

Upgrading the SPM

This document provides preparatory information and procedures to upgrade the SPM. Refer to the NN10003-100 *PT-ATM Product and Technology Fundamentals* document (Section 11) for an overall upgrade strategy.

Upgrade the software on all of the individual circuit packs to upgrade the SPM. The SPM offers two options for upgrades:

- Manual SPM upgrades are performed on a circuit pack by circuit pack basis
- Automated SPM upgrades are performed on several RM types at once

**CAUTION****Possible service interruption**

An SPM with a configured SRM on it cannot be upgraded using an automated SPM upgrade. The SPM must be upgraded manually.

The term PANTHER is commonly used as a reference to the Automated Upgrade process for Peripheral Modules including the SPM. The DMS CI tools that are used to perform the Automated Upgrades are the PMUPGRADE and SWUPGRADE PM tools. Both of these tools can be accessed from the CI level of the DMS MAP, and include Help information.

Upgrade procedures

The table below, [Manual upgrade or downgrade procedures](#), lists the upgrade or downgrade procedures.

Manual upgrade or downgrade procedures

Procedure	Page
Prepare a manual upgrade or downgrade	15
Perform a manual upgrade or downgrade	27
Upgrading or downgrading an SRM	31
Upgrade or downgrade an OC3	40
Upgrading or downgrading a DSP/VSP	48
Upgrading or downgrading the DLC	56
Upgrading a CEM	63
Post upgrade or downgrade process	70
Downgrading a CEM to an earlier release	72
Downgrading a CEM to an earlier version in the same release	80
Downgrading a DLC to an earlier release	87

The table below, [Automated upgrade procedures](#), lists the procedures used to perform an automated upgrade.

Automated upgrade procedures

Procedure	Page
Prepare an automated upgrade	94
Perform an automated upgrade	106

Upgrade overview

The upgrade process requires upgrading the software in the SPM circuit packs. A separate load exists for each type of circuit pack. Upgrade the software in the following sequence:

- SRM
- OC3
- DSP or VSP
- DLC
- CEM

The circuit packs are grouped into circuit pack protection groups. A manual upgrade consists of the following phases:

- check alarms on the SPM before starting the upgrade
- verify the status of the SPM carriers before starting the upgrade
- update the circuit pack load inventory
- upgrade all RM circuit pack protection groups that require an upgrade
 - for each group, upgrade all circuit packs in the groups that require an upgrade
- upgrade CEMs that require an upgrade

Upgrade methods

An SPM upgrade consists of upgrading the software on all of the individual circuit packs on an SPM. Upgrade methods are either:

- automated upgrades
 - upgrades several of the RM types at once
- Manual upgrades
 - upgrades circuit pack types individually

The Synchronous Resource Module (SRM) does not provide sparing. As a result, TDM offices that use SRMs for office synchronization must upgrade the SRMs manually prior to using the Automated Upgrade process. Each TDM office has two SRMs which can be located in the SYNCLK table.

Upgrade preparation

The following paragraphs described the preparations for the SPM upgrade.



CAUTION

Possible service interruption

Prior to performing an SPM upgrade, all applicable RM RMIDs and PROTHOMIDs must be aligned. For more information, refer to [SPMRESMAN on page 10](#).

Before performing an SPM upgrade, the following must be completed:

- an office image was taken in the last 24 hours
- all peripheral module (PM) logs are enabled
- the circuit pack is in-service and the activity state is inactive
- automatic routine exercise (REX) testing is suspended in the office

During upgrade preparation, the new load files are transferred from a tape to a disk drive. The table below, [Upgrade release types](#) lists the basic upgrade release types.

Upgrade release types

Release	Explanation
Milestone	Upgrades to the next base software release
Maintenance or emergency	Upgrades to a new release within the current base software release Emergency releases apply only to non-PPSL software loads
Pre-Patched SPM Load (PPSL) milestone	Upgrades to the next base software release with corrective content (patches) included
PPSL maintenance	Upgrades to a new release within the current base software release and includes patches

Software loads

The SPM Load tape contains the

- SPMSPM loads,
- SPM patches, and
- \$XREF file which is identified by XPMxx, where xx refers to the SPM load.

The automatic upgrade procedure uses \$XREF files to apply patches after loading. If the \$XREF files are not loaded, patches must be manually applied.

A PrePatched SPM Load (PPSL) contains patches built in as part of the load and is identified by an alphanumeric suffix as illustrated in the table below, [Load type and numbering examples](#).

Load type and numbering examples

Load type	Numbering example
PPSL	DLC16DE_010082 A3
Non-PPSL	DLC16DI_010086

The table below, [Milestone release load example](#), shows an example of load names that can be used in an SPM upgrade and the appropriate procedure to follow.

In this example, a milestone upgrade is performed from release 16 to release 17. By contrast, a PPSL maintenance release requires only the update of the file names in the PMLOADS table and does not require upgrade procedures.

Milestone release load example

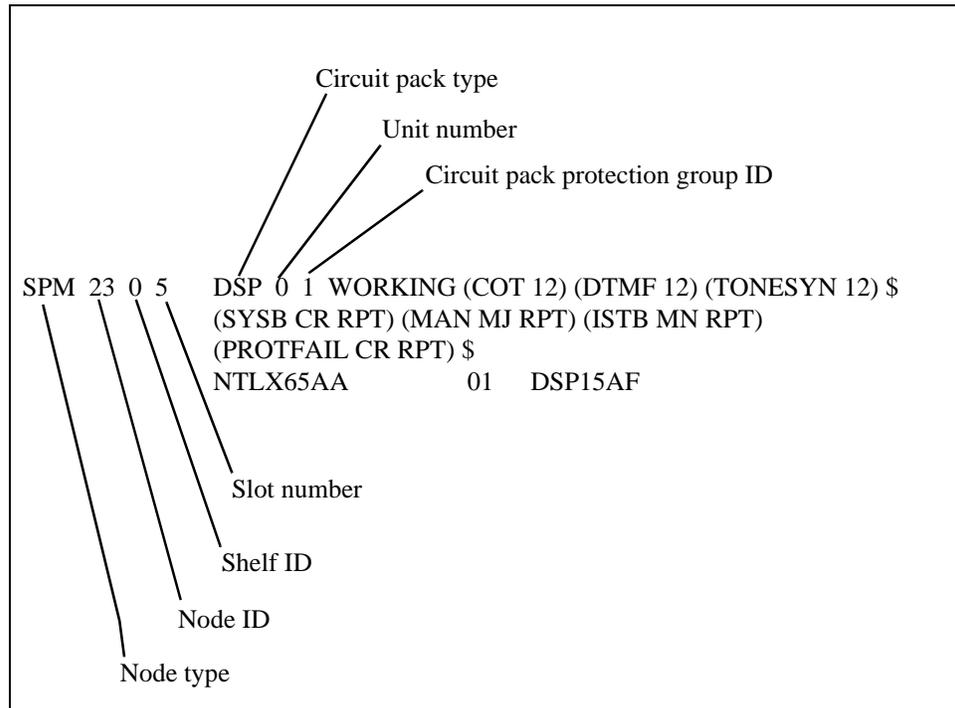
Current load name in PMLOADS	Current active load file	New load name from SPM load tape contents	New active load file name from SPM load tape contents	Upgrade procedure to perform
OC316AF	OC316AF_010005	OC317AE	OC317AE_010010	Upgrade or downgrade an OC3
DSP16AF	DSP16AF_010005	DSP17AE	DSP17AE_010010	Upgrading or downgrading a DSP/VSP
DLC16AF	DLC16AF_010005	DLC17AE	DLC17AE_010010	Upgrading or downgrading the DLC
CEM16AF	CEM16AF_010005	CEM17AE	CEM17AE_010010	Upgrading a CEM

Protection groups

A protection group consists of multiple circuit packs grouped together for system reliability through sparing. Each protection group has a unique group identification (ID) assigned to it. The CEM does not belong to a protection group, and does not have a circuit pack protection group ID.

The MNCKTPAK table contains a listing of each circuit pack in the SPM and associated protection group IDs. The figure below, [Circuit pack upgrade fields](#), identifies the important fields in the MNCKTPAK table when performing an upgrade.

Circuit pack upgrade fields



The circuit pack protection group ID is a subfield of the CPKTYPE field. The following list identifies the subfield name for each RM type:

- OC3: OC3GRPID
- DSP: DSPGRPID
- DLC: DLCGRPID
- SRM: SRMGRPID

The protection group ID in the MNCKTPAK table is defined in the MNPRTGRP table through the GRPKEY field, GRPID subfield. The GRPID subfield values range from 1 to 28.

Upgrade strategies

Load entire SPMs with a single maintenance release or milestone upgrade. Failure to load all RMs and CEMs in an SPM can result in inadvertently running unsupported mixed load SPM configurations. Mixed load configurations can result in the reload of modules in an out-of-procedure sequence, which can affect service.

If unable to complete the loading of all SPMs in one session, upgrade a limited number of SPMs in multiple sessions.

During the upgrade process, SPMs not loaded with an upgrade load reflect an ISTB condition caused by a loadname mismatch in the MNCKTPAK table. The ISTB condition remains until all SPMs have been upgraded.

Operating company personnel can upgrade more than one RM and more than one SPM at the same time.

To upgrade multiple RMs at the same time on the same SPM, open a MAPCI session for each RM type.

To concurrently upgrade multiple SPMs, upgrade up to two SPMs at the same time. Open a MAPCI session for each RM type on each SPM.

Note that during in-service loading, which involves downloading from the computing module (CM), you can load a maximum of eight RMs at the same time. The restriction of in-service loading no more than eight RMs at the same time also applies to CEMs. During mate loading, up to sixty four RMs can be loaded from the mate at the same time.

Periodically check the carrier status during the upgrade process to monitor the upgrade integrity.

For nonpatchable loads, post-release software updates (PRSU) must be built into the load file.

PPSL

A Pre-Patched SPM Load (PPSL) is a Spectrum load which includes the released base software content and the corrective content (patches). PPSL reduces:

- patching effort after reloading
- recovery time
- end-to-end upgrade time

After loading a PPSL, new patches can be applied using standard tools and procedures of post release software management (PRSM). PRSM can also remove patch files that were built into a PPSL.

A PPSL file is named with the first fourteen characters of the base load, and a two character suffix to indicate the version number. The two-character suffix uses an alphanumeric format.

For example, a PPSL for the base load CEM16BP_010041 of version A3 is CEM16BP_010041A3.

The QUERYPM FILES command for a posted SPM at the PM MAP level displays a PPSL for a DLC (or CEM) by its default filename. For example:

```
DLC  0  InSv Act Default Loadname:  DLC16DI
                        Default Filename:  DLC16DI_010086A1
                        Running Load:      DLC16DI_010086
                        Load in Flash:     DLC16DI_010086
```

A REPORT DEST command using PRSM identifies a PPSL by displaying a PRSU in the SPMLOAD destination with a name of SPPSL. A seven character load name suffix, such as DLC16D, is added. For example, SPPSLDLC16D.

A PPSL maintenance release requires datafill changes made to the PMLOADS table only. The file and volume names must be updated to reflect the new PPSL load name and location.

SPARTS

Patches applied to resource modules initially reside on the DRAM, the memory in which the load is running. The patched DRAM image does not copy over to the Flash memory until patching activity has ceased for a period of time. The delay between the end of the last patch action on the device and the start of the DRAM-to-Flash image copy depends on the load and the device:

- 60 minutes in SP14 to SP16 loads
(80 minutes for the inactive CEM in SP15 to SP16)
- 5 minutes in SP17 and later loads
(15 minutes for the inactive CEM)

It is possible that this delay could prevent patch updates to the PRSM database which would produce patching mismatches between the PRSM and the LPM (local patch manager). SPM Patching after RTS (SPARTS) prevents mismatches.

When an RTS is initiated on a device, SPARTS compares the list of patches actually applied to the device to the list of patches applied to all other devices in the office that are running the same load:

- if no patch discrepancies exist, SPARTS takes no further action
- if patch discrepancies exist, SPARTS applies the missing patches and removes any applied patches that are not running on other devices with the same load in the same office

SPARTS schedules up to three attempts, 30 minutes apart, to correct a patch discrepancy.

Once an attempt succeeds, any subsequent attempts are cancelled and the PATCHFAIL alarm clears. A PATCHFAIL alarm can be manually cleared by running an ISTBAUDIT command against the device.

Run a DBAUDIT command against a device after loading or patching the first device. A DBAUDIT updates the PRSM database, and ensures that SPARTS correctly patches any other device with the same load.

SPARTS does not apply a patch that has not already been applied in an office. SPARTS ensures that previously applied patches are applied every time an RTS is performed on a device.

Downgrading

Similar to a software upgrade, a software downgrade loads a previous version of software to the SPM components. A downgrade is only performed when an error condition necessitates returning to a previous software version.

The downgrade procedure is performed in reverse order to the upgrade procedure, for all components except for the CEM and DLC. The latter components require different treatment depending on whether the downgrade is to

- an earlier release, or
- an earlier version within the same release

Software downgrades cannot span more than three previous releases. For example, it is possible to downgrade a release 20 to a release 17 but it is not possible to downgrade a release 20 to a release 16.

Tools and utilities

SPM upgrades are performed using the MAP display commands.

SPMRESMAN

The SPM Resource Management tool (SPMRESMAN) provides a summary of resource issue alignments for DLC, DSP, and VSP resource modules within a protection group. The SPMRESMAN command is available on loads SP12, SP11, or SP10 only if patch DCW25 has been applied.

The SPMRESMAN tool provides the following information for DSPs, VSPs, or DLCs:

- resource module ID (RMID)
- activity status
- protection ID (ProtWhomID)

- protection group
- safe for datafill change (ManB =Yes, otherwise no)

The RMID is the corresponding RM slot number for Shelf 0 and, the slot number plus14 for Shelf 1. The PROTWHOMID identifies the RMID whose services are protected by the corresponding RMID on the same line.

- If properly aligned, the RMID and PROTWHOMID are identical.
- a misalignment indicates that the resources of one RM are being protected by another RM

Perform sparing actions between the affected RMs to correct a misalignment.

An SPM has corrupted resources when two different RMs have the same ProtWhomID. When corrupted resources are encountered, contact your next level of support. Do not upgrade the affected SPM until the corrupted resources have been corrected.

The following is an example of an SPMRESMAN output that indicates a misalignment of DSP 2 and 4, RMIDs 25 and 27 (slots 11 and 13 in Shelf 1).

	RMID	Activity	ProtWhomID	ProtGrp	Safe to Change?
VSP 0	4	INACTIVE	4	1	NO
VSP 1	5	ACTIVE	5	1	NO
VSP 2	13	ACTIVE	13	1	NO
VSP 3	14	ACTIVE	14	1	NO
DLC 0	15	ACTIVE	15	1	NO
DLC 1	16	ACTIVE	16	1	NO
VSP 4	17	ACTIVE	17	1	NO
VSP 5	18	ACTIVE	18	1	NO
DSP 0	23	ACTIVE	23	1	NO
DSP 1	24	ACTIVE	24	1	NO
DSP 2	25	ACTIVE	27	1	NO
DSP 3	26	ACTIVE	26	1	NO
DSP 4	27	INACTIVE	25	1	NO

To correct this misalignment, perform sparing action between DSP 2 and DSP 4 as follows:

1. Select DSP 4
2. > Prot
3. > manual 4 2
4. > y

The following is an example of an SPMRESMAN output after the sparing action described above.

	RMID	Activity	ProtWhomID	ProtGrp	Safe to Change?	
VSP	0	4	INACTIVE	4	1	NO
VSP	1	5	ACTIVE	5	1	NO
VSP	2	13	ACTIVE	13	1	NO
VSP	3	14	ACTIVE	14	1	NO
DLC	0	15	ACTIVE	15	1	NO
DLC	1	16	ACTIVE	16	1	NO
VSP	4	17	ACTIVE	17	1	NO
VSP	5	18	ACTIVE	18	1	NO
DSP	0	23	ACTIVE	23	1	NO
DSP	1	24	ACTIVE	24	1	NO
DSP	2	25	INACTIVE	25	1	NO
DSP	3	26	ACTIVE	26	1	NO
DSP	4	27	ACTIVE	27	1	NO

An SPM can be upgraded or downgraded when all RMIDs and ProtWhomIDs match for each VSP, DSP, and DLC.

Automated Upgrades

An automatic upgrade procedure called PANTHER has been provided. However, PANTHER does not support the upgrade of unspared RMs.

As a result, RM spares must be configured before beginning an automated upgrade.

- the PMUPGRADE tool
 - selects and copies the new PM load and patch files from the distribution media to the Core
 - produces the PM upgrade plan outlining the tasks required to upgrade the PMs with the new loads and patches
- the SWUPGRADE PM tool
 - automates task execution in the PM upgrade plan to load and patch the necessary PMs

ATTENTION

Spectrum devices must be upgraded manually when upgrading to a Pre-Patched Spectrum Load (PPSL) with the same first 14 digits in the load name.

PANTHER cannot be used to upgrade a Spectrum device to a PPSL when only the PPSL identifier digits in the load name differ between the current load and the upgrade load.

For example, Panther does not upgrade the load when upgrading from OC316DP_010093 to OC316DP_010093A1. This is because Panther only considers the first 14 digits in the load name, and ignores A1 in the upgrade load name. In this case, Panther determines the load name has not changed, and does not upgrade the device.

PANTHER makes a set of eight SPMs for upgrade. It constructs an RM list of the RM groups for all eight SPMs. The list contains RM groups of the first SPM in the current set sequentially followed by RM groups for the remaining SPMs.

Loading times for similar RM types vary only slightly. PANTHER loads the RMs of similar protection groups concurrently to expedite the process without waiting for the slowest RM type to load.

PANTHER can concurrently load up to 64 RMs across 8 SPMs in the current upgrade set. The calculation for determining the maximum RMs available for mate loading is:

$$\begin{aligned} \text{New RM Mate Loading Concurrency limit} &= 8(\text{SPMs}) * \\ &8(\text{Prot group per SPM}) = 64 \end{aligned}$$

\$XREF Patch Control File

The PMUPGRADE tool uses an \$XREF patch control file to select the required PRSUs for a load. An XA-Core tape cartridge labeled as Patches:Yes contains the correct \$XREF file for the corresponding load.

If the tape does not contain an \$XREF file, the PMUPGRADE tool bypasses the steps to select or copy PRSUs, and generates the following MAP message:

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

When an office receives an \$XREF file through an X.25 NOP link, the file must be placed on the Patch File Distribution volume. The corresponding PRSU files must be placed on temporary disk volumes specified as the ISN Patch Destination volume, and the XPM Patch Destination volume.



CAUTION

Possible service interruption

PRSUs cannot reside on the same volume as the \$XREF file.

The PMUPGRADE tool sends the \$XREF file name and location to the SWUPGRADE PM tool during the automated PM update. The SWUPGRADE PM tool automatically applies the PRSUs to any designated PM load files.

When downloading patches and loads through file transfer protocol (FTP) or other electronic methods, the \$XREF file is automatically generated if the following two conditions are met:

- all PM loads and corresponding patches are on a temporary disk volume
- no other \$XREF file is present on the distribution volume

The download of patches and loads automatically copies the PM loads and their corresponding patches from the disk distribution volume to the selected destination volumes. This activity generates a new \$XREF file available for use by the SWUPGRADE tool.

Prepare a manual upgrade or downgrade

This procedure prepares the disk volume and file names in the PMLOADS and MNCKTPAK tables for a software upgrade or downgrade. The table below, [Variable abbreviations](#), defines the variables used in this procedure.

Variable abbreviations (Sheet 1 of 2)

Abbreviation	Definition
act_file	The active load file name (as it appears in the PMLOADS table).
act_load	The name of the new active load (as it appears in the PMLOADS table).
act_vol	The active volume name (as it appears in the PMLOADS table). The volume identifies the device where the act_file is stored.
bkp_file	The backup load file name (as it appears in the PMLOADS table). The backup load file name should be identical to the act_file name.
bkp_vol	The backup volume name (as it appears in the PMLOADS table). The backup volume identifies where the bkp_file is stored. The backup volume name should be identical to the act_vol name.
disk_vol	The name of the backup disk volume.
drive_no	The XA-Core tape drive number.
load_name	The load name of the new load as it appears in the PMLOADS table.
load_vol	The name of the disk volume where the new loads have been copied from tape.
log_#	The specific number of a log type.
log_name	The name of a log type.
padn_vol	The patch storage volume in the PADNDEV table.

Variable abbreviations (Sheet 2 of 2)

Abbreviation	Definition
patch_vol	The name of the disk volume where the new patches have been copied from tape.
pc_file	The name of the patch control file.
printer	The printer name.
rm_name	The RM name (CEM, DLC, DSP, etc.).
rm_no	The RM number.
shelf_ID	The shelf number (0 or 1).
slot_no	The number of slot location (1 through 14).
spm_no	The number of the SPM.
tape_vol	The name of the PCL-specific SLM tape cartridge volume.

Throughout the procedure, press the **Enter** key on the keyboard after the command has been entered.

ATTENTION

Follow your company policy for soaking selected circuit packs before upgrading the rest of your office.

XA-Core command syntax

The XA-Core command syntax for `drive_no` and `disk_no` correspond to the following identifiers in the XA-Core command examples:

- shelf position is the front (F) or rear (R) shelf position of the input output processor (IOP)
- slot position is the two-digit number of the slot position for the IOP with the tape device
- packlet position is the upper (U) or lower (L) packlet position of the IOP with the tape device

In the command example F17UTAPE,

- F is the shelf position
- 17 is the two-digit slot position
- U is the packet position, and

TAPE identifies the software delivery medium

Prepare for a manual upgrade or downgrade

At the CI level of the MAP display

- 1 Send the terminal response to a printer:

```
> RECORD START ONTO <printer>
```

Example input:

```
> RECORD START ONTO PRINTER1
```

- 2 Enter the log utility and list devices:

```
> LOGUTIL;LISTDEVS
```

Example of a MAP display:

No.	Device	Status	Rerouted	Format
0	MAP121	Outputting Logs	No	STD

If the status is	Do
inactive	step 3
outputting logs	step 4

- 3 Start the device:

```
> STARTDEVS dev_name
```

- 4 Verify that the PRSM, SPM, NODE, and TUPL logs are routed to a printer:

```
> LISTREPS SPECIAL PRSM
```

Example of a MAP display:

Log Name	Rep. No.	Event Class Type	Event Label	Suppressed/Thresholded	Syslog

16 report(s) printed					

```
> LISTREPS SPECIAL SPM
```

Example of a MAP display:

Log Name	Rep. No.	Event Class Type	Event Label	Suppressed/Thresholderd	Syslog

67 report(s) printed					

> LISTREPS SPECIAL NODE

Example of a MAP display:

Log Name	Rep. No.	Event Class Type	Event Label	Suppressed/Thresholderd	Syslog

11 report(s) printed					

> LISTREPS SPECIAL TUPL

Example of a MAP display:

Log Name	Rep. No.	Event Class Type	Event Label	Suppressed/Thresholderd	Syslog

9 report(s) printed					

- 5** Resume any SPM, NODE, and TUPL logs that have been suppressed:

> RESUME log_name log_#

Example input:

> RESUME SPM 311

- 6** Post each SPM scheduled for an upgrade:

> MAPC NODISP;MTC;PM;POST SPM spm_no

- 7** List and print the loads on the SPM:

> QUERYPM FILES

- 8** Exit the SPM screen:

> QUIT ALL

9 Identify the patch destination volume:

```
> TABLE PADNDEV;LIST ALL;QUIT
```

Example response:

```
TABLE: PADNDEV
TOP
DEVKEY          DEVICE
-----
      1 SFDEV
      2 F17LPTCH
BOTTOM
```

Note: The PADNDEV table contains a list of up to three devices that PRSM searches for PRSU files. PRSM always checks for PRSU files in the SFDEV volume. As a result, at least one additional volume must be created to use as the patch destination volume. Patches are copied from the tape to this volume in [step 19](#).

10 Place the load tape into the tape drive of the selected disk volume.**11 Access the disk utility:**

```
> DISKUT
```

Example response:

Disk utility is now active

12 Identify the PMLOADS volume:

```
> LV
```

SLM drive example

Volumes found on the node CM:

```
-----
NAME          TYPE      TOTAL      FREE TOTAL  OPEN
ITOC    LARGEST                BLOCKS    BLOCKS FILES FILES
FILES  FREE SEGMENT
-----
S00DIMAGE    STD      1228735    146455      4
0         2    141905
S00DPMLOADS  STD      614335    222655     48    0
0         43041
S00DOCC2     STD      51135      3         4    0
0         3
S00DOCC3     STD      51135      3         4    0
0         3
S00DAMA2     STD      51135      3         3    0
0         3
S00DAMA3     STD      51135    51135      0    0
0         51135
S01DIMAGE    STD      1228735    251359      4    0
0         179607
```

```

S01DPMLOADS      STD      614335      521314      24      0
0      361614
S01DOCC          STD      51135        3      4      0
0      3
S01DOCC1        STD      51135        3      4      0
0      3
S01DAMA1        STD      51135        3      4      0
0      3
S01DFTFS        FTFS      51198        2759      147      0
N/A      2503

```

Total number of volumes found on node CM : 12

XA-Core DAT drive example

Volumes found on the node CM:

```

-----
NAME          TYPE      TOTAL      FREE TOTAL  OPEN
ITOC    LARGEST                BLOCKS      BLOCKS FILES FILES
FILES  FREE SEGMENT
-----
F17LIMAGE1    FTFS      2048000    305152    13      0
4      129024
F17LIMAGE2    FTFS      2048000    376832    12      0
0      169984
F17LIMAGE3    FTFS      2048000    362496    14      0
4      229376
F17LPMLOADS   FTFS      614400     409440    39      0
0      259904
F17LSPMLOADS FTFS      819200     648544    15      0
0      464224
F17LPATCH     FTFS      81920      39264    318      0
0      39264

```

13 Insert the load tape into the tape drive:

If	Do
SLM tape drive	> IT <drive_name> <i>Example: IT S00T</i>
XA-Core DAT drive	> IT <drive_no> <i>Example: IT F02UTAPE</i>

14 List the load file contents of the tape:

If	Do
SLM tape drive	> LF <drive_name> <i>Example: LF S00T</i>
XA-Core DAT drive	> LF <drive_no> <i>Example: LF F02UTAPE</i>

- 15** Identify the load files required for upgrading by comparing the load files on the tape to the load files currently on the SPM. (The SPM files were determined in [step 7](#)).

- 16** Determine if the tape contains patch control files.

If the tape cartridge label	Do
-----------------------------	----

Patches: Yes	step 17
--------------	-------------------------

Patches: No	step 19
-------------	-------------------------

- 17** Without changing the load file names, copy the patch control file to the PMLOADS volume determined in [step 12](#):

If	Do
----	----

SLM tape drive	> RE FILE <act_vol> <drive_name> <tape_vol> <pc_file>
----------------	---

Example:
RE FILE S00DPMLOADS S00T
SPM00035 XPM35RTP\$XREF

XA-Core DAT drive	> RE FILE <act_vol> <drive_no> <pc_file>
-------------------	---

Example:
RE FILE F02LPMLOADS
F02UTAPE XPM35RTP\$XREF

- 18** Print the list of patches in the patch control file:

```
> PRINT <pc_file>
```

Example

```
> PRINT XPM35RTP$XREF
```

- 19** Copy each load (patch) file individually from the tape to a disk volume.

Note: PRSU patch files must reside on a volume listed in the PADNDEV table in order for PRSM to function properly when upgrading individual circuit packs.

If	Do
----	----

SLM tape drive	> RE FILE <act_file> <drive_name> <tape_vol> <act_file>
----------------	---

Example:
RE FILE CEM15CV_010073
S01DPMLOADS S01T
CEM15CV_010073 F

If	Do
XA-Core DAT drive (loads)	> SCANF <tape_vol> COPY <act_vol> <load_name> <i>Example:</i> SCANF SPM00035 COPY F02LPMLOADS CEM15CV_010073F
XA-Core DAT drive (patches)	> SCANF <tape_vol> COPY <act_vol> NAME *PATCH <i>Example:</i> SCANF SPM00035 COPY F17LPMLOADS NAME TLC75S0Q\$PATCH

- 20** List the load and patch file disk volume, and verify that all required files have been correctly copied to the disk volume:

Note: If a load or patch volume begins with the letter D, it must be listed through disk utility.

```
> LF <load_vol>
> LF <patch_vol>
```

SLM Example:

```
> LF S00DPMLOADS
> LF S000DPATCH
```

XA-Core Example:

```
> LF F02PMLOADS
> LF F17LPTCH
```

Note: If a load or patch volume begins with the letter D, it must be listed through disk utility.

Example of disk utility:

```
> DSKUT
> LIV D030PM17PTCH ALL
```

- 21** If a load and patch update worksheet has been completed, compare the results of [step 20](#) to the worksheet.

If	Do
some required load files were not copied on the disk volume	step 19
all required load files have been copied onto the disk volume	step 22

22 Eject the load tape.

If	Do
SLM tape drive	> ET <drive_name> <i>Example: ET S00T</i>
XA-Core DAT drive	> ET <drive_no> <i>Example: ET F02UTAPE</i>

Note: Use [step 22](#) to [step 27](#) to copy the upgrade load and PRSU patch files identified in [step 20](#) to their respective back up volumes.

23 List the active load file contents on the disk volume:

If	Do
SLM tape drive	> LF <disk_vol> <i>Example: LF S00DPMLOADS</i>
XA-Core DAT drive	> LF <disk_vol> <i>Example: LF F0LPMLOADS</i>

24 Copy each load file from the active disk volume to a backup disk volume:

If	Do
SLM tape drive	> COPY <act_load> <disk_vol> <i>Example:</i> COPY LPC08BC S01DPMLOADS
XA-Core DAT drive	> COPY <act_load> <disk_vol> <i>Example:</i> COPY F02LPMLOADS

25 List the loads on the backup volume to ensure that all loads have been copied:

If	Do
SLM tape drive	> LF <disk_vol> <i>Example:</i> LF S01DPMLOADS
XA-Core DAT drive	> LF <disk_vol> <i>Example:</i> LF F0LPMLOADS

- 26** Review the listing and verify that all of the load files have been copied to the backup volume.
-
- | If all load files | Do |
|------------------------------|-------------------------|
| are not in the backup volume | step 24 |
| are in the backup volume | step 27 |
-
- 27** Continue based on the patch status.
-
- | If PRSUs | Do |
|----------------------------|--|
| were in the PMLOADS volume | repeat step 23 to step 26 for the patch volume |
| are in a separate volume | step 28 |
-
- 28** Remove the SPM load tape from the tape drive and quit the disk utility:
- >QUIT
- 29** Store the SPM load tape in an available on-site location for future use.
- 30** Access the PMLOADS table:
- > TABLE PMLOADS
-
- | If the 7-character loadname | Do |
|------------------------------------|-------------------------|
| changes | step 31 |
| does not change | step 37 |
-
- Note:** The loadname does not change for:
- a COH maintenance/emergency release
 - a same release upgrade from a milestone to a PPSL release, or
 - a same release from one PPSL to another PPSL release
- 31** For each required load, add a new load name:
- > ADD <load_name> <act_file> <act_vol>
<bkp_file> <bkp_vol> N
- Example input:*
- > ADD DSP17AF DSP17AF_010005 S00DPMLOADS
DSP17AF_010005 S00DPMLOADS N

or

```
> ADD DSP17AF DSP17AF_010005 F17PMLOADS
    DSP17AF_010005 F17PMLOADS N
```

- 32** Access the MNCKTPAK table:

```
> TABLE MNCKTPAK
```

- 33** List the contents of the table:

```
> LIST ALL
```

- 34** Update the circuit pack load inventory for each SPM scheduled for an upgrade during the maintenance window:

```
> POS SPM <spm_no> <shelf_ID> <slot_no>
```

Example input:

```
> POS SPM 21 1 1
```

Example response:

```
SPM 21 1 1 DLC 0 1 WORKING(SYSB CR RPT)(MANB MJ
RPT)
```

```
(ISTB MN RPT)(PROTFAIL CR RPT)(PATCHFAIL CR RPT)
$
```

```
NLX72AA          06      DLC16DI
```

- 35** Update the appropriate circuit pack load names to match the new loads in the upgrade:

```
> CHA LOAD <load_name>
```

Example input:

```
> CHA LOAD DLC17DI
```

- 36** Confirm the system prompt:

```
> Y
```

Go to [step 38](#).

- 37** For each new load file, update the file name to reflect the new load values

Example

The following example changes the load file name and backup load file name from DLC17DI_010086A1 to DLC17DI_010086A2.

```
> POS DLC17DI
    DLC17DI
```

```
DLC17DI_010086A1      S00DPMLOADS
DLC17DI_010086A1      S00DPMLOADS

> CHA
ACTFILE: DLC17DI_010086A1
> DLC17DI_010086A2
ACTVOL: S00DPMLOADS
>
BKPFIL: DLC17DI_010086A1
> DLC17DI_010086A2
BKPVOL: S00DPMLOADS
>
UPDACT: N
>
TUPLE TO BE CHANGED:
      DLC17DI
DLC17DI_010086A2      S00DPMLOADS
DLC17DI_010086A2      S00DPMLOADS      N
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
> Y
TUPLE CHANGED
```

- 38** Stop the terminal response from printing:
> **RECORD STOP ONTO printer**
- 39** You have successfully completed this procedure. Go to the procedure [Perform a manual upgrade or downgrade on page 27.](#)

Perform a manual upgrade or downgrade

The table below, [Variable abbreviations](#), defines the variables used in this procedure.

Variable abbreviations

Abbreviation	Definition
carr_type	The carrier type (in hierarchical order): <ul style="list-style-type: none"> • OC3S • STS3L • STS1P • VT15P • DS1P
spm_no	The number of the SPM (0 to 85).

Throughout the upgrade procedure, press the Enter key on the keyboard after the command has been entered.

At the CI level of the MAP display

1 Complete the procedure [Prepare a manual upgrade or downgrade on page 15](#).

2 Post the SPM designated for an upgrade:

```
> MAPCI;MTC;PM;POST SPM <spm_no>
```

Example input:

```
> MAPCI;MTC;PM;POST SPM 23
```

3 Check for alarms on the SPM node and circuit packs:

Alarm Source	Command
SPM node	> LISTALM
circuit pack	> QUERYPM FLT

4 Clear alarms, other than ISTB alarms, before continuing.

If the alarm listings show	Do
alarms other than ISTB alarm	step 5
no alarms, or ISTB alarms only	step 5

- 5 Check and record the carrier status on the SPM designated for an upgrade:

```
> TRKS;CARRIER;POST <spm_no> <carr_type>
```

Example inputs:

```
> TRKS;CARRIER;POST 23 OC3S
```

```
> TRKS;CARRIER;POST 23 DS1P
```

Carrier status is checked throughout each stage of the upgrade procedure to determine if the upgrade has changed the status.

If performing	Do
an upgrade	step 6
a downgrade	step 7

- 6 Upgrade circuit packs by protection groups for each SPM that requires an upgrade. The order for upgrading circuit packs, and the procedures are below.

Note: The order for upgrading circuit packs is as follows: SRM, OC3, DSP, VSP, DLC and CEM.

If	Do
SRM	Upgrading or downgrading an SRM on page 31
OC3	Upgrade or downgrade an OC3 on page 40
DSP or VSP	Upgrading or downgrading a DSP/VSP on page 48
DLC	Upgrading or downgrading the DLC on page 56
CEM	Upgrading a CEM on page 63
After upgrading packs	step 10

- 7 The procedure for downgrading the CEM and DLC depends on whether downgrading to a different release or within the same release.

Note: The order for downgrading circuit packs is as follows: CEM, DLC, VSP, DSP, OC3 and SRM.

If downgrading to a	Do
different release (e.g. 16.0 to 15.8)	step 8
different version in the same release (e.g. 15.4 ->15.3)	step 9

- 8 Downgrade circuit packs to an earlier release as follows:

If	Do
CEM	Downgrading a CEM to an earlier release on page 72
DLC	Downgrading a DLC to an earlier release on page 87
VSP or DSP	Upgrading or downgrading the DLC on page 56
OC3	Upgrade or downgrade an OC3 on page 40
SRM	Upgrading or downgrading an SRM on page 31
After downgrading packs	step 10

- 9 Downgrade circuit packs to an earlier version within the same release as follows:

If	Do
CEM	Downgrading a CEM to an earlier version in the same release on page 80
DLC	Downgrading a DLC to an earlier release on page 87
DSP or VSP	Upgrading or downgrading a DSP/VSP on page 48
OC3	Upgrade or downgrade an OC3 on page 40
SRM	Upgrading or downgrading an SRM on page 31

- 10** When all circuit packs protection groups have been upgraded or downgraded, perform the procedure entitled [Post upgrade or downgrade process on page 70](#).

Upgrading or downgrading an SRM

Use this procedure to change the software load for a Synchronous Resource Module (SRM). The SRM provides the timing source for the switch.

Both of the SPMs with SRMs configured must be upgraded prior to upgrading the remaining SPMs. After upgrading the first SPM with SRM, immediately upgrade the second SPM with SRM. It is important to upgrade the SPMs with SRMs one after the other, not simultaneously.

The table below, [Variable abbreviations](#), defines the variables used in this procedure.

Variable abbreviations

Abbreviation	Definition
link_no	BITS link number (0 to 2)
patch_id	PRSU name
rm_no	Sync RM number
spm_no	Number of the SPM (0 to 85)

At the CI level of the MAP display

- 1 Access and monitor the switch timing links at the clock level of the MS to determine the STANDBY SRM:
> MAPCI;MTC;MS;CLOCK

Example of a MAP screen:

```

MS 0      .      Master      F      : :
MS 1      .      Slave       F      : :

Shelf 0
Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain
MS 0      . . . . . I - - - I - - - - - . - - . . . . .
MS 1      . . . . . I - - - I - - - - - F - - . . . . .

Card 02 Alm Stat %Adj Src | Car Stat Sp PM      RMTyp SSM
MS 0      . . Lkg +08.6 Lk0 | Lk0 Lck - SPM 022 SRM PRS
MS 1      . . Syn -00.8 Ms0 | Lk1 Smp - SPM 023 SRM PRS
Links Slipping: NA out of NA
MTC:
MS:
SHELF:
CLOCK:

```

Note: The active timing node is indicated by Lck in the Stat column. In this example, SPM 022 is the active SPM with SRM (the SRM that is providing the clocking reference to the MS). The upgrade must begin on SPM 023.

- 2 From a second window, post the SPM with the STANDBY SRM:

> MAPCI;MTC;PM;POST SPM <spm_no>

Example of a MAP screen for the dual shelf SPM:

```

SPM 23  INSV      Class: DMSCP
Shlfo SL A Stat  Shlfo SL A Stat  Shlfl SL A Stat  Shlfl SL A Stat
DSP 2  1 A Insv  CEM 1  8 I Insv  DLC 1  1 A Insv  --- -  8 - ----
DSP 4  2 A Insv  OC3 0  9 A Insv  --- -  2 - ----  --- -  9 - ----
DSP 1  3 I Insv  OC3 1 10 I Insv  --- -  3 - ----  --- - 10 - ----
DSP 3  4 A Insv  VSP 2 11 A Insv  --- -  4 - ----  --- - 11 - ----
--- -  5 - ----  VSP 4 12 A Insv  --- -  5 - ----  --- - 12 - ----
SRM 0  6 A ISTb VSP 1 13 I Insv  --- -  6 - ----  --- - 13 - ----
CEM 0  7 A Insv  VSP 0 14 A Insv  DLC 2  7 I Insv  --- - 14 - ----

```

Example of a MAP screen for the double density SPM:

```

SPM 23  INSV      Class: DMSCP
Shlfo SL A Stat  Shlfo SL A Stat
DSP 2  1 A Insv  CEM 1  8 I Insv
DLC 1  2 A Insv  OC3 0  9 A Insv
DSP 1  3 I Insv  OC3 1 10 I Insv
DLC 2  4 I Insv  VSP 2 11 A Insv
--- -  5 - ----  VSP 4 12 A Insv
SRM 0  6 A ISTb VSP 1 13 I Insv
CEM 0  7 A Insv  VSP 0 14 A Insv

```

- 3 Access the SRM card:

> SELECT SRM 0

Example of a MAP screen:

```
Interface:
Loc : Row D FrPos 1 ShPos 6 ShId 0 Slot 6 Prot Grp : 1
Default Load: SYN17EF Prot Role: Working
```

- 4 Ensure that the SRM is in an ISTB condition with the new load listed as default:

> QUERYMOD

Example of a MAP screen:

```
SPM 23 SRM 0 Query: Request has been submitted.
SRM 0 ISTb Act Loc: Row D FrPos 1 ShPos 6 ShId 0 Slot 6

Default Load: SYN17EF Actual Load: SYN17EDD
```

- 5 Access the BITS link level:

> BITS

Example of a MAP screen:

```
SPM 23 SRM 0
LinkNo BitsName Status State SSM AlmSev
0 BITSA Act InSv PRS
1 BITSB InAct InSv PRS
. 2 BITSOUT Uneq NIL
BITS:
```

- 6 Record the BITS link numbers associated with the SRM and the state of each link.

- 7 Manual busy (ManB) the inactive BITS links:

> BSY link_no

Example input:

> BSY 1

Example response:

```
Busy:Request has been Submitted.
Busy:Command Completed.State Change has passed.
```

- 8 Force the active BITS links to ManB:

> BSY <link_no> FORCE

Example input:

> BSY 0 FORCE

Example response:

```
WARNING: BITSB Link is a Timing Link.
```

- Do you want to BUSY this Link.
Please confirm ("YES", "Y", "NO", or "N"):
- 9** At the confirmation prompt, enter:
> Y
Example response:
Busy:Request has been Submitted.
Busy:Command Completed.State Change has passed.
- 10** Return to the SRM level:
> QUIT
- 11** Force the SRM to ManB:
> BSY FORCE
Example response:
WARNING: This RM provides timing information.
Bsyng out this RM might result in loss of Synchronization.
A Bsy action may impact services on this node.
Do you wish to continue?
Please confirm ("YES", "Y", "NO", or "N"):
- 12** At the confirmation prompt, enter:
> Y
Example response:
SRM Busy:Request has been Submitted.
SRM Busy:Command Completed.
- 13** Load the SRM with the new load:
> LOADMOD
Example response:
Please confirm ("YES", "Y", "NO", or "N"):
- | If the loadname is | Do |
|---------------------------|-------------------------|
| not in the SPMLDVAL table | step 14 |
| in the SPMLDVAL table | step 15 |
- 14** At the confirmation prompt, continue:
> Y

Example response:

```
***WARNING:Table SPMLDVAL is not datafilled for
this loadname. Contact your next level of
support before proceeding with upgrade. Do you
want to continue without datafilling the table?
Please confirm ("YES", "Y", "NO", or "N"):
```

Example of MAP response:

```
>y
*** WARNING: Table SPMLDVAL is not datafilled for this loadname. Contact
your next level of support before proceeding with upgrade. Do you want to
continue without datafilling the table?
Please confirm ("YES", "Y", "NO", or "N"):
```

Note: Continuing the upgrade when the loadname is not in the SPMLDVAL table prevents that load from being available in that table for future reference.

If choosing to	Do
continue	step 15
update the SPMLDVAL table	Stop the upgrade and contact your next level of support.

- 15** At the confirmation prompt, enter:

```
> Y
```

Example response:

```
SRM Load:Request has been submitted.
SRM Load: Command Completed. Command Passed
```

If the SRM device is the	Do
first for the office	step 16
second for the office	step 23

- 16** Open a third window and access the PRSM tool:

```
> PRSM
```

- 17** Ensure that PRSM recognizes any pre-applied PRSUs and has found all applied PRSU files:

```
> DBAUDIT SPM <spm_no> SRM <rm_no>
```

Example input:

```
> DBAUDIT SPM 23 SRM 0
```

Example of MAP response:

```
Database audit submitted for 1 DESTs
Auditing destination SPM 23 SRM 0 ...
Database audit completed for 1 DEST
Database audit completed for 1 DEST
Database discrepancy found in 0 DESTs
```

18 Determine if PRSM found all patch files built into the PPSL:

```
> SELECT PRSUID CATEGORY STATUS BUILTIN FROM
DESTSET SPM <spm_no> SRM <rm_no>
```

Note: An empty list appears for a non-PPSL load (the load is not pre-patched).

Example of MAP response:

```
>select prsuid category status builtin from destset spm 23 srm 0
PRSUID  CAT  ST  BUILTIN
-----
TAB51S0P  GEN  A  Y
BUZ80S0P  GEN  A  Y
CTC51S0P  GEN  A  Y
DXH62S0P  GEN  A  Y
DXH63S0P  GEN  A  Y
JXM65S0P  GEN  A  Y
KAA01S0P  GEN  A  Y
KRI62S0P  GEN  A  Y
LLH11S0P  GEN  A  Y
SBF80S0P  GEN  A  Y
SBF90S0P  GEN  A  Y
TAV54S0P  GEN  A  Y
```

Note: An unknown category is displayed as question marks (???) if PRSM cannot locate PRSU files in a PPSL during the first dbaudit of a newly loaded SPM device. This situation does not occur if all PRSU files have been placed in a volume defined in table PADNDEV as instructed in the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

If this situation does occur, use the validate command in PRSM for each PRSU with a category of ??? in at least one applicable DEST. For example:

```
> VALIDATE ABC30S0Q IN SPM 23 SRM 0
```

Before proceeding to the next device type, ensure that all patch files are placed in the PADNDEV table-defined volume according to the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

- 19 If required, patch the SRM device.

If patches for the load file	Do
are required	step 20
are not required	step 21

Note: The required patches were printed in [step 18](#) of the procedure entitled [Prepare a manual upgrade or downgrade on page 15](#).

- 20 Apply the patches:

```
> APPLY '<patch_id> | <patch_id> | <patch_id> IN SPM
<spm_no> SRM <rm_no>
```

Example input:

```
> APPLY 'ABC05513 | DEF10513 | GHI45513 IN SPM 23
SRM 0
```

If additional patches to apply	Do
yes	step 20
no	step 21

- 21 Ensure that the SRM is correctly patched:

```
> REPORT DEST SPM <spm_no> SRM <rm_no>
```

Example input:

```
> REPORT DEST SPM 23 SRM 0
```

Note 1: For the first SRM, the output combines the PSRUs applied in [step 20](#) and the pre-applied PRSUs displayed in [step 18](#).

Note 2: For the second SRM, the list of patches must be identical to the list obtained for the first SRM.

Example of MAP response

```
REPORT DEST SPM 23 SRM 0
PRSUID      STATDATE STATT CAT ACT ST LOADNAME H DESTID
-----
ABC05S13    20020915 23:29 GEN A SRM17BU N SPM 23 SRM 0
DEF10S13    20020915 23:33 GEN A SRM17BU N SPM 23 SRM 0
GHI45S13    20020915 23:36 GEN A SRM17BU N SPM 23 SRM 0
TAB51S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
CTC51S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
BUZ80S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
DXH63S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
DXH62S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
JXM65S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
KAA01S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
KRI62S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
LLH11S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
SBF80S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
SBF90S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
TAV54S0P    20020915 23:10 GEN A SRM17BU N SPM 23 SRM 0
```

22 Exit the PRSM tool:

> QUIT

23 From the second window opened in [step 2](#), return the SRM to service:

> RTS

Example response:

```
SPM SRM RTS: Request has been submitted.
SPM SRM RTS: Command Completed.
```

24 Access the BITS level:

> BITS

25 Restore the BITS links to service:

>RTS <link_no>

Example input:

> RTS 0

> RTS 1

The links change from InAct ManB to Act InSv and InAct InSv.

26 Return to the SPM level:

> QUIT

27 Return to the posted node level:

> QUIT

28 Display alarms on the SPM:

> QUERYPM FLT

29 Display alarms on the SPM:

> **LISTALM**

30 If new alarms were introduced during this procedure, clear the alarms using procedures in the Fault Management section.

If the SRM load is	Do
---------------------------	-----------

the first for the office	step 31
--------------------------	-------------------------

the second for the office	step 33
---------------------------	-------------------------

31 From the original window in [step 1](#), switch the SRM from ACTIVE to STANDBY:

> **SWCARR**

32 Go to [step 1](#) and repeat [step 1](#) to [step 31](#) for the second SRM.

33 The SRM circuit pack protection group upgrade or downgrade is completed.

If	Do
-----------	-----------

upgrading	Upgrade or downgrade an OC3 on page 40
-----------	--

downgrading	Post upgrade or downgrade process on page 70
-------------	--

Upgrade or downgrade an OC3

This procedure requires:

- in-service loading of the inactive OC3
- switching activity between the inactive and the active OC3
- loading the inactive OC3
- switching activity to return OC3s to original locations

A warning appears on the MAP display if an attempted Manual Insv / Mate LOADMOD or Manual / Force command is executed on an OC3 when one of the following conditions exists:

- a section carrier is SYSB
- a line carrier is SYSB
- a path carrier is SYSB
- an INSV section carrier is in alarm
- an INSV line carrier is in alarm
- carrier datafill is missing for the STS1P

Executing the command type and overriding the MAP warning generates an SPM686 log.

The following [Variable abbreviations](#) table defines the variables used in this procedure.

Variable abbreviations

Abbreviation	Definition
act_rm	number of an active OC3 RM
inact_rm	number of the inactive OC3 RM
patch_id	PRSU name
rm_no	OC3 resource module (RM) number
spm_no	number of the SPM (0 to 85)

At the CI level of the MAP display

- 1 If not already posted, post the SPM:
 > **MAPCI;MTC;PM;POST SPM <spm_no>**
- 2 Record the unit number and shelf number of the inactive OC3 in the circuit pack protection group.
- 3 Select the inactive OC3:
 > **SELECT OC3 inact_rm**
Example input:
 > **SELECT OC3 1**
 Both OC3s are in an ISTb status due to the load name change made in the MNCKTPAK table.
- 4 Ensure that the OC3 is ISTB and inactive:
 > **QUERYMOD**
Note: The default load is the new load and, the actual load is the load scheduled for change.

Example of MAP display:

```
SPM 23 OC3 1 Query: Request has been submitted.
OC3 1 ISTb InAct Loc: Row CC FrPos 28 ShPos 0 ShId 0 Slot 10
Default Load: OC318BI Actual Load: OC317BU
```

- 5 In-service load the inactive RM:
 > **LOADMOD INSVLD**
 During execution of the command, the RM automatically goes to a SysB state and then returns to service.

If the loadname is	Do
not in the SPMLDVAL table	step 6
in the SPMLDVAL table	step 7

6 Continue at the confirmation prompt:

> **Y**

Example of MAP response:

>y

*** WARNING: Table SPMLDVAL is not datafilled for this loadname. Contact your next level of support before proceeding with upgrade. Do you want to continue without datafilling the table?

Please confirm ("YES", "Y", "NO", or "N"):

If choosing to	Do
continue	step 7
update the SPMLDVAL table	stop the upgrade and contact the next level of support

Note: Continuing the upgrade when the loadname is not in the SPMLDVAL table prevents that load from being available in that table for future reference.

7 Continue at the confirmation prompt:

> **Y**

Example of MAP response:

SPM 23 OC3 1 Load: Request has been submitted.
SPM 23 OC3 1 Load: Command completed. Command passed.

If the OC3 device is	Do
the first for this office	step 8
not the first for this office	step 14

8 Open a second window and access the PRSM tool:

> **PRSM**

- 9 Ensure that PRSM recognizes any pre-applied PRSUs and has found all applied PRSU files:

```
> DBAUDIT SPM <spm_no> OC3 <rm_no>
```

Example input:

```
> DBAUDIT SPM 23 OC3 1
```

Example of MAP response:

```
Database audit submitted for 1 DESTs
Auditing destination SPM 23 OC3 1...
Database audit completed for 1 DEST
Database audit completed for 1 DEST
Database discrepancy found in 0 DESTs
```

- 10 Determine if PRSM found all patch files built into the PPSL:

```
> SELECT PRSUID CATEGORY STATUS BUILTIN FROM
DESTSET SPM <spm_no> OC3 <rm_no>
```

Example of MAP response:

```
>select prsuid category status builtin from destset spm 23 oc3 1
PRSUID  CAT  ST  BUILTIN
-----
TAB51S0P  GEN  A  Y
BUZ80S0P  GEN  A  Y
CTC51S0P  GEN  A  Y
DXH62S0P  GEN  A  Y
DXH63S0P  GEN  A  Y
JXM65S0P  GEN  A  Y
KAA01S0P  GEN  A  Y
KRI62S0P  GEN  A  Y
LLH11S0P  GEN  A  Y
SBF80S0P  GEN  A  Y
SBF90S0P  GEN  A  Y
TAV54S0P  GEN  A  Y
```

Note: An empty list appears for a non-PPSL load (the load is not pre-patched).

An unknown category is displayed as question marks (???) if PRSM cannot locate PRSU files in a PPSL during the first dbaudit of a newly loaded SPM device. This situation does not occur if all PRSU files have been placed in a volume defined in table PADNDEV as instructed in the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

If this situation occurs, use the validate command in PRSM for each PRSU with a category of ??? in at least one applicable DEST. For example:

```
> VALIDATE ABC30S0Q IN SPM 23 OC3 1
```

Before proceeding to the next device type, ensure that all patch files are placed in the PADNDEV table-defined volume

according to the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

- 11 If required, patch the OC3 device.

If RM patches for the RM load file	Do
---	-----------

are required	step 12
--------------	-------------------------

are not required	step 14
------------------	-------------------------

Note: The required patches were printed in [step 18](#) of the procedure entitled [Prepare a manual upgrade or downgrade on page 15](#).

- 12 Apply the patches:

```
> APPLY '<patch_id> | <patch_id> | <patch_id> IN
SPM <spm_no> OC3 <inact_rm>
```

Example input:

```
> APPLY 'ABC05513 | DEF10513 | GHI45513 IN SPM
23 OC3 1
```

Note: Repeat the command as necessary to apply additional patches.

- 13 Ensure that the inactive OC3 was correctly patched:

```
> REPORT DEST SPM <spm_no> OC3 <inact_rm>
```

Example input:

```
> REPORT DEST SPM 23 OC3 1
```

Note: The output is the combination of the PSRUs applied in [step 12](#) and the pre-applied PRSUs displayed in [step 10](#).

Example of MAP response:

```

REPORT DEST SPM 23 OC3 1
PRSUID      STATDATE STATT CAT ACT ST LOADNAME H DESTID
-----
ABC05S13   20020915 23:29 GEN A OC317BU N SPM 23 OC3 1
DEF10S13   20020915 23:33 GEN A OC317BU N SPM 23 OC3 1
GHI45S13   20020915 23:36 GEN A OC317BU N SPM 23 OC3 1
TAB51S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1
CTC51S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1
BUZ80S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1
DXH63S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1
DXH62S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1
JXM65S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1
KAA01S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1
KRI62S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1
LLH11S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1
SBF80S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1
SBF90S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1
TAV54S0P   20020915 23:10 GEN A OC317BU N SPM 23 OC3 1

```

- 14 From the original window, access the protection level of the MAP:

```
> PROT
```

- 15 Switch activities from the active OC3 to the inactive OC3:

```
> MANUAL act_rm inact_rm
```

Example input:

```
> MANUAL 0 1
```

- 16 Confirm the system prompt:

```
> Y
```

The active OC3 becomes the inactive OC3 and the former inactive (upgraded) OC3 becomes active.

- 17 Exit the PROT level:

```
> QUIT
```

- 18 Select the inactive OC3:

```
>SELECT OC3 <inact_rm
```

Example input:

```
> SELECT OC3 0
```

- 19 Ensure that the OC3 is ISTb and inactive:

```
> QUERYMOD
```

- 20 Mate-load the inactive OC3 from its mate:

```
> LOADMOD MATE <act_rm>
```

Example input:

```
> LOADMOD MATE 1
```

During execution of the command, the RM automatically goes to a SysB state, and then returns to service.

21 At the confirmation prompt, continue:

```
> Y
```

Example of MAP response:

```
SPM 23 OC3 0 Load: Request has been submitted.
SPM 23 OC3 0 Load: Command completed. Command passed.
```

22 From the second window running the PRSM tool, ensure that SPARTS has correctly patched the RM:

```
> REPORT DEST SPM spm_no OC3 inact_rm
```

Example input:

```
> REPORT DEST SPM 23 OC3 0
```

Note: The resulting list must be the list obtained in [step 13](#).

Example of MAP response:

```
REPORT DEST SPM 23 OC3 0
PRSUID      STATDATE STATT CAT ACT ST LOADNAME H DESTID
-----
ABC05S13    20020915 23:29 GEN A OC317BU N SPM 23 OC3 0
DEF10S13    20020915 23:33 GEN A OC317BU N SPM 23 OC3 0
GHI45S13    20020915 23:36 GEN A OC317BU N SPM 23 OC3 0
TAB51S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
CTC51S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
BUZ80S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
DXH63S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
DXH62S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
JXM65S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
KAA01S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
KRI62S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
LLH11S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
SBF80S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
SBF90S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
TAV54S0P    20020915 23:10 GEN A OC317BU N SPM 23 OC3 0
```

- 23** Ensure that any patch failures are corrected:
- ```
> ISTBAUDIT SPM spm_no OC3 inact_rm
```
- Example input:*
- ```
> ISTBAUDIT SPM 23 OC3 0
```

Example of MAP response:

This DEST set does not have any patch-related problems.

- 24** Exit the PRSM tool:
- ```
> QUIT
```
- 25** From the original window, access the protection level of the MAP:
- ```
> PROT
```
- 26** Switch activities from the active OC3 to the inactive OC3:
- ```
> MANUAL <act_rm> <inact_rm>
```
- Example input:*
- ```
> MANUAL 1 0
```
- 27** Confirm the system prompt:
- ```
> Y
```
- 28** The OC3 circuit pack upgrade is completed.

| If          | Do                                                            |
|-------------|---------------------------------------------------------------|
| upgrading   | <a href="#">Upgrading or downgrading a DSP/VSP on page 48</a> |
| downgrading | <a href="#">Upgrading or downgrading an SRM on page 31</a>    |

## Upgrading or downgrading a DSP/VSP

In summary, use this upgrade procedure to:

- in-service load the inactive DSP
- switch activity between the inactive and an active DSP
- load the inactive DSP
- switch activity again to return resources to original locations

This procedure applies to both DSP and VSP RMs. If upgrading or downgrading VSP RMs, substitute the abbreviation DSP for VSP.

- If upgrading an LX66 VSP, use a DSP load.
- If upgrading or downgrading an LX85 or LX86 VSP, use a COH load

Only DSP loads have builtin patches and can be patched through PRSM.

The following table, [Variable abbreviations](#), lists the variables used in this procedure.

### Variable abbreviations

| Abbreviation | Definition                          |
|--------------|-------------------------------------|
| act_rm       | Number of an active DSP/VSP RM      |
| inact_rm     | Number of the inactive DSP/VSP RM   |
| prsu_id      | PRSU name                           |
| rm_no        | DSP/VSP resource module (RM) number |
| spm_no       | Number of the SPM (0 to 85)         |

**At the CI level of the MAP display**

1 If not already posted, post the SPM:

```
> MAPCI;MTC;PM;POST SPM <spm_no>
```

*Example input:*

```
>MAPCI;MTC;PM;POST SPM 23
```

2 Record the

- unit number, and shelf number of the inactive DSP in the circuit pack protection group
- number of the inactive CEM

3 Select the inactive DSP:

```
> SELECT DSP inact_rm
```

*Example input:*

```
> SELECT DSP 1
```

**Note:** The DSP is in an ISTb status due to the load name change made in the MNCKTPAK table.

4 Ensure that the DSP is ISTB and inactive:

```
> QUERYMOD
```

**Note:** The default load is the new load and the actual load is the load scheduled for change.

**Example of MAP display**

```
SPM 23 DSP 1 Query: Request has been submitted.
DSP 1 ISTb InAct Loc: Row E FrPos 0 ShPos 21 ShId 1 Slot 2
Default Load: DSP17BV Actual Load: DSP16DI
```

5 In-service load the inactive RM:

```
> LOADMOD INSVLD
```

During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state, and then returns to service.

| If the loadname is        | Do                     |
|---------------------------|------------------------|
| not in the SPMLDVAL table | <a href="#">step 6</a> |
| in the SPMLDVAL table     | <a href="#">step 7</a> |

6 At the confirmation prompt, continue:

```
> Y
```

**Example of MAP response:**

```
>y
*** WARNING: Table SPMLDVAL is not datafilled for this loadname. Contact
your next level of support before proceeding with upgrade. Do you want to
continue without datafilling the table?
```

Please confirm ("YES", "Y", "NO", or "N"):

| If choosing to            | Do                                                     |
|---------------------------|--------------------------------------------------------|
| continue                  | <a href="#">step 7</a>                                 |
| update the SPMLDVAL table | stop the upgrade and contact the next level of support |

**Note:** Continuing the upgrade when the loadname is not in the SPMLDVAL table means that the load is not available through that table for future use.

7 At the confirmation prompt, continue:

```
> Y
```

**Example of MAP response**

```
SPM 23 DSP 1 Load: Request has been submitted.
SPM 23 DSP 1 Load: Command completed. Command passed.
```

| If the DSP/VSP device is      | Do                      |
|-------------------------------|-------------------------|
| the first for this office     | <a href="#">step 8</a>  |
| not the first for this office | <a href="#">step 13</a> |

8 From a second window, start the PRSM tool:

```
> PRSM
```

9 Ensure that PRSM recognizes any pre-applied PRSUs and has found all applied PRSU files:

```
> DBAUDIT SPM <spm_no> DSP <rm_no>
```

*Example input:*

```
> DBAUDIT SPM 23 DSP 1
```

**Example of MAP response**

```
Database audit submitted for 1 DESTs
Auditing destination SPM 23 DSP 1...
Database audit completed for 1 DEST
Database audit completed for 1 DEST
Database discrepancy found in 0 DESTs
```

**10** Determine if PRSM found all patch files built into the PPSL:

```
> SELECT PRSUID CATEGORY STATUS BUILTIN FROM
 DESTSET SPM <spm_no> DSP <inact_rm>
```

**Example of MAP response:**

```
>select prsuid category status builtin from destset spm 23 dsp 1
PRSUID CAT ST BUILTIN

TAB51S0P GEN A Y
BUZ80S0P GEN A Y
CTC51S0P GEN A Y
DXH62S0P GEN A Y
DXH63S0P GEN A Y
JXM65S0P GEN A Y
KAA01S0P GEN A Y
KRI62S0P GEN A Y
LLH11S0P GEN A Y
SBF80S0P GEN A Y
SBF90S0P GEN A Y
TAV54S0P GEN A Y
```

**Note:** An empty list appears for a non-PPSL load, meaning that the load is not pre-patched.

An unknown category is displayed as question marks (???) if PRSM cannot locate PRSU files in a PPSL during the first dbaudit of a newly loaded SPM device. This situation does not occur if all PRSU files have been placed in a PADNDEV table defined volume as instructed in the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

If this situation does occur, use the validate command in PRSM for each PRSU with a category of ??? in at least one applicable DEST. For example:

```
> VALIDATE ABC30S0Q IN SPM 23 DSP 1
```

Before proceeding to the next device type, ensure that all patch files are placed in the PADNDEV table defined volume according to the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

**11** If required, patch the DSP load file.

| If patches are                 | Do                      |
|--------------------------------|-------------------------|
| required for the load file     | <a href="#">step 12</a> |
| not required for the load file | <a href="#">step 14</a> |

**Note:** The required patches were printed in [step 18](#) of the procedure entitled “Preparing an MG 4000 manual upgrade or downgrade”.

**12** Apply the patches:

```
> APPLY `<prsu_id> | <prsu_id> | <prsu_id> IN
SPM
 <spm_no> DSP <inact_rm>
```

*Example input:*

```
> APPLY `ABC05S13 | DEF10S13 | GHI45S13 IN
SPM 23 DSP 1
```

| If additional patches are | Do                      |
|---------------------------|-------------------------|
| required for installation | <a href="#">step 12</a> |
| installed                 | <a href="#">step 13</a> |

**13** Ensure that the inactive DSP is correctly patched:

```
> REPORT DEST SPM <spm_no> DSP <inact_rm>
```

*Example input:*

```
> REPORT DEST SPM 23 DSP 1
```

**Note:** The output should be the combination of the PSRUs applied in [step 12](#) and the pre-applied PRSUs displayed in [step 10](#).

**Example of MAP response**

```
REPORT DEST SPM 23 DSP 1
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A DSP17BU N SPM 23 DSP 1
DEF10S13 20020915 23:33 GEN A DSP17BU N SPM 23 DSP 1
GHI45S13 20020915 23:36 GEN A DSP17BU N SPM 23 DSP 1
TAB51S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
CTC51S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
BUZ80S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
DXH63S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
DXH62S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
JXM65S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
KAA01S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
KRI62S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
LLH11S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
SBF80S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
SBF90S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
TAV54S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 1
```

**14** From the original window, access the protection level of the MAP:

```
> PROT
```

**15** Switch activities from an active (non-upgraded) DSP to the inactive DSP:

```
> MANUAL <act_rm> <inact_rm>
```

*Example input:*

```
> MANUAL 0 1
```

- 16 Confirm the system prompt:

```
> Y
```

The active (not upgraded) DSP becomes the inactive DSP, and the former inactive (upgraded) DSP becomes the active DSP.

- 17 Exit the PROT level:

```
> QUIT
```

- 18 Select the inactive DSP:

```
> SELECT DSP <inact_rm>
```

*Example input:*

```
> SELECT DSP 0
```

- 19 Ensure that the DSP is ISTb and inactive:

```
> QUERYMOD
```

- 20 Mate-load the inactive DSP from its mate:

```
> LOADMOD MATE <act_rm>
```

*Example input:*

```
> LOADMOD MATE 1
```

During execution of the command, the RM automatically goes to a SysB state, and returns to service.

- 21 At the confirmation prompt, continue:

```
> Y
```

### Example of MAP response:

```
SPM 23 DSP 0 Load: Request has been submitted.
SPM 23 DSP 0 Load: Command completed. Command passed.
```

- 22 From the second window running the PRSM tool, ensure that SPARTS correctly patched the RM:

```
> REPORT DEST SPM <spm_no> DSP <inact_rm>
```

*Example input:*

```
> REPORT DEST SPM 23 DSP 0
```

**Note:** The resulting list must match the list obtained in [step 13](#).

**Example of MAP response:**

```

REPORT DEST SPM 23 DSP 0
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A DSP17BU N SPM 23 DSP 0
DEF10S13 20020915 23:33 GEN A DSP17BU N SPM 23 DSP 0
GHI45S13 20020915 23:36 GEN A DSP17BU N SPM 23 DSP 0
TAB51S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0
CTC51S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0
BUZ80S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0
DXH63S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0
DXH62S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0
JXM65S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0
KAA01S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0
KRI62S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0
LLH11S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0
SBF80S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0
SBF90S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0
TAV54S0P 20020915 23:10 GEN A DSP17BU N SPM 23 DSP 0

```

**23** Ensure that any patch failures are corrected:

```
> ISTBAUDIT SPM <spm_no> DSP <inact_rm>
```

*Example input:*

```
> ISTBAUDIT SPM 23 DSP 0
```

**Example of MAP response:**

This DEST set does not have any patch-related problems.

**24** Exit the PRSM tool:

```
> QUIT
```

**25** From the original window, access the protection level of the MAP:

```
> PROT
```

**26** Switch activities from the active DSP to become the inactive DSP:

```
> MANUAL <act_rm> <inact_rm>
```

*Example input:*

```
> MANUAL 1 0
```

**27** Confirm the system prompt:

```
> Y
```

**28** Repeat [step 14](#) to [step 27](#) for all other DSP RMs in the same protection group.**29** Display alarms on the SPM:

```
> QUERYPM FLT
```

**30** Display alarms on the SPM:

> **LISTALM**

If new alarms were introduced during this procedure, clear the alarms using procedures in the Fault Management section.

---

**If upgrading****Do**

DSPs

[step 1](#) for any additional protection groups or VSPs that require upgrades otherwise [step 31](#)

VSPs

[step 1](#) for any additional protection groups or DSPs that require upgrades otherwise [step 31](#)

---

**31** The DSP circuit pack upgrade or downgrade is completed.

---

**If****Do**

upgrading

[Upgrading or downgrading the DLC on page 56](#)

downgrading

[Upgrade or downgrade an OC3 on page 40](#)

## Upgrading or downgrading the DLC

In summary, use this upgrade procedure to:

- in-service load the inactive RM
- switch activity between the inactive and the active RM
- mate-load from the upgraded RM to the inactive RM
- switch activity to return the DLC packs to original configurations

The [Variable abbreviations](#) table defines the variables used in this procedure.

### Variable abbreviations

| Abbreviation | Definition                      |
|--------------|---------------------------------|
| act_rm       | Number of an active DLC RM      |
| inact_rm     | Number of the inactive DLC RM   |
| prsu_id      | PRSU name                       |
| rm_no        | DLC resource module (RM) number |
| spm_no       | Number of the SPM (0 to 85)     |

### Upgrading or downgrading the DLC

#### *At the CI level of the MAP display*

- 1 If not already posted, post the SPM:  
**> MAPCI;MTC;PM;POST SPM <spm\_no>**  
*Example input:*  
**> MAPCI;MTC;PM;POST SPM 23**
- 2 Record the unit number and shelf number of the inactive DLC in the circuit pack protection group. Also record the number of the inactive CEM.

- 3 Select the inactive DLC:  
**> SELECT DLC <inact\_rm>**

*Example input:*

**> SELECT DLC 1**

Both DLCs are in an ISTb status due to the load name change made in the MNCKTPAK table.

- 4 Ensure that the DLC is ISTB and inactive:  
**> QUERYMOD**

**Note:** The Default Load is the new load, and the Actual Load is the load scheduled for change.

*Example of MAP display:*

```
SPM 23 DLC 1 Query: Request has been submitted.
DLC 1 ISTb InAct Loc: Row E FrPos 0 ShPos 21 ShId 1 Slot 2
Default Load:DLC17BV Actual Load: DLC16DI
```

- 5 In-service load the inactive DLC:

**>LOADMOD INSVLD**

During execution of the LOADMOD INSVLD command, the RM temporarily goes to a SysB state, and returns to service.

| If the loadname is        | Do                     |
|---------------------------|------------------------|
| not in the SPMLDVAL table | <a href="#">step 6</a> |
| in the SPMLDVAL table     | <a href="#">step 7</a> |

- 6 At the confirmation prompt, continue:  
**> Y**

*Example of MAP response:*

```
>y
*** WARNING: Table SPMLDVAL is not datafilled for this loadname. Contact
your next level of support before proceeding with upgrade. Do you want to
continue without datafilling the table?
```

Please confirm ("YES", "Y", "NO", or "N"):

| If choosing to            | Do                                                     |
|---------------------------|--------------------------------------------------------|
| continue                  | <a href="#">step 7</a>                                 |
| update the SPMLDVAL table | stop the upgrade and contact the next level of support |

7 At the confirmation prompt, continue:

> Y

*Example of MAP response:*

```
SPM 23 DLC 1 Load: Request has been submitted.
SPM 23 DLC 1 Load: Command completed. Command passed.
```

| If the DLC load is            | Do                      |
|-------------------------------|-------------------------|
| the first for this office     | <a href="#">step 8</a>  |
| not the first for this office | <a href="#">step 14</a> |

8 Open a second window and access the PRSM tool:

> PRSM

9 Ensure that PRSM recognizes any pre-applied PRSUs and has found all applied PRSU files:

> DBAUDIT SPM <spm\_no> DLC <inact\_rm>

*Example input:*

> DBAUDIT SPM 23 DLC 1

**Example of MAP response**

```
Database audit submitted for 1 DESTs
Auditing destination SPM 23 DLC 1....
Database audit completed for 1 DEST
Database audit completed for 1 DEST
Database discrepancy found in 0 DESTs
```

10 Identify if PRSM found all patch files built into the PPSL:

> SELECT PRSUID CATEGORY STATUS BUILTIN FROM  
DESTSET SPM <spm\_no> DLC <inact\_rm>

*Example of MAP response:*

```
>select prsuid category status builtin from destset spm 23 dlc 1
PRSUID CAT ST BUILTIN

TAB51S0P GEN A Y
BUZ80S0P GEN A Y
CTC51S0P GEN A Y
DXH62S0P GEN A Y
DXH63S0P GEN A Y
JXM65S0P GEN A Y
KAA01S0P GEN A Y
KRI62S0P GEN A Y
LLH11S0P GEN A Y
SBF80S0P GEN A Y
SBF90S0P GEN A Y
TAV54S0P GEN A Y
```

**Note:** An empty list appears for a non-PPSL load (the load is not pre-patched).

An unknown category is displayed as question marks (???) if PRSM cannot locate PRSU files in a PPSL during the first dbaudit of a newly loaded SPM device. This situation does not occur if all PRSU files have been placed in a PADNDEV table defined volume as instructed in the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

If this situation occurs, use the validate command in PRSM for each PRSU with a category of ??? in at least one applicable DEST. For example:

```
> VALIDATE ABC30S0Q IN SPM 23 DLC 1
```

Before proceeding to the next device type, ensure that all patch files are placed in the PADNDEV table defined volume according to the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

- 11 If required, patch the DLC load file.

| If patches for the load file are | Do |
|----------------------------------|----|
|----------------------------------|----|

|          |                         |
|----------|-------------------------|
| required | <a href="#">step 12</a> |
|----------|-------------------------|

|              |                         |
|--------------|-------------------------|
| not required | <a href="#">step 14</a> |
|--------------|-------------------------|

**Note:** The required patches were printed in [step 18](#) of the procedure entitled [Prepare a manual upgrade or downgrade on page 15](#).

- 12 Apply the patches:

```
> APPLY '<prsu_id> | <prsu_id> | <prsu_id> IN
SPM <spm_no> DLC <inact_rm>
```

*Example input:*

```
> APPLY 'ABC05S13 | DEF10S13 | GHI45S13 IN SPM 23
DLC 1
```

| If | Do |
|----|----|
|----|----|

|                       |                         |
|-----------------------|-------------------------|
| more patches to apply | <a href="#">step 12</a> |
|-----------------------|-------------------------|

|                     |                         |
|---------------------|-------------------------|
| all patches applied | <a href="#">step 13</a> |
|---------------------|-------------------------|

- 13 Ensure that the inactive DLC has been correctly patched:

```
> REPORT DEST SPM <spm_no> DLC <inact_rm>
```

*Example input:*

**> REPORT DEST SPM 23 DLC 1**

**Note:** The output must be the combination of the PSRUs applied in [step 12](#) and the pre-applied PSRUs displayed in [step 10](#).

*Example of MAP response:*

```
REPORT DEST SPM 23 DLC 1
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A DLC17BU N SPM 23 DLC 1
DEF10S13 20020915 23:33 GEN A DLC17BU N SPM 23 DLC 1
GHI45S13 20020915 23:36 GEN A DLC17BU N SPM 23 DLC 1
TAB51S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
CTC51S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
BUZ80S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
DXH63S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
DXH62S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
JXM65S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
KAA01S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
KRI62S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
LLH11S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
SBF80S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
SBF90S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
TAV54S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
```

**14** From the original window, access the protection level of the MAP:

**> PROT**

**15** Switch activities from the active DLC to the inactive DLC:

**> MANUAL <act\_rm> <inact\_rm>**

*Example input:*

**> MANUAL 0 1**

**16** Confirm the system prompt:

**> Y**

The active DLC becomes the inactive DLC and the former inactive (upgraded) DLC becomes active.

**17** Exit the PROT level:

**> QUIT**

**18** Select the inactive DLC:

**> SELECT DLC inact\_rm**

*Example input:*

**> SELECT DLC 0**

19 Ensure that the DLC is ISTb and inactive:

> **QUERYMOD**

20 Mate-load the inactive DLC from its mate:

> **LOADMOD MATE <act\_rm>**

*Example input:*

> **LOADMOD MATE 1**

During execution of the command, the RM temporarily goes to a SysB state, and returns to service.

21 At the confirmation prompt, continue:

> **Y**

*Example of MAP response:*

```
SPM 23 DLC 0 Load: Request has been submitted.
SPM 23 DLC 0 Load: Command completed. Command passed.
```

22 From the second window running the PRSM tool, ensure that SPARTS correctly patched the RM:

> **REPORT DEST SPM <spm\_no> DLC <inact\_rm>**

*Example input:*

> **REPORT DEST SPM 23 DLC 0**

**Note:** The resulting list should match the list obtained in [step 13](#).

*Example of MAP response:*

```
REPORT DEST SPM 23 DLC 0
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A DLC17BU N SPM 23 DLC 0
DEF10S13 20020915 23:33 GEN A DLC17BU N SPM 23 DLC 0
GHI45S13 20020915 23:36 GEN A DLC17BU N SPM 23 DLC 0
TAB51S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
CTC51S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
BUZ80S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
DXH63S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
DXH62S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
JXM65S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
KAA01S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
KRI62S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
LLH11S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
SBF80S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
SBF90S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
TAV54S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
```

23 Ensure that any patch failures are corrected:

> **ISTBAUDIT SPM <spm\_no> DLC <inact\_rm>**

*Example input:*

**> ISTBAUDIT SPM 23 DLC 0**

*Example of MAP response:*

This DEST set does not have any patch-related problems.

**24** Exit the PRSM tool:

**> QUIT**

**25** From the original window, access the protection level of the MAP display:

**> PROT**

**26** Switch activities from the active DLC to the inactive DLC:

**> MANUAL <act\_rm> <inact\_rm>**

*Example input:*

**> MANUAL 1 0**

**27** Confirm the activity switching:

**> Y**

**28** The DLC circuit pack upgrade procedure is complete.

| <b>If</b>   | <b>Do</b>                                                     |
|-------------|---------------------------------------------------------------|
| upgrading   | <a href="#">Upgrading a CEM on page 63</a>                    |
| downgrading | <a href="#">Upgrading or downgrading a DSP/VSP on page 48</a> |

## Upgrading a CEM

In summary, use this upgrade procedure to:

- in-service load the inactive CEM
- switch activity between the inactive and the active CEM
- in-service load the inactive CEM
- switch activity to return the CEM packs to original configurations

The table below, [Variable abbreviations](#), defines the variables used in this procedure.

### Variable abbreviations

| Abbreviation | Definition                      |
|--------------|---------------------------------|
| act_rm       | Number of the active CEM RM     |
| inact_rm     | Number of the inactive CEM RM   |
| prsu_id      | PRSU name                       |
| rm_no        | CEM resource module (RM) number |
| spm_no       | Number of the SPM (0 to 85)     |

### At the CI level of the MAP display

1 If not already posted, post the SPM:

```
> MAPCI;MTC;PM;POST SPM <spm_no>
```

*Example input:*

```
> MAPCI;MTC;PM;POST SPM 23
```

2 Record the unit number and shelf number of the inactive CEM.

3 Select the inactive CEM (designated with an I):

```
> SELECT CEM <inact_rm>
```

*Example input:*

```
> SELECT CEM 1
```

**4** In-service load the inactive CEM:

```
> LOADMOD INSVLD
```

During execution of the command, the CEM temporarily goes to a SysB state, and returns to service.

| If the loadname is        | Do                     |
|---------------------------|------------------------|
| not in the SPMLDVAL table | <a href="#">step 5</a> |
| in the SPMLDVAL table     | <a href="#">step 6</a> |

**5** At the confirmation prompt, continue:

```
> Y
```

**Example of MAP response:**

```
>y
*** WARNING: Table SPMLDVAL is not datafilled for this loadname. Contact
your next level of support before proceeding with upgrade. Do you want to
continue without datafilling the table?
```

Please confirm ("YES", "Y", "NO", or "N"):

| If choosing to            | Do                                                     |
|---------------------------|--------------------------------------------------------|
| continue                  | <a href="#">step 6</a>                                 |
| update the SPMLDVAL table | stop the upgrade and contact the next level of support |

**Note:** Continuing the upgrade when the loadname is not in the SPMLDVAL table prevents that load from being available in that table for future reference.

**6** At the confirmation prompt, continue:

```
> Y
```

*Example of MAP response:*

```
SPM 23 CEM 1 Load: Request has been submitted.
SPM 23 CEM 1 Load: Command completed. Command passed.
```

| If the CEM load is            | Do                      |
|-------------------------------|-------------------------|
| the first for this office     | <a href="#">step 7</a>  |
| not the first for this office | <a href="#">step 13</a> |

**7** Open a second window and access the PRSM tool:

```
> PRSM
```

- 8 Ensure that PRSM recognizes any pre-applied PRSUs and has found all applied PRSU files:

```
> DBAUDIT SPM <spm_no> CEM <inact_rm>
```

*Example input:*

```
> DBAUDIT SPM 23 CEM 1
```

#### Example of MAP response:

```
Database audit submitted for 1 DESTs
Auditing destination SPM 23 CEM 1....
Database audit completed for 1 DEST
Database audit completed for 1 DEST
Database discrepancy found in 0 DESTs
```

- 9 Determine if PRSM found all patch files built into the PPSL:

```
> SELECT PRSUID CATEGORY STATUS BUILTIN FROM
DESTSET SPM <spm_no> CEM <rm_no>
```

#### Example of MAP response:

```
>select prsuid category status builtin from destset spm 23 cem 1
PRSUID CAT ST BUILTIN

TAB51S0P GEN A Y
BUZ80S0P GEN A Y
CTC51S0P GEN A Y
DXH62S0P GEN A Y
DXH63S0P GEN A Y
JXM65S0P GEN A Y
KAA01S0P GEN A Y
KRI62S0P GEN A Y
LLH11S0P GEN A Y
SBF80S0P GEN A Y
SBF90S0P GEN A Y
TAV54S0P GEN A Y
```

**Note:** An empty list appears for a non-PPSL load (the load is not pre-patched).

An unknown category is displayed as question marks (???) if PRSM cannot locate PRSU files in a PPSL during the first dbaudit of a newly loaded SPM device. This situation does not occur if all PRSU files have been placed in a volume defined by the PADNDEV table, as instructed in the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

If this situation occurs, use the validate command in PRSM for each PRSU with a category of ??? in at least one applicable DEST. For example:

```
> VALIDATE ABC30S0Q IN SPM 23 CEM 1
```

Before proceeding to the next device type, ensure that all patch files are placed in the PADNDEV table defined volume

according to the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

- 10** If required, patch the CEM load file.

| If RM patches                         | Do                      |
|---------------------------------------|-------------------------|
| are required for the RM load file     | <a href="#">step 11</a> |
| are not required for the RM load file | <a href="#">step 13</a> |

**Note:** The required patches were printed in [step 18](#) of the procedure entitled [Prepare a manual upgrade or downgrade on page 15](#).

- 11** Apply the patches:

```
> APPLY '<prsu_id> | <prsu_id> | <prsu_id> IN
 SPM <spm_no> CEM <inact_rm>
```

*Example input:*

```
> APPLY 'ABC05S13 | DEF10S13 | GHI45S13 IN
 SPM 23 CEM 1
```

| If                    | Do                      |
|-----------------------|-------------------------|
| more patches to apply | <a href="#">step 11</a> |
| all patches applied   | <a href="#">step 12</a> |

- 12** Ensure that the active CEM has been correctly patched:

```
> REPORT DEST SPM <spm_no> CEM <rm_no>
```

*Example input:*

```
> REPORT DEST SPM 23 CEM 1
```

**Note:** The output must be a combination of the PSRUs applied in [step 11](#) and the pre-applied PRSUs displayed in [step 9](#).

**Example of MAP response:**

```

REPORT DEST SPM 23 CEM 1
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A CEM17BU N SPM 23 CEM 1
DEF10S13 20020915 23:33 GEN A CEM17BU N SPM 23 CEM 1
GHI45S13 20020915 23:36 GEN A CEM17BU N SPM 23 CEM 1
TAB51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
CTC51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
BUZ80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
DXH63S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
DXH62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
JXM65S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
KAA01S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
KRI62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
LLH11S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
SBF80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
SBF90S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
TAV54S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1

```

- 13** From the original window, access the protection level of the MAP:

```
> PROT
```

- 14** Switch activities from the active CEM to the inactive CEM:

```
> MANUAL
```

- 15** Confirm the activity switch at the system prompt:

```
> Y
```

The active CEM becomes the inactive CEM, and the former inactive (upgraded) CEM becomes the active CEM.

- 16** Exit the PROT level:

```
> QUIT
```

- 17** Select the inactive CEM:

```
> SELECT CEM <inact_rm>
```

*Example input:*

```
> SELECT CEM 0
```

- 18** Ensure that the CEM is ISTB and inactive:

```
> QUERYMOD
```

- 19** In-service load the inactive CEM:

```
> LOADMOD INSVLD
```

During execution of the command, the CEM temporarily goes to a SysB state, and returns to service.

**20** Confirm the system prompt:

```
> Y
```

**Example of MAP response:**

```
SPM 23 CEM 0 Load: Request has been submitted.
SPM 23 CEM 0 Load: Command completed. Command passed.
```

**21** From the second window running the PRSM tool, ensure that SPARTS correctly patched the RM:

```
> REPORT DEST SPM <spm_no> CEM <inact_rm>
```

*Example input:*

```
> REPORT DEST SPM 23 CEM 0
```

**Note:** The resulting list must match the list obtained in [step 12](#).

**Example of MAP response:**

```
REPORT DEST SPM 23 CEM 0
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A CEM17BU N SPM 23 CEM 0
DEF10S13 20020915 23:33 GEN A CEM17BU N SPM 23 CEM 0
GHI45S13 20020915 23:36 GEN A CEM17BU N SPM 23 CEM 0
TAB51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
CTC51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
BUZ80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
DXH63S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
DXH62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
JXM65S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
KAA01S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
KRI62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
LLH11S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
SBF80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
SBF90S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
TAV54S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
```

**22** Ensure that any patch failures are corrected:

```
> ISTBAUDIT SPM <spm_no> CEM <inact_rm>
```

*Example input:*

```
> ISTBAUDIT SPM 23 CEM 0
```

**Example of MAP response:**

This DEST set does not have any patch-related problems.

**23** Exit the PRSM tool:

```
> QUIT
```

- 24 From the original window, access the protection level of the MAP:  
> **PROT**
- 25 Switch activity from the active CEM to the inactive CEM:  
> **MANUAL**
- 26 Confirm the activity switch at the system prompt:  
> **Y**
- 27 Exit the protection level:  
> **QUIT**
- 28 Display RM alarms on the SPM:  
> **QUERYMOD**
- 29 Display alarms on the SPM, with both CEMs in service:  
> **LISTALM**
- 30 If new alarms were introduced during this procedure, clear the alarms using the procedures in the SPM Fault Management document.
- 31 The CEM circuit pack upgrade procedure is complete.
- 32 Complete the upgrade using the [Post upgrade or downgrade process on page 70](#).

## Post upgrade or downgrade process

Perform this procedure after the entire office upgrade or downgrade is completed. The process consists of:

- dumping an image to disk after completing maintenance shift upgrade or downgrade activities
- deleting the old file names from the PMLOADS table
- deleting the old load and patch files from disk volumes

The [Variable abbreviations](#) table defines the variables used in this procedure.

### Variable abbreviations

| Abbreviation | Definition                                                       |
|--------------|------------------------------------------------------------------|
| act_load     | name of the new active load (as it appears in the PMLOADS table) |
| device       | storage location for the upgrade image                           |
| disk_vol     | the name of the backup disk volume                               |
| file_name    | the name assigned to the upgrade image                           |
| load_name    | the name of the old load (as it appears in the PMLOADS table)    |

### At MAP level

- 1 Access the PMLOADS table:  
> **TABLE PMLOADS**
- 2 Select each old load name designated for deletion in the PMLOADS table:  
> **POS <load\_name>**  
*Example input:*  
> **POS DSP16AF**
- 3 Initiate the tuple deletion:  
> **DEL**
- 4 At the confirmation prompt, delete the tuple:  
> **Y**

- 5 Access the disk utility:

> DISKUT

*Example response:*

Disk utility is now active

- 6 List the active PMLOADS volume:

| If                | Do                                                           |
|-------------------|--------------------------------------------------------------|
| SLM tape drive    | > LF <disk_vol><br><i>Example input:</i><br>> LF S00DPMLOADS |
| XA-Core DAT drive | > LF disk_vol<br><i>Example input:</i><br>> LF F0LPMLOADS    |

- 7 Delete each load file from the active disk volume:

> DDF <act\_load>

*Example input:*

> DDF CEM16CD\_010064A1

- 8 Repeat [step 6](#) to [step 7](#) for any files that have not been deleted.

- 9 Repeat [step 1](#) to [step 7](#) for the backup and patch volumes.

- 10 When all active, backup, and patch files have been deleted, quit the disk utility:

> QUIT

- 11 Store an image of the completed upgrade or downgrade to a disk volume using your operating company procedures.

The following is an example of a command format to dump an office image to a disk location:

> DUMP <file\_name> <image\_vol> ACTIVE RETAIN NOSDM

*Example input:*

> DUMP RTP\_021803 S00DIMAGE ACTIVE RETAIN NOSDM

**Note:** The route action to turn off SDM spooling option (nosdm) reduces CI lockout time. Without specifying a route action, the default value is to leave SDM spooling on (usesdm).

- 12 The process is completed.

## Downgrading a CEM to an earlier release

In summary, use this upgrade procedure to:

- busy the inactive and active CEMs
- load the inactive and active CEMs
- return the inactive and active CEMs to service
- apply patches to the inactive and active CEMs

This procedure requires simultaneously placing both CEMs in a busy condition, which places the SPM in an out of service condition.

The table below, [Variable abbreviations](#), defines the variables used in this procedure.

### Variable abbreviations

| Abbreviation | Definition                                    |
|--------------|-----------------------------------------------|
| act_rm       | number of the active CEM RM                   |
| filename     | name of the replacement load file             |
| inact_rm     | number of the inactive CEM RM                 |
| patch_id     | PRSU name                                     |
| rm_no        | number of the CEM resource module (RM) number |
| spm_no       | number of the SPM (0 to 85)                   |

### *At the CI level of the MAP display*

- 1 Review the CEM load and patch files.

**Note:** Ensure that all necessary patches are present for the new CEM load.

- 2 If not already posted, post the SPM:

> MAPCI;MTC;PM;POST SPM <spm\_no>

*Example input:*

> MAPCI;MTC;PM;POST SPM 23

- 3 Record the unit number and shelf number of the inactive CEM.

- 4 Select the inactive CEM (designated with an I):

```
> SELECT CEM <inact_rm>
```

*Example input:*

```
> SELECT CEM 1
```

- 5 Busy the inactive CEM:

```
> BSY
```

- 6 Load the inactive CEM:

```
> LOADMOD <filename> NOWAIT
```

*Example input:*

```
> LOADMOD CEM17BU_010046 NOWAIT
```

| If the loadname is        | Do                     |
|---------------------------|------------------------|
| not in the SPMLDVAL table | <a href="#">step 7</a> |
| in the SPMLDVAL table     | <a href="#">step 8</a> |

- 7 At the confirmation prompt, continue:

```
> Y
```

#### Example of MAP response:

```
>y
```

```
*** WARNING: Table SPMLDVAL is not datafilled for this loadname. Contact
your next level of support before proceeding with upgrade. Do you want to
continue without datafilling the table?
```

```
Please confirm ("YES", "Y", "NO", or "N"):
```

| If choosing to            | Do                                                      |
|---------------------------|---------------------------------------------------------|
| continue                  | <a href="#">step 8</a>                                  |
| update the SPMLDVAL table | Stop the upgrade and contact the next level of support. |

**Note:** Continuing the upgrade when the loadname is not in the SPMLDVAL table prevents that load from being available in that table for future reference.

- 8 After the CEM that was selected in [step 4](#) has finished loading, select the active CEM:

```
> SELECT CEM <act_rm>
```

*Example input:*

```
> SELECT CEM 0
```

## 9

**CAUTION**

Possible service interruption

Performing [step 9](#) changes all RMs to a CBSY state, and all SPM traffic are lost until [step 13](#) is performed.

Busy the active CEM:

```
> BSY FORCE
```

## 10 Load the forced busied CEM:

```
> LOADMOD <filename> NOWAIT
```

Both CEMs remain ManB and swap Active and Inactive states.

| If the loadname is        | Do                      |
|---------------------------|-------------------------|
| not in the SPMLDVAL table | <a href="#">step 11</a> |
| in the SPMLDVAL table     | <a href="#">step 12</a> |

## 11 At the confirmation prompt, continue:

```
> Y
```

**Example of MAP response:**

```
>y
*** WARNING: Table SPMLDVAL is not datafilled for this loadname. Contact
your next level of support before proceeding with upgrade. Do you want to
continue without datafilling the table?
```

Please confirm ("YES", "Y", "NO", or "N"):

| If choosing to            | Do                                                      |
|---------------------------|---------------------------------------------------------|
| continue                  | <a href="#">step 12</a>                                 |
| update the SPMLDVAL table | Stop the upgrade and contact the next level of support. |

**Note:** Enter the loadname into the SPMLDVAL table. The load is then available in that table for future use.

12 Select the CEM that was busied ([step 5](#)) and loaded ([step 6](#)):

**Note:** This CEM was previously InAct ManB, and is now Act ManB

```
> SELECT CEM act_rm
```

*Example input:*

```
> SELECT CEM 1
```

- 13** Return the CEM selected in [step 12](#) to service:

```
> RTS
```

This CEM becomes the active CEM and RMs and circuits recover.

| If the CEM load is            | Do                      |
|-------------------------------|-------------------------|
| the first for this office     | <a href="#">step 14</a> |
| not the first for this office | <a href="#">step 20</a> |

- 14** Access the PRSM tool from a second window:

```
> PRSM
```

- 15** Ensure that PRSM recognizes any pre-applied PRSUs and has found all applied PRSU files for the CEM that was returned to service in [step 13](#):

```
> DBAUDIT SPM <spm_no> CEM <rm_no>
```

*Example input:*

```
> DBAUDIT SPM 23 CEM 1
```

#### Example of MAP response:

```
Database audit submitted for 1 DESTs
Auditing destination SPM 23 CEM 1....
Database audit completed for 1 DEST
Database audit completed for 1 DEST
Database discrepancy found in 0 DESTs
```

- 16** Determine if PRSM found all of the patch files built into the PPSL:

```
> SELECT PRSUID CATEGORY STATUS BUILTIN FROM
DESTSET SPM <spm_no> CEM <rm_no>
```

**Example of MAP response:**

```
>select prsuid category status builtin from destset spm 23 cem 1
PRSUID CAT ST BUILTIN

TAB51S0P GEN A Y
BUZ80S0P GEN A Y
CTC51S0P GEN A Y
DXH62S0P GEN A Y
DXH63S0P GEN A Y
JXM65S0P GEN A Y
KAA01S0P GEN A Y
KRI62S0P GEN A Y
LLH11S0P GEN A Y
SBF80S0P GEN A Y
SBF90S0P GEN A Y
TAV54S0P GEN A Y
```

**Note:** An empty list appears for a non-PPSL load (the load is not pre-patched).

An unknown category is displayed as question marks (???) if PRSM cannot locate PRSU files in a PPSL during the first dbaudit of a newly loaded SPM device. This situation does not occur if all PRSU files have been placed in a volume defined in the PADNDEV table, as instructed in the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

If this situation occurs, use the validate command in PRSM for each PRSU with a category of ??? in at least one applicable DEST. For example:

**> VALIDATE ABC30S0Q IN SPM 23 CEM 1**

Before proceeding to the next device type, ensure that all patch files are placed in the PADNDEV table defined volume according to the [Prepare a manual upgrade or downgrade on page 15](#) procedure.

- 17** If required, patches must be applied to the CEM load file.

**If RM patches****Do**

are required for the RM load file [step 18](#)

are not required for the RM load file [step 20](#)

- 18** Apply the patches:

```
> APPLY '<patch_id> | <patch_id> | <patch_id> IN
 SPM <spm_no> CEM <inact_rm>
```

*Example*

```
> APPLY `ABC05513 | DEF10513 | GHI45513 IN
 SPM 23 CEM 1
```

| If patches      | Do                      |
|-----------------|-------------------------|
| are not applied | <a href="#">step 18</a> |
| all are applied | <a href="#">step 19</a> |

- 19** Ensure that SPARTS correctly patched the active CEM:

```
> REPORT DEST SPM <spm_no> CEM <rm_no>
```

*Example input:*

```
> REPORT DEST SPM 23 CEM 1
```

**Note:** The output is the combination of the PSRUs applied in [step 18](#) and the pre-applied PSRUs displayed in [step 16](#).

**Example of MAP response:**

```
REPORT DEST SPM 23 CEM 1
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A CEM17BU N SPM 23 CEM 1
DEF10S13 20020915 23:33 GEN A CEM17BU N SPM 23 CEM 1
GHI45S13 20020915 23:36 GEN A CEM17BU N SPM 23 CEM 1
TAB51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
CTC51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
BUZ80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
DXH63S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
DXH62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
JXM65S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
KAA01S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
KRI62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
LLH11S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
SBF80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
SBF90S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
TAV54S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
```

- 20** From the original window, select the CEM that was loaded in [step 10](#):

```
> SELECT CEM inact_rm
```

*Example input:*

```
> SELECT CEM 0
```

- 21** Return the inactive CEM to service:

```
> RTS
```

- 22** From the second window running the PRSM tool, ensure that SPARTS correctly patched the RM:

```
> REPORT DEST SPM <spm_no> CEM <inact_rm>
```

*Example input:*

```
> REPORT DEST SPM 23 CEM 0
```

**Note:** The resulting list must match the list obtained in [step 19](#).

### Example of MAP response

```
REPORT DEST SPM 23 CEM 0
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A CEM17BU N SPM 23 CEM 0
DEF10S13 20020915 23:33 GEN A CEM17BU N SPM 23 CEM 0
GHI45S13 20020915 23:36 GEN A CEM17BU N SPM 23 CEM 0
TAB51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
CTC51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
BUZ80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
DXH63S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
DXH62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
JXM65S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
KAA01S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
KRI62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
LLH11S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
SBF80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
SBF90S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
TAV54S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
```

- 23** Ensure that any patch failures are corrected:

```
> ISTBAUDIT SPM <spm_no> CEM <inact_rm>
```

*Example input:*

```
> ISTBAUDIT SPM 23 CEM 0
```

### Example of MAP response

This DEST set does not have any patch-related problems.

- 24** Exit the PRSM tool:

```
> QUIT
```

- 25** Display any CEM alarms:

```
> QUERYMOD
```

- 26** From the original window, exit the CEM level:

```
> QUIT
```

- 27 Display any alarms, with both CEMs in service,:  
> **LISTALM**
- 28 If new alarms were introduced during this procedure, clear the alarms using procedures in the SPM Fault Management document.
- 29 The CEM circuit pack upgrade procedure is complete.
- 30 Continue the downgrade process with the procedure entitled [Downgrading a DLC to an earlier release on page 87](#).

## Downgrading a CEM to an earlier version in the same release

In summary, use this downgrade procedure to:

- in-service load the inactive CEM
- switch activity between the inactive and the active CEM
- in-service load the inactive CEM

The table below, [Variable abbreviations](#), defines the variables used in this procedure.

### Variable abbreviations

| Abbreviation | Definition                                    |
|--------------|-----------------------------------------------|
| act_rm       | Number of an active CEM RM                    |
| inact_rm     | Number of the inactive CEM RM                 |
| prsu_id      | PRSU name                                     |
| rm_no        | Number of the CEM resource module (RM) number |
| spm_no       | Number of the SPM (0 to 85)                   |

### At the CI level of the MAP display

1 If not already posted, post the SPM:

```
> MAPCI;MTC;PM;POST SPM <spm_no>
```

*Example input:*

```
> MAPCI;MTC;PM;POST SPM 23
```

2 Record the unit number and shelf number of the inactive CEM.

3 Select the inactive CEM (designated with an I):

```
> SELECT CEM <inact_cem>
```

*Example input:*

```
> SELECT CEM 1
```

4 In-service load the inactive CEM:

```
> LOADMOD INSVLD
```

During execution of the command, the CEM temporarily goes to a SysB state, and returns to service.

| If the loadname is        | Do                     |
|---------------------------|------------------------|
| not in the SPMLDVAL table | <a href="#">step 5</a> |
| in the SPMLDVAL table     | <a href="#">step 6</a> |

5 At the confirmation prompt, continue:

> **Y**

#### Example of MAP response:

```
>y
*** WARNING: Table SPMLDVAL is not datafilled for this loadname. Contact
your next level of support before proceeding with upgrade. Do you want to
continue without datafilling the table?
Please confirm ("YES", "Y", "NO", or "N"):
```

| If choosing to            | Do                                                     |
|---------------------------|--------------------------------------------------------|
| continue                  | <a href="#">step 6</a>                                 |
| update the SPMLDVAL table | stop the upgrade and contact the next level of support |

**Note:** Continuing the upgrade when the loadname is not in the SPMLDVAL table prevents that load from being available in that table for future reference.

6 At the confirmation prompt, continue:

> **Y**

#### Example of MAP response:

```
SPM 23 CEM 1 Load: Request has been submitted.
SPM 23 CEM 1 Load: Command completed. Command passed.
```

| If the CEM device is          | Do                      |
|-------------------------------|-------------------------|
| the first for this office     | <a href="#">step 7</a>  |
| not the first for this office | <a href="#">step 13</a> |

7 Open a second window and access the PRSM tool:

> **PRSM**

8 Ensure that PRSM recognizes any pre-applied PRSUs and has found all applied PRSU files:

> **DBAUDIT SPM <spm\_no> CEM <inact\_rm>**

*Example input:*

```
> DBAUDIT SPM 23 CEM 1
```

*Example of MAP response:*

```
Database audit submitted for 1 DESTs
Auditing destination SPM 23 CEM 1....
Database audit completed for 1 DEST
Database audit completed for 1 DEST
Database discrepancy found in 0 DESTs
```

**9** Determine if PRSM found all patch files built into the PPSL:

```
> SELECT PRSUID CATEGORY STATUS BUILTIN FROM
 DESTSET SPM <spm_no> CEM <rm_no>
```

*Example of MAP response:*

```
>select prsuid category status builtin from destset spm 23 cem 1
PRSUID CAT ST BUILTIN

TAB51S0P GEN A Y
BUZ80S0P GEN A Y
CTC51S0P GEN A Y
DXH62S0P GEN A Y
DXH63S0P GEN A Y
JXM65S0P GEN A Y
KAA01S0P GEN A Y
KRI62S0P GEN A Y
LLH11S0P GEN A Y
SBF80S0P GEN A Y
SBF90S0P GEN A Y
TAV54S0P GEN A Y
```

**Note:** An empty list appears for a non-PPSL load (the load is not pre-patched).

An unknown category is displayed as question marks (???) if PRSM cannot locate PRSU files in a PPSL during the first dbaudit of a newly loaded SPM device. This situation does not occur if all PRSU files have been placed in a volume defined in the PADNDEV table, as instructed in the procedure [Prepare a manual upgrade or downgrade on page 15](#).

If this situation occurs, use the validate command in PRSM for each PRSU with a category of ??? in at least one applicable DEST. For example:

```
> VALIDATE ABC30S0Q IN SPM 23 CEM 1
```

Before proceeding to the next device type, ensure that all patch files are placed in the PADNDEV table defined volume according to the procedure [Prepare a manual upgrade or downgrade on page 15](#).

- 10 If required, patch the CEM load file.

| If RM patches are                 | Do                      |
|-----------------------------------|-------------------------|
| required for the RM load file     | <a href="#">step 11</a> |
| not required for the RM load file | <a href="#">step 13</a> |

- 11 Apply the patches:

```
> APPLY '<prsu_id> | <prsu_id> | <prsu_id> IN
SPM
 <spm_no> CEM <inact_rm>
```

*Example input:*

```
> APPLY 'ABC05S13 | DEF10S13 | GHI45S13 IN SPM
23
 CEM 1
```

- 12 Ensure that the inactive CEM is correctly patched:

```
> REPORT DEST SPM <spm_no> CEM <inact_rm>
```

*Example input:*

```
> REPORT DEST SPM 23 CEM 1
```

**Note:** The output is the combination of the PSRUs applied in step 11 and the pre-applied PSRUs displayed in [step 9](#).

### Example of MAP response:

```
REPORT DEST SPM 23 CEM 1
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A CEM17BU N SPM 23 CEM 1
DEF10S13 20020915 23:33 GEN A CEM17BU N SPM 23 CEM 1
GHI45S13 20020915 23:36 GEN A CEM17BU N SPM 23 CEM 1
TAB51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
CTC51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
BUZ80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
DXH63S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
DXH62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
JXM65S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
KAA01S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
KRI62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
LLH11S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
SBF80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
SBF90S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
TAV54S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 1
```

- 13 From the original window, access the protection level of the MAP:

```
> PROT
```

- 14** Switch activity from the active CEM to the inactive CEM:  
> **MANUAL**
- 15** Confirm the activity switch:  
> **Y**  
The active CEM becomes the inactive CEM, and the former inactive (downgraded) CEM becomes the active CEM.
- 16** Exit the PROT level:  
> **QUIT**
- 17** Select the inactive CEM:  
> **SELECT CEM <inact\_rm>**  
*Example input:*  
> **SELECT CEM 0**
- 18** Ensure that the CEM is ISTb and inactive:  
> **QUERYMOD**
- 19** In-service load the inactive CEM:  
> **LOADMOD INSVLD**  
During execution of the command, the RM temporarily goes to a SysB state, and returns to service.
- 
- | <b>If the loadname is</b> | <b>Do</b>               |
|---------------------------|-------------------------|
| not in the SPMLDVAL table | <a href="#">step 20</a> |
| in the SPMLDVAL table     | <a href="#">step 21</a> |
- 
- 20** At the confirmation prompt, continue:  
> **Y**

### Example of MAP response:

```
>y
*** WARNING: Table SPMLDVAL is not datafilled for this loadname. C
your next level of support before proceeding with upgrade. Do you want t
continue without datafilling the table?
```

Please confirm ("YES", "Y", "NO", or "N"):

---

| <b>If choosing to</b>     | <b>Do</b>                                              |
|---------------------------|--------------------------------------------------------|
| continue                  | <a href="#">step 21</a>                                |
| update the SPMLDVAL table | stop the upgrade and contact the next level of support |

---

**Note:** Continuing the upgrade when the loadname is not in the SPMLDVAL table prevents that load from being available in that table for future reference.

**21** At the confirmation prompt, continue:

> Y

**Example of MAP response:**

```
SPM 23 CEM 0 Load: Request has been submitted.
SPM 23 CEM 0 Load: Command completed. Command passed.
```

**22** From the second window running the PRSM tool, ensure that SPARTS correctly patched the RM:

> REPORT DEST SPM <spm\_no> CEM <inact\_rm>

*Example input:*

> REPORT DEST SPM 23 CEM 0

**Note:** The resulting list must match the list obtained in [step 12](#).

**Example of MAP response:**

```
REPORT DEST SPM 23 CEM 0
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A CEM17BU N SPM 23 CEM 0
DEF10S13 20020915 23:33 GEN A CEM17BU N SPM 23 CEM 0
GHI45S13 20020915 23:36 GEN A CEM17BU N SPM 23 CEM 0
TAB51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
CTC51S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
BUZ80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
DXH63S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
DXH62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
JXM65S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
KAA01S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
KRI62S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
LLH11S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
SBF80S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
SBF90S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
TAV54S0P 20020915 23:10 GEN A CEM17BU N SPM 23 CEM 0
```

**23** Ensure that any patch failures are corrected:

> ISTBAUDIT SPM <spm\_no> CEM <inact\_rm>

*Example input:*

> ISTBAUDIT SPM 23 CEM 0

**Example of MAP response:**

This DEST set does not have any patch-related problems.

- 24** Exit the PRSM tool:  
> **QUIT**
- 25** The CEM circuit pack downgrade procedure is complete.
- 26** Continue the downgrade process with the procedure entitled [Upgrading or downgrading a DSP/VSP on page 48](#).

## Downgrading a DLC to an earlier release

In summary, use this downgrade procedure to:

- busy the inactive RM
- load the inactive RM
- return the inactive RM to service
- apply patches to the inactive RM
- switch activity between the inactive and the active RM
- repeat the process for the new inactive RM

The [Variable abbreviations](#) table defines the variables used in this procedure.

### Variable abbreviations

| Abbreviation | Definition                        |
|--------------|-----------------------------------|
| act_rm       | Number of an active RM            |
| filename     | Name of the replacement load file |
| inact_rm     | Number of the inactive RM         |
| patch_id     | Patch name                        |
| spm_no       | Number of the SPM (0 to 85)       |

### At the MAP

- 1 If not already posted, post the SPM:  
> **MAPCI;MTC;PM;POST SPM <spm\_no>**  
*Example input:*  
> **MAPCI;MTC;PM;POST SPM 23**
- 2 Record the unit number and shelf number of the inactive DLC in the circuit pack protection group. Also, record the number of the inactive CEM.
- 3 Select the inactive DLC:  
> **SELECT DLC <inact\_rm>**  
*Example input:*  
> **SELECT DLC 1**

Both DLCs are in an ISTb status due to the load name change made in the MNCKTPAK table.

- 4 Ensure that the DLC is ISTB and inactive:.

> **QUERYMOD**

**Note:** The default load is the new load, and the actual load is the load scheduled for change.

*Example of MAP display:*

```
SPM 23 DLC 1 Query: Request has been submitted.
DLC 1 ISTb InAct Loc: Row E FrPos 0 ShPos 21 ShId 1 Slot 2
Default Load:DLC17BV Actual Load: DLC16DI
```

- 5 Busy the inactive DLC:

> **BSY**

- 6 Load the inactive DLC:

> **LOADMOD**

| If the loadname is        | Do                     |
|---------------------------|------------------------|
| not in the SPMLDVAL table | <a href="#">step 7</a> |
| in the SPMLDVAL table     | <a href="#">step 8</a> |

- 7 At the confirmation prompt, continue:

> **Y**

*Example of MAP response:*

```
>y
*** WARNING: Table SPMLDVAL is not datafilled for this loadname. Contact
your next level of support before proceeding with upgrade. Do you want to
continue without datafilling the table?
Please confirm ("YES", "Y", "NO", or "N"):
```

| If choosing to            | Do                                                      |
|---------------------------|---------------------------------------------------------|
| continue                  | <a href="#">step 8</a>                                  |
| update the SPMLDVAL table | Stop the upgrade and contact the next level of support. |

**Note:** Continuing the upgrade when the loadname is not in the SPMLDVAL table prevents that load from being available in that table for future reference.

- 8 At the confirmation prompt, continue:

> Y

*Example of a MAP response:*

SPM 23 DLC 1 Load: Request has been submitted.

SPM 23 DLC 1 Load: Command completed. Command passed.

- 9 Return the inactive DLC to service:

> RTS

During execution of the command, the RM goes from an InAct ManB state to an InAct InSv state.

| If the DLC load is            | Do                      |
|-------------------------------|-------------------------|
| the first for this office     | <a href="#">step 10</a> |
| not the first for this office | <a href="#">step 16</a> |

- 10 Open a second window and access the PRSM tool:

> PRSM

- 11 Ensure that PRSM recognizes any pre-applied PRSUs, and has found all applied PRSU files:

> DBAUDIT SPM <spm\_no> DLC <inact\_rm>

*Example input:*

> DBAUDIT SPM 23 DLC 1

*Example of MAP response:*

Database audit submitted for 1 DESTs  
Auditing destination SPM 23 DLC 1...  
Database audit completed for 1 DEST  
Database audit completed for 1 DEST  
Database discrepancy found in 0 DESTs

- 12 Determine if PRSM found all patch files built into the PPSL:

> SELECT PRSUID CATEGORY STATUS BUILTIN FROM  
DESTSET SPM <spm\_no> DLC <inact\_rm>

## Example of MAP response

```
>select prsuid category status builtin from destset spm 23 dlc 1
PRSUID CAT ST BUILTIN

TAB51S0P GEN A Y
BUZ80S0P GEN A Y
CTC51S0P GEN A Y
DXH62S0P GEN A Y
DXH63S0P GEN A Y
JXM65S0P GEN A Y
KAA01S0P GEN A Y
KRI62S0P GEN A Y
LLH11S0P GEN A Y
SBF80S0P GEN A Y
SBF90S0P GEN A Y
TAV54S0P GEN A Y
```

**Note:** An empty list appears for a non-PPSL load (the load is not pre-patched).

An unknown category is displayed as question marks (???) if PRSM cannot locate PRSU files in a PPSL during the first dbaudit of a newly loaded SPM device. This situation does not occur if all PRSU files have been placed in a PADNDEV table defined volume as instructed in the procedure [Prepare a manual upgrade or downgrade on page 15](#).

If this situation occurs, use the validate command in PRSM for each PRSU with a category of ??? in at least one applicable DEST. For example:

```
> VALIDATE ABC30S0Q IN SPM 23 DLC 1
```

Before proceeding to the next device type, ensure that all patch files are placed in the PADNDEV table defined volume according to the procedure [Prepare a manual upgrade or downgrade on page 15](#).

- 13 If required, patch the DLC load file.

| If patches for the load file | Do                      |
|------------------------------|-------------------------|
| are required                 | <a href="#">step 14</a> |
| are not required             | <a href="#">step 16</a> |

**Note:** The required patches were printed in [step 18](#) of the procedure entitled [Prepare a manual upgrade or downgrade on page 15](#).

- 14 Apply the patches:

```
> APPLY '<prsu_id> | <prsu_id> | <prsu_id> IN SPM
<spm_no> DLC <inact_rm>
```

*Example input:*

**> APPLY 'ABC05S13 | DEF10S13 | GHI45S13 IN SPM  
23 DLC 1**

---

**If more patches for the load Do  
file**

---

are required [step 14](#)

are not required [step 15](#)

---

**15** Ensure that the inactive DLC has been correctly patched:

**> REPORT DEST SPM <spm\_no> DLC <inact\_rm>**

*Example input:*

**> REPORT DEST SPM 23 DLC 1**

**Note:** The output must be the combination of the PSRUs applied in [step 14](#) and the pre-applied PRSUs displayed in [step 12](#).

**Example of MAP response**

```
REPORT DEST SPM 23 DLC 1
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A DLC17BU N SPM 23 DLC 1
DEF10S13 20020915 23:33 GEN A DLC17BU N SPM 23 DLC 1
GHI45S13 20020915 23:36 GEN A DLC17BU N SPM 23 DLC 1
TAB51S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
CTC51S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
BUZ80S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
DXH63S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
DXH62S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
JXM65S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
KAA01S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
KRI62S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
LLH11S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
SBF80S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
SBF90S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
TAV54S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 1
```

**16** From the original window, access the protection level of the MAP display:

**> PROT**

**17** Switch activity from the active to the inactive DLC:

**> MANUAL <act\_rm> <inact\_rm>**

*Example input:*

**> MANUAL 0 1**

- The active DLC becomes inactive, and the formerly inactive (downgraded) DLC becomes active.
- 18 Confirm the switch activity at the system prompt:  
> **Y**
  - 19 Exit the PROT level:  
> **QUIT**
  - 20 Select the inactive DLC:  
> **SELECT DLC inact\_rm**  
*Example input:*  
> **SELECT DLC 0**
  - 21 Ensure that the DLC is ISTb and inactive:  
> **QUERYMOD**
  - 22 Busy the inactive DLC:  
> **BSY**
  - 23 Load the inactive DLC:  
> **LOADMOD**
  - 24 At the confirmation prompt, continue:  
> **Y**

### Example of MAP response

```
SPM 23 DLC 0 Load: Request has been submitted.
SPM 23 DLC 0 Load: Command completed. Command passed.
```

- 25 Return the inactive DLC to service:  
> **RTS**
- 26 From the second window running the PRSM tool, ensure that SPARTS correctly patched the RM:  
> **REPORT DEST SPM <spm\_no> DLC <inact\_rm>**  
*Example input:*  
> **REPORT DEST SPM 23 DLC 0**  
**Note:** The resulting list must match the list obtained in [step 15](#).

*Example of MAP response:*

```

REPORT DEST SPM 23 DLC 0
PRSUID STATDATE STATT CAT ACT ST LOADNAME H DESTID

ABC05S13 20020915 23:29 GEN A DLC17BU N SPM 23 DLC 0
DEF10S13 20020915 23:33 GEN A DLC17BU N SPM 23 DLC 0
GHI45S13 20020915 23:36 GEN A DLC17BU N SPM 23 DLC 0
TAB51S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
CTC51S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
BUZ80S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
DXH63S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
DXH62S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
JXM65S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
KAA01S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
KRI62S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
LLH11S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
SBF80S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
SBF90S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0
TAV54S0P 20020915 23:10 GEN A DLC17BU N SPM 23 DLC 0

```

**27** Ensure that any patch failures are corrected:

**> ISTBAUDIT SPM <spm\_no> DLC <inact\_rm>**

*Example input:*

**> ISTBAUDIT SPM 23 DLC 0**

**Example of MAP response**

This DEST set does not have any patch-related problems.

**28** Exit the PRSM tool:

**> QUIT**

**29** From the original window, access the protection level of the MAP display:

**> PROT**

**30** Switch activities from the active DLC to the inactive DLC:

**> MANUAL act\_rm inact\_rm**

*Example input:*

**> MANUAL 1 0**

**31** Confirm the system prompt:

**> Y**

**32** The DLC circuit pack upgrade procedure is complete.

**33** Continue the downgrade process with the procedure entitled [Upgrading or downgrading a DSP/VSP on page 48](#).

## Prepare an automated upgrade

All Synchronization Resource Modules (SRMs) must be upgraded manually before beginning the Automated Upgrade procedure. Each TDM office has two SRMs which can be located in the SYNCLK table.

### ATTENTION

The SRM does not provide sparing. As a result, TDM offices that use SRMs for office synchronization must upgrade the SRMs prior to using the Automated Upgrade process.

Spectrum devices must be upgraded manually when upgrading to a PPSL with the same first 14 digits in the load name.

PANTHER cannot be used to upgrade a Spectrum device to a Pre-Patched Spectrum Load (PPSL) when only the PPSL identifier digits in the load name differ between the current load and the upgrade load.

For example, PANTHER does not upgrade the load when upgrading from OC316DP\_010093 to OC316DP\_010093A1. This is because PANTHER only considers the first 14 digits in the load name, and ignores the A1 suffix in the upgrade load name. In this case, PANTHER determines the load name has not changed, and does not upgrade the device.

Each destination volume must have sufficient free space for the new SPM load or PRSU files.

The table below, [Variable abbreviations](#), defines the variables used in this procedure.

### Variable abbreviations (Sheet 1 of 2)

| Abbreviation        | Definition                                                                    |
|---------------------|-------------------------------------------------------------------------------|
| dist_vol            | the name of the new Load File Distribution volume                             |
| load_name_1 (2) (n) | the names of the loads to be included or excluded (repeat variable as needed) |
| load_number         | the number of the current load                                                |

**Variable abbreviations (Sheet 2 of 2)**

| Abbreviation | Definition                                    |
|--------------|-----------------------------------------------|
| patch_vol    | the name of the new Patch Distribution volume |
| printer      | the printer name                              |

Throughout the upgrade procedure, press the Enter key on the keyboard after the command has been entered.

Before beginning the automated upgrade, ensure that spares are configured for all RMs requiring an upgrade.

**At the MAP**

1 Send the terminal responses to a printer:

**> RECORD START ONTO printer**

2 Identify the patch destination volume:

**> TABLE PADNDEV;LIST ALL;QUIT**

*Example output:*

```
TABLE: PADNDEV
TOP
DEVKEY DEVICE

 1 D030M17PTCH
 2 D030M15PTCH
 3 S01DIMAGE
```

BOTTOM

3 Enter the log utility and list devices:

**> LOGUTIL;LISTDEVS**

*Example of a MAP display:*

```
No. Device Status Rerouted Format
---- -
0 MAP121 Outputting Logs No STD
```

---

**If the status is**

**Do**

inactive

[step 4](#)

outputting logs

[step 5](#)

---

- 4 Start the device:  
**> STARTDEVS <dev\_name>**
- 5 Verify that logs PRSM, SPM, NODE, and TUPL are routed to a printer:

**> LISTREPS SPECIAL PRSM**

*Example of a MAP display:*

| Log Name             | Rep. No. | Event Class Type | Event Label | Suppressed/Thresholded | Syslog |
|----------------------|----------|------------------|-------------|------------------------|--------|
| -----                |          |                  |             |                        |        |
| 16 report(s) printed |          |                  |             |                        |        |

**> LISTREPS SPECIAL SPM**

*Example of a MAP display:*

| Log Name             | Rep. No. | Event Class Type | Event Label | Suppressed/Thresholded | Syslog |
|----------------------|----------|------------------|-------------|------------------------|--------|
| -----                |          |                  |             |                        |        |
| 67 report(s) printed |          |                  |             |                        |        |

**> LISTREPS SPECIAL NODE**

*Example of a MAP display:*

| Log Name             | Rep. No. | Event Class Type | Event Label | Suppressed/Thresholded | Syslog |
|----------------------|----------|------------------|-------------|------------------------|--------|
| -----                |          |                  |             |                        |        |
| 11 report(s) printed |          |                  |             |                        |        |

**> LISTREPS SPECIAL TUPL**

*Example of a MAP display:*

| Log Name            | Rep. No. | Event Class Type | Event Label | Suppressed/Thresholded | Syslog |
|---------------------|----------|------------------|-------------|------------------------|--------|
| -----               |          |                  |             |                        |        |
| 9 report(s) printed |          |                  |             |                        |        |

- 6 Resume any SPM, NODE, and TUPL logs that have been suppressed:

**> RESUME <log\_name> <log\_#>**

*Example input:*

**> RESUME SPM 311**

- 7 Access the PMUPGRADE utility:

**> PMUPGRADE**

- 8 Set confirmation to ON:  
**> SET CONFIRMATION ON**

9

**ATTENTION**

Carryover loads are SPM load files on the SPM load tape with the same version of the load currently used in the office. Operating company personnel can issue a SET CARRYOVER ON command to copy all SPM loads for the office. This command does not result in the update of SPMs that have no load version change. The default setting is Carryover: OFF.

Check office policy for carryover load requirements.

| <b>If the office</b>                                       | <b>Do</b>               |
|------------------------------------------------------------|-------------------------|
| requires all SPM loads for the office be copied            | <a href="#">step 10</a> |
| does not require all SPM loads for the office to be copied | <a href="#">step 11</a> |

- 10 Set carryover to ON:  
**> SET CARRYOVER ON**
- 11 Confirm the Load File Distribution setting is correct. If necessary, change the setting:  
**> SET LOADDISTRIB <dist\_vol>**

| <b>If</b>         | <b>Do</b>                            |
|-------------------|--------------------------------------|
| SLM tape drive    | <b>&gt; SET LOADDISTRIB S01T</b>     |
| XA-Core DAT drive | <b>&gt; SET LOADDISTRIB F02UTAPE</b> |

**Note:** The Load File Distribution and Load File Destination volumes must reside on the same SLM device.

- 12 Confirm the Load File Destination setting is correct. If necessary, change the setting:  
**> SET LOADDEST <dist\_vol>**

**Note:** The Load File Distribution and Load File Destination volumes must reside on the same SLM device.

---

| <b>If</b>         | <b>Do</b>                     |
|-------------------|-------------------------------|
| SLM tape drive    | > SET LOADDEST<br>S01DPMLOADS |
| XA-Core DAT drive | > SET LOADDEST<br>F02LPMLOADS |

---

- 13** Confirm that the Patch File Distribution setting is correct. If necessary, change the setting:

> SET PATCHDISTRIB <patch\_vol>

---

| <b>If</b>         | <b>Do</b>                      |
|-------------------|--------------------------------|
| SLM tape drive    | > SET PATCHDISTRIB<br>S01T     |
| XA-Core DAT drive | > SET PATCHDISTRIB<br>F02UTAPE |

---

- 14** The ISN, XPM, and SPM Patch Destination settings must point to the patch file destination volume.

- 15** Confirm the ISN, XPM, and SPM Patch Destination settings are correct based on the PADNDEV table listing obtained in [step 2](#).

**16** If necessary, change the setting by entering the following commands:

- > SET ISNPATCH <patch\_vol>
- > SET XPMPATCH <patch\_vol>
- > SET SPMPATCH <patch\_vol>

**Note:** The SPM patch destination volume must be entered in the PADNDEV table.

| If                | Do                                                                                                      |
|-------------------|---------------------------------------------------------------------------------------------------------|
| SLM tape drive    | > SET ISNPATCH<br>S01DISNPTCH<br><br>> SET XPMPATCH<br>S01DISNPTCH<br><br>> SET SPMPATCH<br>S01DISNPTCH |
| XA-Core DAT drive | > SET ISNPATCH F02LISNPAT<br><br>> SET XPMPATCH F02LISNPAT<br><br>> SET SPMPATCH F02LISNPAT             |

**17** Generate an office load report:

> DISPLAY LOADS

PMUPGRADE compiles the PMUPGRADE Load Report from the PMLOADS table and the SPM inventory tables.

| If the load report column<br>"Tables used" column is   | Do                      |
|--------------------------------------------------------|-------------------------|
| empty (and office policy requires data in this column) | <a href="#">step 18</a> |
| OK                                                     | <a href="#">step 21</a> |

**18** Exit PMUPGRADE.

**19** Delete the out-dated load from the PMLOADS table.

**20** Go to [step 7](#) of this procedure.

- 21** Generate a node report for the office:  
**> DISPLAY NODES**  
The PMUPGRADE Node Report is compiled from SPM inventory tables. The nodename information for the MNCKTPAK table is obtained from the MNNODE table.
- 22** Display the firmware information:  
**> DISPLAY FWINFO**
- 23** Set the preferred load to the current load:  
**> SET FWPREFERRED <load\_number> CURRENT**  
**Note:** The preferred load must be equal to the current load (loads listed in [step 22](#)).
- 
- | <b>If all of the firmware loads</b> | <b>Do</b>               |
|-------------------------------------|-------------------------|
| are not set                         | <a href="#">step 23</a> |
| all set                             | <a href="#">step 24</a> |
- 
- 24** Start the filecopy phase of the utility:  
**> START FILECOPY**  
The FILECOPY process copies files to the destination volume and adds new loads to the PMLOADS table. The process requires approximately 40 minutes. The amount of time depends on the number of SPM loads and PRSU files.
- 25** When prompted to confirm a tape is in its drive, confirm that the tape is physically inserted in the drive. Do not use the INSERTTAPE or IT commands on the tape.  
If the SLM or XA-Core tape cartridge label text indicates Patches:Yes, the tape includes the required PRSUs for SPM load files.

**26** At the prompt, continue:

> Y

A response similar to the following example appears if PMUPGRADE cannot locate the replacement loadname.

```
No replacement loadname found on distribution volume for SM206BH1.
Please enter replacement loadname, or "S" (Same) or "Q" (Quit FILECOPY)
```

| If                                                                       | Do                                                                                                   |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| A new load type replaces the current load type                           | Enter the new loadname. Ensure the loadname is typed accurately<br><br>Go to <a href="#">step 28</a> |
| The load is manufacture discontinued                                     | Enter "S"<br><br>Go to <a href="#">step 28</a>                                                       |
| The load is a filler SPM loadname, indicating a SPM does not have a load | Enter "S"<br><br>Go to <a href="#">step 28</a>                                                       |

**27** If a response indicates that multiple replacements are found on the load distribution volume, enter the appropriate loadname.

The loadname appears before the underscore in the load file name. For example, DLC16DE is the load name for the load file DLC16DE\_010082A3.

**28** Review the Load File Selection Report and determine if any loads need to be added or removed from the report.

| If one or more loads need to be  | Do                      |
|----------------------------------|-------------------------|
| added or removed from the report | <a href="#">step 29</a> |
| none: the report is complete     | <a href="#">step 34</a> |

- 29** Stop the file copy process:  
> **N**
- 
- | <b>If one or more loads need to be</b> | <b>Do</b>               |
|----------------------------------------|-------------------------|
| removed from the report                | <a href="#">step 30</a> |
| added to the report                    | <a href="#">step 31</a> |
- 
- 30** Remove the loads from the report:  
> **SET EXCLUDELOADS <load\_name\_1> <load\_name\_2> ... <load\_name\_n>**
- Note:** Separate each load name with a space.
- Example input:*
- > **SET EXCLUDELOADS BTMKA02 ECLI4BC**
- 
- | <b>If one or more loads need to be</b> | <b>Do</b>               |
|----------------------------------------|-------------------------|
| added to the report                    | <a href="#">step 31</a> |
| none: the report is complete           | <a href="#">step 32</a> |
- 
- 31** Add the loads to the report:  
> **SET INCLUDELOADS <load\_name\_1> <load\_name\_2> ... <load\_name\_n>**
- Note:** Separate the load names with a blank space.
- Example input:*
- > **SET INCLUDELOADS BTMKA02 ECLI4BC**
- 
- | <b>If one or more loads need to be</b> | <b>Do</b>               |
|----------------------------------------|-------------------------|
| removed from the report                | <a href="#">step 30</a> |
| none: the report is complete           | <a href="#">step 32</a> |
- 
- 32** Repeat the file selection phase of the utility:  
> **START FILECOPY**

- 33** Confirm that the appropriate load names have been added or removed from the Load File Selection Report.

---

| <b>If the Load File Selection Report</b> | <b>Do</b> |
|------------------------------------------|-----------|
|------------------------------------------|-----------|

---

|                                                       |                         |
|-------------------------------------------------------|-------------------------|
| does not show the excluded and/or included load names | <a href="#">step 29</a> |
|-------------------------------------------------------|-------------------------|

|                                               |                         |
|-----------------------------------------------|-------------------------|
| shows the excluded and/or included load names | <a href="#">step 34</a> |
|-----------------------------------------------|-------------------------|

---

- 34** Accept the Load Selection Report:

> Y

- 35** Confirm the patch file selection prompt:

> Y

**Note:** PMUPGRADE uses the \$XREF patch control files 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. Contact your next level of support for instruction to proceed with the upgrade and a list of required PRSUs to be manually applied.

- 36** Create the list of files to copy:

> Y

This final phase of the FILECOPY process requires approximately 20 minutes to complete adding new loads to the PMLOADS table. The amount of time depends on the number of SPM loads and PRSU files.

- 37**

**ATTENTION**

Perform [step 37](#) only if any offline SPMs are being installed or commissioned in the office.

Open a second window and update the LOAD field in the MNCKTPAK field to reflect the new software load for each RM type in all offline SPMs

- 38** Generate a PMUPGRADE load report for the office:

> **DISPLAY LOADS**

- 39** Confirm the selected new loads have been added to the report.

- 40 Start the generation of the PM upgrade plan:  
> **START PLAN**  
*Note:* Only one PM upgrade plan can be executed at a time. A new plan cannot be started until an existing plan has been cancelled or completed.
- 41 Display the PM upgrade plan:  
> **DISPLAY PLAN**  
The PMUPGRADE Plan Report organizes the SPM update by tasks and layers. A task is a set of SPMs of the same type at the same site with the same load requirements. A layer is a grouping of tasks.
- 42 Review the PMUPGRADE report.
- 43 Confirm that all SPMs that require upgrading are included in the plan report  
*Note:* For loads added to the Loadfile Selection Report with the SET INCLUDELOADS command, the associated SPMs must be manually updated.
- 44 Confirm that the correct loads are included with each task in the plan report.
- 45 Confirm that 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 SPM upgrade to change the order of tasks.
- 46 Exit the PMUPGRADE utility:  
> **QUIT**
- 47 Stop the terminal responses from printing:  
> **RECORD STOP ONTO <printer\_name>**
- 48 Remove the SPM load tape from the tape drive.
- 49 Check office policy concerning additional copies of SPM load and PRSU files. Some offices require additional copies of SPM load and PRSU files on a parallel device

***At your desk***

- 50** Any new hardware, identified by a Product Engineering Code (PEC), required for the software upgrade release must be installed.

---

**If each node****Do**

has the required hardware

[step 51](#)

does not have the required hardware

Contact your next level of support for more information.

- 
- 51** You have completed this procedure and prepared the office for an automated software upgrade.

---

## Perform an automated upgrade

---

PANTHER cannot be used to upgrade a Spectrum device to a Pre-Patched Spectrum Load (PPSL) when only the PPSL identifier digits in the load name differ between the current load and the upgrade load.

For example, PANTHER does not upgrade the load when upgrading from OC316DP\_010093 to OC316DP\_010093A1. This is because PANTHER only considers the first 14 digits in the load name, and ignores "A1" in the upgrade load name. In this case, PANTHER determines the load name has not changed, and does not upgrade the device.

Use at least two devices with this procedure:

- use one device to perform the automated SPM upgrade
- use the second device as a trace device to monitor the progress of the automated SPM upgrade

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

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

SWUPGRADE PM disables the Spectrum Patching After RTS (SPARTS) tool during the automated upgrade. When SWUPGRADE PM is completed or aborted, SPARTS is automatically re-enabled.

MAP displays in this procedure are provided as reference examples and may not represent the actual screen display. Load versions and resource modules (RMs) listed on the screen may vary depending on the office configuration.

Throughout the upgrade procedure, the request to enter a command requires pressing the Enter key on the keyboard after the command has been entered.

The SPM601 log is generated when SPARTS is disabled and enabled. No action is required when this log is generated. The table below, [Variable abbreviations](#), list the variables used in this procedure.

### Variable abbreviations

| Abbreviation | Definition                                                               |
|--------------|--------------------------------------------------------------------------|
| dev_name     | Name of the new Patch Distribution volume                                |
| max_no       | UNLIMITED or the maximum number of SPMs the system upgrades concurrently |
| printer      | Printer name                                                             |
| spm_no       | ID (number) of the SPM                                                   |
| step_name    | Name of the step                                                         |

### *At the CI level of the MAP display*

- 1 Send the terminal responses to a printer:  
**> RECORD START ONTO <printer>**
- 2 Enter the SWUPGRADE PM increment for automated SPM upgrades:  
**> SWUPGRADE PM**
- 3 Establish a second device as a trace device:  
**> SET TRACE\_DEVICE <dev\_name>**  
**Note:** The second device records SWUPGRADE PM operations during the automated SPM upgrade.
- 4 The trace device must display a message indicating that the device is selected for TRACEing.

| If the device                | Do                                                                                                        |
|------------------------------|-----------------------------------------------------------------------------------------------------------|
| displays the message         | <a href="#">step 5</a>                                                                                    |
| does not display the message | Confirm the correct device is selected as the trace device. If necessary, repeat <a href="#">step 3</a> . |

- 5 Start the SPM upgrade shift:  
**> SET SHIFT STARTED**  
 SWUPGRADE PM checks for the availability of a \$XREF patch cross-reference file and processes patch cross-reference information.
- 6 Display the SWUPGRADE PM environment variables:  
**> DISPLAY VAR ALL**  
 The variable name
- CONCURRENCY indicates the maximum number of concurrent upgrades
  - TRACE\_DEVICE is the trace device established in [step 3](#)
  - SHIFT indicates the status of the current upgrade shift
- 7 Display HELP for the CONCURRENCY variable:  
**> HELP VAR CONCURRENCY**
- 8 Determine the maximum number of SPMs to upgrade concurrently:
- a concurrency value set to UNLIMITED can exceed the maintenance window for the SPM upgrade shift in large scale offices
  - the maximum value cannot exceed eight
  - the value defaults to eight if entering a value of UNLIMITED or greater than eight
- | If the value in CONCURRENCY | Do                      |
|-----------------------------|-------------------------|
| needs to be changed         | <a href="#">step 9</a>  |
| does not need to be changed | <a href="#">step 11</a> |
- 9 Set the concurrency value:  
**> SET CONCURRENCY <max\_no>**
- 10 Display the environment variables and confirm the change:  
**> DISPLAY VAR ALL**

- 11** Set prompting to on:  
**> PROMPTING ON**  
 PROMPTING ON is the recommended method of operation.  
 Setting PROMPTING ON:
- forces a pause after each automated step
  - allows user intervention for the next required step
- The remainder of this procedure assumes prompting is enabled.
- 12** From a second window, post the nodes designated for an upgrade:  
**> MAPCI;MTC;PM;POST SPM <spm\_no>**  
*Example input:*  
**> MAPCI;MTC;PM;POST SPM 23**
- 13** Display alarms on the RMs on the SPMs:  
**> QUERYPM FLT**
- 14** Display and note any alarms on the nodes:  
**> LISTALM**
- 15** Display and note the carrier statuses on the nodes:  
**> MAPCI;MTC;TRKS;CARRIER;POST SPM <spm\_no> 1**  
*Example input:*  
**> MAPCI;MTC;TRKS;CARRIER;POST SPM 23 1**
- 16** Determine the impact of the current alarm status on the upgrade.
- | If there are                            | Do                      |
|-----------------------------------------|-------------------------|
| alarms other than ISTB alarm            | <a href="#">step 17</a> |
| no alarms or all alarms are ISTB alarms | <a href="#">step 18</a> |
- 17** Perform the appropriate alarm clearing procedures. After completing the required procedures, go to [step 18](#).
- 18** From the SWUPGRADE device, begin the automated SPM upgrade:  
**> START**

- 19 Display and review the upgrade steps:

> **DISPLAY STEPS**

A step with an

- `_A_` identifies the step as an automated step
- `_M_` identifies the step as a manual step

After an automated step has been completed the status changes from **NEEDED** to **COMPLETED**.

The columns marked as **PERM**, **ACT**, and **PROC** are used by other platforms and do not apply to the SPM upgrade.

Steps proceed automatically, however the option exists to manually select a step.

- 20 Display **HELP** on the step you wish to execute:

> **HELP STEP <step\_name>**

SWUPGRADE PM displays a brief description of the step including

- the nodes affected by the step
- the load(s) and PRSU(s) required by the step
- the steps required prior to the step

- 21 Based on your office requirements, determine if you wish to upgrade or not upgrade (override) the step.

| If                   | Do                      |
|----------------------|-------------------------|
| not upgrading a step | <a href="#">step 22</a> |
| upgrading a step     | <a href="#">step 24</a> |

- 22 Override the step:

> **OVERRIDE <step\_name>**

- 23 At the prompt, accept the override:

> **Y**

**Note:** After overriding a step, you have the option to reinstate that step: > **RESET <step\_name>**

- 24** Ensure that the HELP STEP command has been performed for every step\_name.

| <b>If all step_names have</b> | <b>Do</b>               |
|-------------------------------|-------------------------|
| not been verified             | <a href="#">step 20</a> |
| been verified                 | <a href="#">step 25</a> |

- 25** Execute the upgrade process sequentially or out of sequence through one of the following commands:

| <b>If executing the upgrade</b> | <b>Do</b>                                                         |
|---------------------------------|-------------------------------------------------------------------|
| sequentially                    | enter<br><br><b>&gt; GO</b>                                       |
| out of sequence                 | To run a step, enter<br><br><b>&gt; RUNSTEP &lt;step_name&gt;</b> |

**ATTENTION**

Do not RUNSTEP a step\_name that was selected for override

- 26** Monitor the automated upgrade progress for the following:

- the trace device response
- the status of each node
- a log device

SWUPGRADE PM stops executing if:

- nodes are not ready for upgrading
- all nodes have been successfully upgraded
- an SPM upgrade failure occurs
- the SWUPGRADE PM shift exceeds the 14 hour time limit
- a SET SHIFT FINISHED or SET SHIFT ABORTED command has been entered

**Note:** SET SHIFT FINISHED stops the step after the full upgrade for the nodes in the step has completed

SET SHIFT ABORTED stops the step after the current maintenance action for the node(s) has completed

- 27** After SWUPGRADE PM completes a step, the trace device displays an upgrade status report for each node.

| <b>If</b>                                                                    | <b>Do</b>               |
|------------------------------------------------------------------------------|-------------------------|
| every node in the step passed and you want to continue the SPM upgrade shift | <a href="#">step 19</a> |
| a node in the step failed                                                    | <a href="#">step 29</a> |
| every node in the step passed and you want to finish the SPM upgrade shift   | <a href="#">step 31</a> |

- 28** Use the QUERYPM FILES command from the MAP display to confirm each node is correctly loaded and in-service.

- 29** Review logs PM703, SPM650, SPM651, SPM300, SPM500, SPM335 and NODE500, plus the trace device output to determine why the node failed the automated upgrade.

- 30** Possible reasons for a node failure are:
- the SPM status, or one of its units, changed due to a maintenance problem not related to the automated upgrade.
  - the SPM load file or required PRSU files are not in the Destination Volume.
  - the node encountered a hardware problem.

| <b>If you can</b>                 | <b>Do</b>                                                                                                                                                                                                                               |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| determine why the node failed     | Correct the problem and return to <a href="#">step 25</a>                                                                                                                                                                               |
| not determine why the node failed | Contact your next level of support.<br><br>If the problem is resolved, go to <a href="#">step 25</a><br><br>To continue the upgrade shift, go to <a href="#">step 19</a><br><br>To end the upgrade shift, go to <a href="#">step 31</a> |

- 31** Finish the automated SPM upgrade shift:

**> SET SHIFT FINISHED**

A Summary Report for PM Software Upgrade containing the following information:

- step name
- elapsed time between the previous and current step
- time the step began
- elapsed time to execute the step
- final result status

A result status of STEP NOT COMPLETE indicates SWUPGRADE PM did not perform the step. This could indicate a step that was overridden and performed manually.

The SET SHIFT FINISHED command can generate a PM700 log that indicates the SPM upgrade shift has finished. No action is required for this log.

- 32** Display the step of the automated SPM upgrade:

**> DISPLAY STEPS**

| If all steps                                             | Do                      |
|----------------------------------------------------------|-------------------------|
| except<br>UPGRADE_COMPLETE are<br>complete or overridden | <a href="#">step 33</a> |
| are not complete or<br>overridden                        | <a href="#">step 36</a> |

**Note:** If all steps are not complete and over-ridden, the upgrade can be resumed at a later date by restarting the procedure at [step 1](#).

- 33** Execute the UPGRADE\_COMPLETE step:

**> GO**

- 34** Obtain the final record of all completed steps:

**> DISPLAY STEPS**

- 35** Complete the UPGRADE\_COMPLETE step:

**> GO**

- 36** Quit the SWUPGRADE PM utility:

**> QUIT**

- 37 Stop the terminal responses from printing:  
> **RECORD STOP ONTO <printer>**
- 38 You have completed this procedure.
- 39 Complete the automatic upgrade using the [Post upgrade or downgrade process on page 70](#).