropriate PM inventory table. Change the loadname field for that PM to the new loadname from the loadfile selection report.

ii. repeat steps 27 and 28. Ensure the offline PMs are not included in the new plan report.

25 Exit the PMUPGRADE utility. Type

>QUIT

and press the Enter key.

26 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

27

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 patch tape from the patch drive.

At your desk

28 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.

29 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 30
does not have the required hardware	Contact the next level of support. This office is not prepared for a PM software update.

30 You have completed this procedure and successfully prepared the office for a PM update.

Performing an automated PM upgrade

Application

ATTENTION
Offices updating from a BASE08 or higher PCL may use this functionality to update some PMs in the office.

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 (BASE09 or higher PCLs)
- DSPMINV (BASE09 or higher PCLs)
- ICRMINV (BASE09 or higher PCLs)
- LCMINV
- LIUINV (EIUs, FRIUs, and XLIUs only, BASE09 or higher PCLs)
- LTCINV
- LTCRINV
- 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

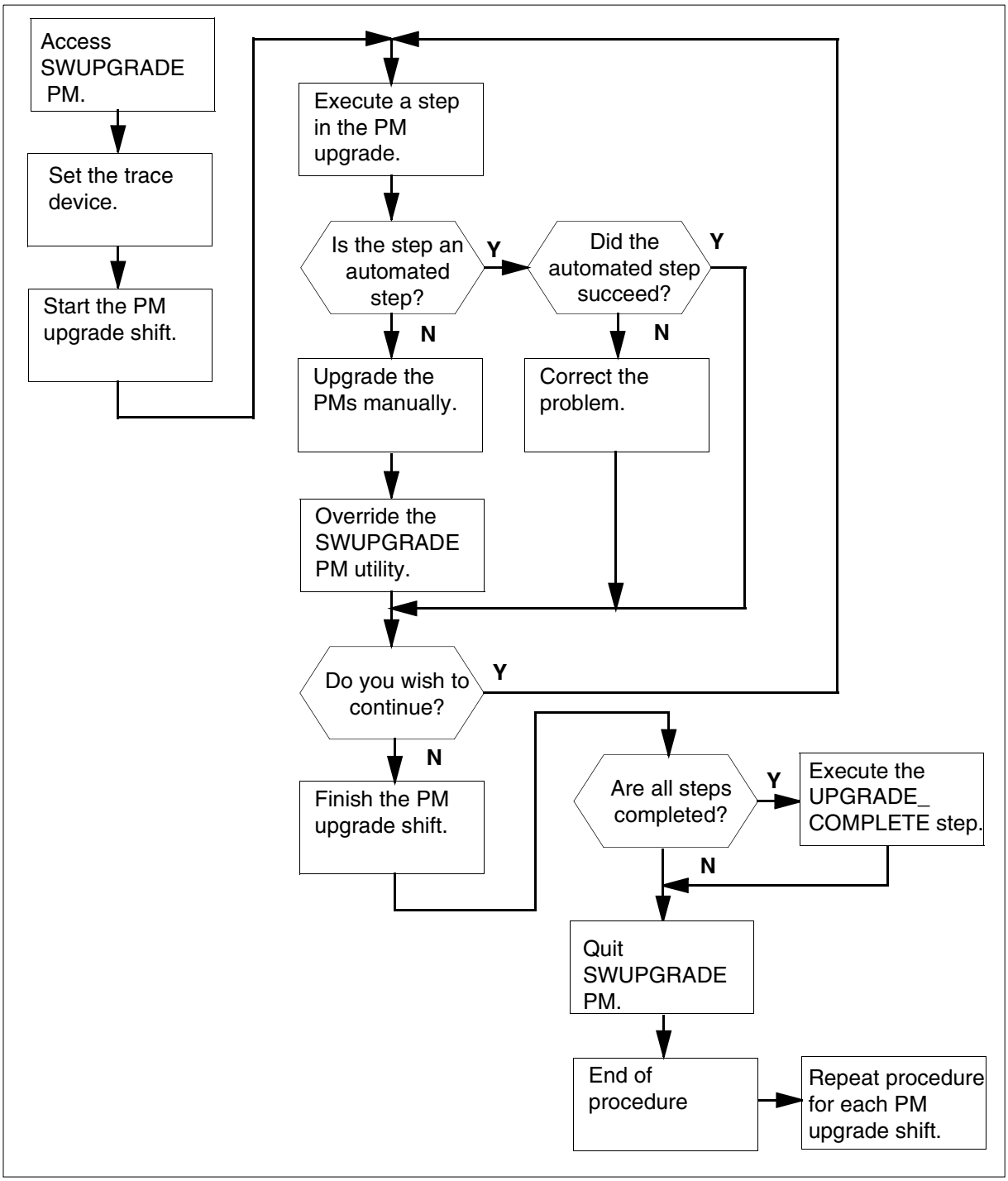
Update sequence

Not applicable

Notes

None

Summary of procedure



1 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.

Log or other response	Action
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.

2

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.

3 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 3
does not display the previous message	Confirm you have selected the correct device as the trace device. If necessary repeat Step 3.

4

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 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 5
not been successfully performed	Issue the SET SHIFT FINISHED command, then perform the procedure "Starting a PM update shift" in this document..

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.

Log or other response	Action
`WARNING: Could not read patch cross-reference file. Do you wish to start this shift without patches?`	SWUPGRADE PM cannot find a 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.

5 Display the SWUPGRADE PM environment variables. Type

>DISPLAY VARS

and press the Enter key.

Note: BASE09 or lower PCL

or

>DISPLAY VAR ALL

and press the Enter key.

Note: BASE10 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 5. SHIFT is the status of the current PM upgrade shift.

6 Display HELP on the CONCURRENCY variable. Type

>HELP VAR CONCURRENCY

and press the Enter key.

7 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 8
does not need to be changed	Step 10

8 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: BASE09 or lower PCL

or

>DISPLAY VAR ALL

and press the Enter key.

Note: BASE10 or higher PCL

Example of console response

```
SWUPGRADE variables for target PM:

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

9 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.

10 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.
```

11 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_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.

12 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.

13 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.

14

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. Type one of the following commands.

If you wish to execute the next step type	If you wish to execute another step, type
>GO an press the Enter key.	**>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 15
automated step (_A_ in step name)	Step 17

15 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
     GO

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

16 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 10
finish the PM upgrade shift	Step 19

17

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 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 includes checking CPU occupancy and the current state of the PM.

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 11
every node in the step passed, and you want to finish the PM upgrade shift	Step 19
a node in the step failed	Step 18
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.	

18

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 successfully passed its last REX test within the last two weeks.
- 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 14.
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.

19

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 20
has not been successfully performed	Perform the procedure before you go to Step 20.

20 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_M_MS_FIRMWARE                 Overridden      Perm  Act Proc
   UPGRADE_COMPLETE                 Needed          Perm  Act Proc
```

21 Review the steps in the automated PM upgrade, as generated in Step 20.

If all steps	Do
except UPGRADE_COMPLETE are complete or overridden	Step 22
are not complete or overridden	Step 24

22

> **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.

Start 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 - 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.
```

23 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.
```

24 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:
>
```

25 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

26 You have completed this procedure.

If all steps in the PM upgrade	**Do**
are not completed	Repeat this procedure for each PM upgrade shift until all steps are completed, and all PMs in the office are upgraded.
are completed	You have successfully updated all PMs in the office.

Appendix A 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, 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 will typically determine which factor is more important.

Loading time

Loading time is the length of time to successfully load a PM with new software. It begins when the PM is busied and ends when the PM is returned to service. It includes both loading and patching

The following 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
LCME	00:05:36
LGC	00:24:36
LIU7	00:04:25
NIU	00:03:17
RCC	00:28:42

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 DTC with a BCS36 load with 42 patches on a 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	21:19:36
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 based on loading ED702CJ1 on a DTC with 42 patches on a JNET switch. 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

Comparison of CPU occupancy to load times

CM CPOCC	Parallel load of 10 DTCs	Broadcast mate load of 35 DTCs
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.

Appendix B PM EXECs

This chapter provides EXECs for DMS Family peripheral modules (PM).

Introduction

Some DMS Family PMs 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 TRMTYPs and EXECs for DMS Family peripheral modules (PM). It is not necessary to confirm this information during a software update. This information is provided in this document to assist in troubleshooting update or datafill errors.

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
ATM	AUTOVON interswitch trunks	AVINSW	Not applicable	ATMEX
	AUTOVON interswitch No. 5 crossbar trunks	AVNO5	Not applicable	ATMEX
	AUTOVON overseas trunks	AVOVS	Not applicable	ATMEX
	AUTOVON tandem trunks	AVTNDM	Not applicable	ATMEX
AX74				
CMR				
CTM			Not applicable	DDCLEX
	TATS FEATSIM and DATATRAF		Not applicable	FEATSIMEX
	T101 off MTM instead of TM		Not applicable	IMTMEX
	DMS 250 MTM, STM		Not applicable	MTM250EX
	DMS 300 MTM		Not applicable	MTM300
	Basic MTM + audio tone detectors		Not applicable	MTMATD

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
			Not applicable	MTMEX
	NSG use		Not applicable	MTMTTT
	MTM250 packaged TM shelf		Not applicable	TM250P
	Tres load, 3X27		Not applicable	TRS327
	Tres load, 7271		Not applicable	TRS727
	Tres load, CCS7		Not applicable	TRSCCS
	Tres load, ISDN		Not applicable	TRSISD
	Tres load, DTCPTS		Not applicable	TRSPTS
	Tres load, traffic		Not applicable	TRSTRF
	UK MTM on DMS-250		Not applicable	UKMTM
DCH	Not applicable		Not applicable	Not applicable
DCM	DMS 250 + programmable filter time		Not applicable	DCM25X
	DMS 300 DCM		Not applicable	DCM300
	NSG cellular software		Not applicable	DCMCSC
	DCM with any combination of non-FX trunks. Does not support IBN FX trunks or PX FX trunks.		Not applicable	DCMEX
	DCM with IBN FX trunks Supports non-FX trunks. Does not support PX FX trunks		Not applicable	FXODCM
	DCM with PX FX trunks. Does not fully support other trunk types.		Not applicable	PXFXEX
	Tres load, 3X27		Not applicable	TRS327
	Tres load, 7271		Not applicable	TRS727
	Tres load, CCS7		Not applicable	TRSCCS
	Tres load, ISDN		Not applicable	TRSISD

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
	Tres load, DTCPTS		Not applicable	TRSPTS
	Tres load, traffic		Not applicable	TRSTRF
	AUTOVON interswitch trunks (MF)	AVINSW	Not applicable	ADCMEX
	AUTOVON four-wire line trunks	AVLN	Not applicable	ADCMIX
	AUTOVON interswitch No. 5 crossbar trunks	AVNO5	Not applicable	ADCMEX
	AUTOVON overseas trunks	AVOVS	Not applicable	ADCMEX
	AUTOVON PBX trunks (DP/DT)	AVPBX	Not applicable	ADCMIX
	AUTOVON PBX trunks (MF)	AVPBX	Not applicable	ADCMEX
	AUTOVON tandem trunks	AVTNDM	Not applicable	ADCMEX
DES			Not applicable	DESEX
DPP				
DTC	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		AB250	PXDTCX
	PX FX trunks and non-FX trunks		ABTRK AB250	DTCEX PXDTCX
	PX FX trunks and IBN FXO trunks, but no IBN FXS trunks		ABTRK AB250	FXODTC PXDTCX
	PX FX trunks, IBN FXO trunks, and IBN FXS trunks		ABTRK AB250	DTCFX PXDTCX
	DMS-250 trunks		AB250	DTC250
	DMS-250 with universal tone receiver		AB250	UTR250

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
	TATS DTC traffic		ABTRK	TATSEX
	TATS terminal		TATS_TERM	TATSEX
	AUTOVON automatic PBX trunks (DP/DT)	AVAPBX	AVTRK	ADTCEX
	AUTOVON automatic PBX trunks (MF)	AVAPBX	AVTRK	ADTCIX
	AUTOVON interswitch trunks	AVINSW	AVTRK	ADTCIX
	AUTOVON interswitch No. 5 crossbar trunks	AVNO5	AVTRK	ADTCIX
	AUTOVON four-wire line trunks	AVLN	AVTRK	ADTCEX
	AUTOVON overseas trunks	AVOVS	AVTRK	ADTCIX
	AUTOVON PBX (DP/DT)	AVPBX	AVTRK	ADTCEX
	AUTOVON PBX (MF)	AVPBX	AVTRK	ADTCIX
	AUTOVON tandem trunks	AVTNDM	AVTRK	ADTCIX
DTCI	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		AB250	PXDTCX
	PX FX trunks and non-FX trunks		ABTRK AB250	DTCEX PXDTCX
	PX FX trunks and IBN FXO trunks, but no IBN FXS trunks		ABTRK AB250	FXODTC PXDTCX
	PX FX trunks, IBN FXO trunks, and IBN FXS trunks		ABTRK AB250	DTCFX PXDTCX
	DMS-250 trunks		AB250	DTC250
	DMS-250 with universal tone receiver		AB250	UTR250

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
	TATS DTC traffic		ABTRK	TATSEX
	TATS terminal		TATS_TERM	TATSEX
	Autovon 4WSUB/PBX		AVACC	ADTCEX
	Autovon interswitch trunks		AVTRK	ADTCIX
	ISDN for DTCs with non-FX trunks		ISDN_UP	DTCEX
	ISDN B channel for DMS-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
DTM	Autovon MTMs; IBN TOO for DTMF outpulsing		Not applicable	AMTMEX
			Not applicable	DDCLEX
	TATS FEATSIM and DATATRAF		Not applicable	FEATSIMEX
	T101 off MTM instead of TM		Not applicable	IMTMEX
	DMS 250 MTM, STM		Not applicable	MTM250EX
	DMS 300 MTM		Not applicable	MTM300
	Basic MTM + audio tone detectors		Not applicable	MTMATD
				MTMEX
	NSG use		Not applicable	MTMTTT
	MTM250 packaged TM shelf		Not applicable	TM250P
	Tres load, 3X27		Not applicable	TRS327
	Tres load, 7271		Not applicable	TRS727

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
	Tres load, CCS7		Not applicable	TRSCCS
	Tres load, ISDN		Not applicable	TRSISD
	Tres load, DTCPTS		Not applicable	TRSPTS
	Tres load, traffic		Not applicable	TRSTRF
	UK MTM on DMS-250		Not applicable	UKMTM
DTU				
EIU				
ENET				
ESA			Not applicable	TRSTRF
	ESA POTS lines and keyset		ESA_LINES	ESAEX
	International ESA		ESA_LINES	IESAEX
	Remote maintenance module		RMM_TERM	RSMEX
ESTU				
FRIU				
ILD				
LCM				
LCME				
LGC	Key sets on LTC (P-phone)		KEYSET	KSETEX
	Key sets on LTC (M5018 P-phone)		M5018_TERM	KSETEX
	Key sets on LTC (M5009/ M5209 P-phone)		MX509_TERM	KSETEX
	Key sets on LTC (M5112/ M5312/M5212 P-phone)		MX5212_TERM	KSETEX
	POTS		POTS	POTSEX
	Remote maintenance module		RMM_TERM	RSMEX
LIU7				

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
LIM				
LM				LMEX
LTC	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		AB250	PXDTCX
	PX FX trunks and non-FX trunks		ABTRK AB250	DTCEX PXDTCX
	PX FX trunks and IBN FXO trunks, but no IBN FXS trunks		ABTRK AB250	FXODTC PXDTCX
	PX FX trunks, IBN FXO trunks, and IBN FXS trunks		ABTRK AB250	DTCFX PXDTCX
	DMS-250 trunks		AB250	DTC250
	ISDN for DTCs with non-FX trunks		ISDN_UP	DTCEX
	Key sets on LTC (P-phone)		KEYSET	KSETEX
	Key sets on LTC (M5018 P-phone)		M5018_TERM	KSETEX
	Key sets on LTC (M5009/ M5209 P-phone)		MX509_TERM	KSETEX
	Key sets on LTC (M5112/ M5312/M5212 P-phone)		MX5212_TERM	KSETEX
	POTS		POTS	POTSEX
	ISDN B channel for DMS-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

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
	Remote maintenance module		RMM_TERM	RSMEX
	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 tandem trunks	AVTNDM	AVTRK	ADTCIX
	AUTOVON PBX trunks (DP/DT)	AVPBX	AVACC	ADTCEX
	AUTOVON PBX trunks (MF)	AVPBX	AVTRK	ADTCIX
MPC				
MS				
MTM	NT3X68AB DTMF senders	SVDTMF	Not applicable	AMTMEX
	AV101 test lines/basic MTM	AV01	Not applicable	AVTMEX
			Not applicable	DDCLEX
			Not applicable	FEATSIMEX
			Not applicable	IMTMEX
	DMS-250 MTM, STM		Not applicable	MTM250EX
	DMS-300 MTM		Not applicable	MTM300
	Basic MTM with audio tone detectors. Does not support OAU, DRAM, RCVROIN, or TTT type circuits.		Not applicable	MTMATD
	Basic MTM		Not applicable	MTMEX

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
			Not applicable	MTMTTT
			Not applicable	TM250P
			Not applicable	TRS327
			Not applicable	TRS727
			Not applicable	TRSCCS
			Not applicable	TRSISD
			Not applicable	TRSPTS
			Not applicable	TRSTRF
			Not applicable	UKMTM
MTU				
MX77				
NIU				
OAU			Not applicable	MTMEX
			Not applicable	OAUEX
OAMP				
PTM	NT3X68AB DTMF senders	SVDTMF	Not applicable	AMTMEX
	AV101 test lines/basic MTM	AV01	Not applicable	AVTMEX
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		AB250	PXDTCX
	PX FX trunks and non-FX trunks		ABTRK AB250	DTCEX PXDTCX
	PX FX trunks and IBN FXO trunks, but no IBN FXS trunks		ABTRK AB250	FXODTC PXDTCX

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
	PX FX trunks, IBN FXO trunks, and IBN FXS trunks		ABTRK AB250	DTCFX PXDTCX
	DMS-250 trunks		AB250	DTC250
	DMS-250 with universal tone receiver		AB250	UTR250
	TATS DTC traffic		ABTRK	TATSEX
	TATS terminal		TATS_TERM	TATSEX
	Autovon 4WSUB/PBX		AVACC	ADTCEX
	Autovon interswitch trunks		AVTRK	ADTCIX
	ISDN for DTCs with non-FX trunks		ISDN_UP	DTCEX
	ISDN B channel for DMS-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
	CCITT6 and CCITTR1		ABTRK	DTC300
	CCITT R1 voice trunk		R1_TERM	DTC300
	CCITT6 voice trunk		N6_TERM	DTC300
RCC	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		AB250	PXDTCX

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
	PX FX trunks and non-FX trunks		ABTRK AB250	DTCEX PXDTCX
	PX FX trunks and IBN FXO trunks, but no IBN FXS trunks		ABTRK AB250	FXODTC PXDTCX
	PX FX trunks, IBN FXO trunks, and IBN FXS trunks		ABTRK AB250	DTCFX PXDTCX
	DMS-250 trunks		AB250	DTC250
	ESA POTS lines and keyset		ESA_LINES	ESAEX
	International ESA		ESA_LINES	IESAEX
	Key sets on LTC (P-phone)		KEYSET	KSETEX
	Key sets on LTC (M5018 P-phone)		M5018_TERM	KSETEX
	Key sets on LTC (M5009/ M5209 P-phone)		MX509_TERM	KSETEX
	Key sets on LTC (M5112/ M5312/M5212 P-phone)		MX5212_TERM	KSETEX
	POTS		POTS	POTSEX
	Remote maintenance module		RMM_TERM	RSMEX
RCC2	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		AB250	PXDTCX
	PX FX trunks and non-FX trunks		ABTRK AB250	DTCEX PXDTCX
	PX FX trunks and IBN FXO trunks, but no IBN FXS trunks		ABTRK AB250	FXODTC PXDTCX
	PX FX trunks, IBN FXO trunks, and IBN FXS trunks		ABTRK AB250	DTCFX PXDTCX
	DMS-250 trunks		AB250	DTC250

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
	ESA POTS lines and keyset		ESA_LINES	ESAEX
	ISDN for DTCs with non-FX trunks		ISDN_UP	DTCEX
	Key sets on LTC (P-phone)		KEYSET	KSETEX
	Key sets on LTC (M5018 P-phone)		M5018_TERM	KSETEX
	Key sets on LTC (M5009/ M5209 P-phone)		MX509_TERM	KSETEX
	Key sets on LTC (M5112/ M5312/M5212 P-phone)		MX5212_TERM	KSETEX
	POTS		POTS	POTSEX
	Remote maintenance module		RMM_TERM	RSMEX
RMM	International ESA		ESA_LINES	IESAEX
	Remote maintenance module		RMM_TERM	RSMEX
			Not applicable	TRSTRF
SMA	Key sets on LTC (P-phone)		KEYSET	KSETEX
	Key sets on LTC (M5018 P-phone)		M5018_TERM	KSETEX
	Key sets on LTC (M5009/ M5209 P-phone)		MX509_TERM	KSETEX
	Key sets on LTC (M5112/ M5312/M5212 P-phone)		MX5212_TERM	KSETEX
	POTS		POTS	POTSEX
SMA2	Key sets on LTC (P-phone)		KEYSET	KSETEX
	Key sets on LTC (M5018 P-phone)		M5018_TERM	KSETEX
	Key sets on LTC (M5009/ M5209 P-phone)		MX509_TERM	KSETEX
	Key sets on LTC (M5112/ M5312/M5212 P-phone)		MX5212_TERM	KSETEX

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
	POTS		POTS	POTSEX
SMS	Key sets on LTC (P-phone)		KEYSET	KSETEX
	Key sets on LTC (M5018 P-phone)		M5018_TERM	KSETEX
	Key sets on LTC (M5009/ M5209 P-phone)		MX509_TERM	KSETEX
	Key sets on LTC (M5112/ M5312/M5212 P-phone)		MX5212_TERM	KSETEX
	POTS		POTS	POTSEX
SMSR				
SMU	Key sets on LTC (P-phone)		KEYSET	KSETEX
	Key sets on LTC (M5018 P-phone)		M5018_TERM	KSETEX
	Key sets on LTC (M5009/ M5209 P-phone)		MX509_TERM	KSETEX
	Key sets on LTC (M5112/ M5312/M5212 P-phone)		MX5212_TERM	KSETEX
	POTS		POTS	POTSEX
STM			Not applicable	AMTMEX
			Not applicable	DDCLEX
			Not applicable	IMTMEX
			Not applicable	MTM250EX
			Not applicable	MTM300
			Not applicable	MTMATD
			Not applicable	MTMEX
			Not applicable	MTMTTT
			Not applicable	UKMTM
T8A			Not applicable	T8AEX

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
			Not applicable	T8A300
			Not applicable	UKECEX
TAN			Not applicable	MTM300
			Not applicable	TANEX
TM2			Not applicable	TM2EX
TM4			Not applicable	ATMEX
			Not applicable	TM4EX
TM8			Not applicable	ATMEX
			Not applicable	FEATSIMEX
			Not applicable	MTMEX
			Not applicable	OAUEX
	Basic TM8		Not applicable	TM8EX
	Basic MTM with audio tone detectors. Does not support OAU, DRAM, RCVROIN, or TTT type circuits.		Not applicable	TM8AT
			Not applicable	TRS327
			Not applicable	TRS727
			Not applicable	TRSCCS
			Not applicable	TRSISD
			Not applicable	TRSPTS
			Not applicable	TRSTRF
			Not applicable	UKECEX
			Not applicable	UKTMEX
TMS	Non-FX trunks		ABTRK	DTCEX
	ISDN		ISDN_UP	DTCEX

TRMTYPs and EXECs

PM	Functionality	Trunk types	TRMTYP	EXEC
XLIU	ISDN B-channel for DTCs with non-FX trunks		PRAB	DTCEX

Information is subject to change without notice.

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PM Release Document

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