

297-1771-598

DMS-100 Family

## **North American DMS-100**

Spectrum Peripheral Module Release Document

DMSSPM15 Standard 06.03 May 2001

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### Spectrum Peripheral Module Release Document

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# Publication history

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## May 2001

### Standard 06.03

Added warning to chapters 4 and 5 to completely load all SPMs during one maintenance release or milestone upgrade in response to SR UT15858.

Updated SPM upgrade procedure (chapter 5) with the following changes. Clarified wording in three attention boxes about the implications of applying a patch to a resource module (RM). In Step 7, added instructions to return to PROT level and perform another manual switch activity on the spare OC3 card. In Step 8, added instructions how to identify swapped resources on a card.

## March 2001

### Standard 06.02

Corrected load names based on SME comments.

## February 2001

### Standard 06.01

Added procedure for listing the contents of the digital audio tape (DAT).

## February 2001

### Standard 05.02

Added information about SP12.9.0 or higher load need before upgrading to SP14 if using PRI.

In response to SR NV00639, moved the information for updating table MNCKTPAK from the “Upgrade the SPM” chapter to the “Prepare a manual SPM upgrade” chapter. Table MNCKTPAK update now resides between the procedure to update table PMLOADS with new load file names and the procedure to remove the old load file names from table PMLOADS.

Updated list of processor types, clarified explanation of load naming standards, revised load name examples to reflect the SP14 upgrade.

Provided notation that PANTHER is not available for SPM use at this time.

Removed mention of asynchronous transfer mode (ATM) from the document.

Populated sample circuit pack upgrade work sheet.

Accounted for upgrading the Coherent (COH) resource modules (RM).

Provided notations that the digital signal processor (DSP) load contains both the DSP and voice signal processor (VSP) upgrade software.

## **November 2000**

Standard 05.01

Revised naming conventions for the SPM load file name.

Added patching information and procedures to the chapters “Prepare a manual SPM upgrade,” “Upgrade the SPM,” and “Appendix A Limited soak-in deployment.”

Revised the chapters “Prepare a manual SPM upgrade” and “Upgrade the SPM” in response to review by SPM Installation.

In response to SR NV00231 and NV90281, added information to the “Upgrade the SPM” chapter on how to back out the loads when aborting the upgrade.

In response to SR NV90281, revised information on the order in which to upgrade or back out the OC3s.

In response to SR NM00264, revised information on in-service loading when skipping loads.

Added an Attention box noting that OC3s must be datafilled in table MNHSCARR before upgrading CEMs.

In response to SR 10366713, removed references to Service Test Access (STA) and added warning to remove STA resources from table MNCKTPAK.

## **June 2000**

Draft 04.01

In response to SR UT04585, added steps to the “Prepare a manual SPM upgrade” chapter. The new steps instruct the user to delete the old load names from table PMLOADS after updating the loads in the same table.

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In response to SR UT01722, added attention boxes in “Upgrading the SPM” chapter. The attention boxes describe the relationship between DSP or VSP datafill in table MNCKTPAK and the MAP response to the LISTRES command.

Modified upgrade procedure to include ATM and DLC.

Added information about and procedures for patching OC3, ATM, DLC, and CEM.

Added explanation and examples of new load naming conventions for patchable loads.

## **February 2000**

Standard 03.03

Separated procedure for upgrading DSP and VSP circuit pack protection groups. VSP upgrade procedure remains unchanged. VSP RMs are upgraded from a seed VSP. DSP upgrade procedure was changed. DSP RMs are upgraded from the spare DSP, rather than a seed DSP. These changes were made in response to SR NR94636.

## **October 1999**

Standard 03.02

- made the following changes in response to SR UV90509
- changed the release applicability from DMSSPxx and up to DMSSPxx
- added section “When to use this document” to “About this document” chapter
- added graphics and text to aid customer when filling out the Circuit pack upgrade work sheet, emphasizing circuit pack protection group ID
- corrected MAP (maintenance and administration position) displays related to DBAUDIT command
- added clarification to attention box in “Limited soak-in deployment” related to PMLOADS MISMATCH error

## **August 1999**

Standard 03.01

Upversioned document to accommodate release of hard copy to customer.

**May 1999**

Standard 02.02

Made editorial corrections.

**May 1999**

Standard 02.01

Added new chapter “Preparing a manual SPM upgrade.

Rewrote chapter “Upgrading the SPM” to account for a milestone upgrade, in addition to a maintenance or emergency upgrade.

**April 1999**

Standard 01.05

- incorporated following review changes recommended by IEC customers:
- in the “PRSM SPM support” chapter, added procedure to list the load file volume prior to executing the SPMLFINFO command
- changes made to “Upgrading the SPM” chapter
  - revised “Notes on loading times” to clarify use of sample numbers, emphasize concurrent loading
  - emphasized decision points to distinguish between maintenance/emergency and milestone release
  - added restrictions on the number of RMs and CEMs that can be in-service loaded concurrently
  - added notes that system going SysB during in-service loading of RMs or CEMs is normal
  - added procedural steps and example MAP displays for confirmation of MANUAL command

- supplied QUIT ALL step prior to accessing PRSM tool
- provided information on generation of SPM300 and PRSM400 logs following DBAUDIT
- changes made to “Limited soak-in deployment” chapter
  - changed chapter to an appendix
  - provided information on when procedure would be used

**March 1999**

Standard 01.04

Added information on DBAUDIT in “Upgrading the SPM” chapter. Corrected the example MAP display used in conjunction with DBAUDIT.

**November 1998**

Standard 01.03

Incorporated editorial changes

**November 1998**

Standard 01.02

- incorporated VO and design review changes in the following areas:
- use same file for active and backup load file names in upgrading procedure
- replace ADD command with REP command in upgrading procedure
- minor changes to upgrading procedure
- add loading times

**October 1998**

Standard 01.01.

First release of this document.



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# About this document

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## When to use this document

Use this document to upgrade the Spectrum Peripheral Module (SPM) to an SP14 product computing module load (PCL). This document provides upgrade procedures and other release-specific information. It may be used by maintenance technicians with a range of experience in switching, SPM software, and SPM software upgrading.

## How to check the version and issue of this document

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

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

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

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in *Product Documentation Directory*, 297-8991-001.

This document is written for all DMS-100 Family offices. More than one version of this document may exist. To determine whether you have the latest version of this document and how documentation for your product is organized, check the release information in *Product Documentation Directory*, 297-8991-001.

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## References in this document

The following documents are referred to in this document:

- *Peripheral Module Software Release Document*
- *Post-Release Software Manager (PRSM) Operating Procedures*, 297-8991-540
- *Product Documentation Directory*, 297-8991-001
- *Spectrum Peripheral Module Commands Reference Manual*, 297-1771-819

## What precautionary messages mean

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

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

Examples of the precautionary messages follow.

### **ATTENTION**

Information needed to perform a task

#### **ATTENTION**

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

### **DANGER**

Possibility of personal injury



#### **DANGER**

##### **Risk of electrocution**

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

**WARNING**

Possibility of equipment damage

**DANGER****Damage to the backplane connector pins**

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

**CAUTION**

Possibility of service interruption or degradation

**CAUTION****Possible loss of service**

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

## How commands, parameters, and responses are represented

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

### Input prompt (>)

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

```
>BSY
```

### Commands and fixed parameters

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

```
>BSY CTRL
```

### Variables

Variables are shown in lowercase letters:

```
>BSY CTRL ctrl_no
```

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

## Responses

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

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

FP 3 Busy CTRL 0: Command passed.

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

---

# 1 SPM release types and naming standards

---

## SPM patching

At SP15, SPM patching is available for the CEM loads as well as the following resource module (RM) loads:

- asynchronous transfer mode (ATM)
- data link controller (DLC)
- digital signal processor (DSP), including LX66 voice signal processor (VSP)
- optical carrier rate 3 (OC3)

*Note 1:* ATM is available for Succession Solutions only.

*Note 2:* The DSP load contains the LX66 VSP, as well as the DSP upgrade software.

*Note 3:* At this time, Nortel Networks has no plans to extend patching functionality to the LX85 and LX86 (COH) loads.

## SPM software release types

For nonpatchable SPM loads, SPM post-release software updates (PRSU) must be built into the SPM load file. Nortel Networks then delivers this load file to each office. The SPM load file is datafilled in table control. Note that even with the ability to supply SPM patches, Nortel Networks can still supply prepatched loads.

Nortel Networks introduces SPM load files to the field by way of the following software release types:

- milestone release
- maintenance release
- emergency release

### **Milestone release**

Nortel Networks adds new functionalities to the software load in the milestone release. The milestone release is connected with the product computing-module load (PCL) release. Nortel Networks' purpose is to issue the milestone release just before the PCL release.

### **Maintenance release**

Nortel Networks uses the maintenance release to issue small functional enhancements or fixes to known problems. It is possible for Nortel Networks to issue one or more maintenance releases between consecutive milestone releases.

### **Emergency release**

The emergency release contains critical fix content. This release has no set schedule. Nortel Networks issues the emergency release in response to verified software load problems. Global Product Support (GPS) controls the emergency release. The emergency release can be customer specific.

## **SPM load file name standards for nonpatchable loads**

The load file name for nonpatchable SPM software loads must follow the format ZZANNNN\_NNNNNN

*where*

**Z**

is letter (A through Z)

**A**

is alphanumeric (A through Z, 0 through 9)

**N**

is numeric (0 through 9)

The following table explains the meaning communicated by each SPM load file name.

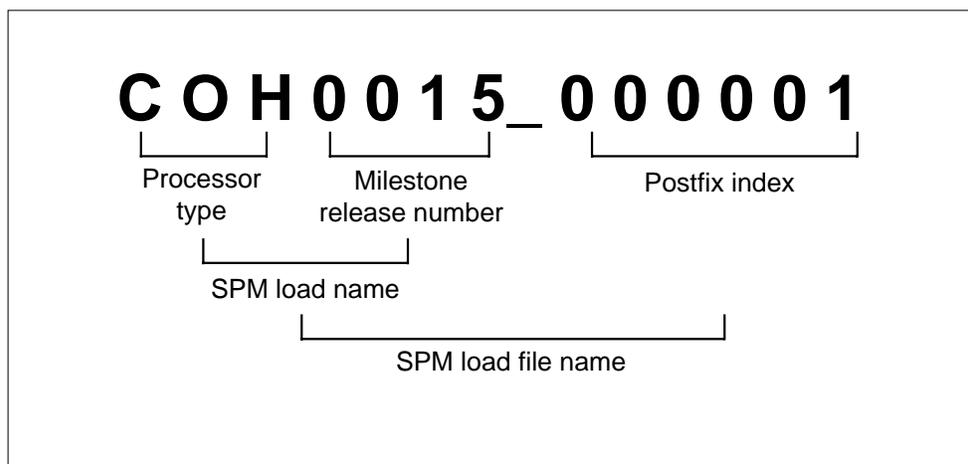
**Table 1-1 Explanation of SPM load file names for nonpatchable loads**

Character position	Explanation	Examples
1 through 3 (ZZA)	(processor type) Character positions 1 through 3 indicate the processor type. The processor type remains constant over software releases.	DSP
4 through 7 (NNNN)	(milestone release number) Character positions 4 through 7 indicate the milestone release number. The milestone release number changes when Nortel Networks releases a new milestone load.	0015
8 (_)	Character position 8 is the delimiter for the postfix index.	_
9 through 14 (NNNNNN)	(postfix index) Character positions 9 through 14 indicate the postfix index. The postfix index changes when Nortel Networks releases a new maintenance or emergency load.	000001 000002

**Note:** The SPM load file name must contain all 14 characters, for example, COH0015\_000001.

Use the following figure to help explain the nonpatchable SPM load file naming standards. Use this COH load file name for example only.

**Figure 1-1 SPM load file naming standards for nonpatchable loads**



## SPM load file name standards for patchable loads

The load file name for patchable SPM software loads must follow the format ZZANNZZ\_NNNNNN

where

**Z**

is letter (A through Z)

**A**

is alphanumeric (A through Z, 0 through 9)

**N**

is numeric (0 through 9)

The following table explains the meaning communicated by each SPM load file name.

**Table 1-2 Explanation of SPM load file names for patchable loads (Sheet 1 of 2)**

Character position	Explanation	Examples
1 through 3 (ZZA)	(processor type) Character positions 1 through 3 indicate the processor type. The processor type remains constant over software releases.	ATM CEM DLC DSP OC3
4 and 5 (NN)	(milestone release number) Character positions 4 and 5 indicate the milestone release number. The milestone release number changes when Nortel Networks releases a new milestone load.	15
6 and 7 (ZZ)	(patchable load release) Character positions 6 and 7 increment with each patchable load released.	AA AB
<p><b>Note 1:</b> The SPM load file name must contain all 14 characters, for example, ATM15AC_010002, CEM15AA_010000, DLC15AF_010005, DSP15AJ_010009, OC315AL_010011.</p> <p><b>Note 2:</b> The two letters of the patchable load release increment in unison with the last two numbers of the postfix index. For example, the first SP15 load file name for the CEM load would have a patchable load release of AA. The last two letters of the postfix index would be 00. Thus, the first SP15 load file name for CEM would be CEM15AA_010000. Subsequent SP15 load file names for CEM loads would increment to CEM15AB_010001, CEM15AC_010002, and so on.</p>		



Use the SPM load name as tuple key when datafilling table PMLOADS. Also, identify the SPM circuit pack by datafilling field LOAD in table MNCKTPAK with the appropriate SPM load name.

### **Milestone release numbering**

Milestone releases cause the milestone release number part of the SPM load name to increment together with the DMS software release number. For example, the first SPM milestone release for the local exchange carrier (LEC) market is SP10, which uses the load file name DSP0010\_000001. The second SPM milestone release for the LEC market is SP11, which uses the load file name DSP0011\_000001.

For a patchable load, the milestone release number part of the SPM load name also increments together with the DMS software release number. For example, the first patchable SPM release was SP14. The first patchable OC3 load used the load file name OC314AA\_010000. (Note that load file names OC314AA\_010000 through OC314AE\_010004 were used for testing. Therefore, the first possible load file name the customer might have seen was OC314AF\_010005.) SP15 is the second SPM milestone release with a patchable load. The patchable OC3 load for SP15 uses the load file name OC315AA\_010000.

### **Maintenance release numbering**

Each new maintenance release causes a change in the postfix index part, that is, the last six characters of the load file name. The SPM load name part of the SPM load file name does not change.

For example, assume that DSP milestone release 1 has load file name DSP0012\_000001 and DSP milestone release 2 has load file name DSP0014\_000001. A DSP maintenance release that occurs between the milestone 1 and 2 releases would have load file name DSP0012\_000002.

---

## 2 PRSM SPM support

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### Tracking SPM PRSUs or SPM fix content

Patching was first made available for Spectrum Peripheral Module beginning with SP14. At that time, however, patching was not available for the digital signal processor (DSP) loads. At SP15, SPM patching is available for the for the common equipment module (CEM) (CEM load) as well as the following resource module (RM) loads:

- asynchronous transfer mode (ATM)
- data link controller (DLC)
- DSP, including voice signal processor (VSP)
- optical carrier rate 3 (OC3)

*Note 1:* ATM is available for Succession Solutions only.

*Note 2:* The DSP load contains the LX66 VSP, as well as the DSP upgrade software.

*Note 3:* At this time, Nortel Networks has no plans to extend patching functionality to the load for the LX85 and LX86 VSPs.

Although SPM patching is available, Nortel Networks can still supply prepatched loads, as was done for all SPM RMs and CEMs prior to SP14. In the case of prepatched loads, including all DSP loads, Nortel Networks builds SPM post-release software updates (PRSU) into the SPM load file. The SPM load file is datafilled in table control and reloads all applicable SPM destinations.

Even with patching capability, post-release software manager (PRSM) can be used to display SPM fix information. PRSM is also used to track the following information:

- SPM nodes
- SPM load files
- PRSUs built into SPM load files

### SPM nodes

When you upgrade an SPM, operating company personnel introduce SPM circuit packs to an office through table MNCKTPAK. Updating table MNCKTPAK adds the SPM circuit packs to the PRSM database. The system checks the load name datafill for new or revised tuples in table MNCKTPAK. The system then applies all PRSUs registered for that load name.

If the operating company personnel remove an SPM circuit pack from table MNCKTPAK, the system removes the circuit pack from the PRSM database. Also, the circuit pack's connected PRSU information is removed from the PRSM database.

The following figure shows an example of the output for table MNCKTPAK.

**Figure 2-1 Example of table MNCKTPAK output**

```
TOP
CPKKEY                                PEC  RELEASE          LOAD          CPKINFO
-----
SPM  0  0  7      CEM 0 (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT)
              (SYSBNA CR RPT) (MANBNA MJ RPT) (HLDOVR MJ RPT)
              (HLDOVR24 MJ RPT) (VCXO70 MN RPT) (VCXO90 MJ RPT)
              (CLKOOS MJ RPT) $
              NTLX82AA          10          CEM15AF
```

### SPM load files

Operating company personnel introduce an SPM load file to an office through table PMLOADS.

In the PRSM database, a destination is created with the same name as the load file. Also, any SPM PRSUs connected with the SPM load file are datafilled in the PRSM. Each PRSU in the load file receives a separate entry in the PRSM database. The entry is marked as applied against the new SPM load file destination.

An SPM load file may exist in the PRSM database when the operating company personnel add a new load file to table PMLOADS. When the operating company personnel try to add the new load file, no action occurs in the PRSM database. The PRSM status audit resolves discrepancies between the load file and the PRSM database. The operating company personnel can also resolve these discrepancies by use of the PRSM DBAUDIT command.

The PRSM database may contain SPM peripheral destinations with the same load name as the load file destination added by operating company personnel. If so, these SPM peripheral destinations are updated with the PRSU status

information. All PRSUs connected to the load file destination are connected with those SPM peripheral destinations with the same load name.

If the operating company personnel delete the SPM load file from table PMLOADS, the PRSM takes no action.

### **Update existing tuples**

When Nortel Networks delivers a maintenance or emergency release SPM load to an office, you must update a tuple in table PMLOADS. Update the active and backup load file connected with a tuple to contain the new maintenance or emergency load file name.

When you update the tuple in table PMLOADS, the PRSM determines if a destination already exists for the given load file. If a destination exists, the PRSM compares the SPM PRSUs and the PRSM database PRSUs connected with the load file. The PRSM resolves any differences without intervention by operating company personnel.

If a destination does not exist, a destination for that load file is created in the PRSM database. The load file is parsed. All SPM PRSUs in the load file are datafilled in the PRSM and associated with the load file destination. All SPM peripheral destinations are updated with the same load name as the new SPM load file destination. This makes sure that the new load file destination and the SPM peripheral destination share the same SPM PRSU information.

### **PRSU audits**

The PRSM scheduler uses the DBAUDIT command to run a daily status audit. The status audit includes all the nodes in an office and can be connected with SPM load file and peripheral destinations. The DBAUDIT command can also be issued manually on all destinations or on separate destinations in an office.

The status audit updates load files with the PRSUs that transfer during one-night processes (ONP). The status audit also maintains the accuracy of the PRSM database and the data in the SPM nodes. The operating company personnel can use the PRSM DISADMIN command to query the administrative information built into PRSUs.

### **Commands information**

The operating company personnel can track SPM PRSUs and SPM fix-level content from the MAP (maintenance and administration) terminal.

A new command, SPMLFINFO, resides at the CI level of the MAP terminal. SPMLFINFO is a non-PRSM command that shows PRSM information and market or release information about an SPM load file. The command requires a valid SPM load file.

To run the SPMLFINFO command, use the following procedure.

**Procedure 2-1**

*At the CI level of the MAP display*

- 1 Enter the disk utility by typing  
**>DISKUT**  
and pressing the Enter key.
- 2 List the volume of the load file by typing  
**>LF volume\_of\_the\_file**  
and pressing the Enter key.  
*where*  
**volume\_of\_the\_file**  
is the SLM disk volume the load file is on

*Example*

- ```
>LF S00DPMLoads
```
- 3 Exit the disk utility by typing  
**>QUIT**  
and pressing the Enter key.
  - 4 Run the SPMLFINFO command by typing  
**>SPMLFINFO load\_file\_name**  
and pressing the Enter key.  
*where*  
**load\_file\_name**  
is the name of the SPM load file

*Example*

```
>SPMLFINFO OC315AF_010005
```

The following figure shows an example of the output from the SPMLFINFO command.

**Figure 2-2 Example of output from SPMLFINFO command**

```
>spmlfinfo oc315af_010005
Filename:                OC315af_010005
Loadname:                OC315af
Equipment type:         OC3
Market:                  ALL
Vendor:                  Nortel
Version:                 SPD15
Release type:           generally available
General Release:        OC301
Maintenance Release:
Required Emergency release:
Target Customer:
Target Office:
Issue Date:              1998/09/28 01:00:00.000 MON.
Description:             Production build for sanity
Loadbuild Agency:       Ottawa
Library Update:         1_spd1001ax
Required CSP:
Required Shared:
Required PCL:
Required CEM:
Other requirements:
Comments:  spd15 oc3 build
```

The PRSM DISADMIN command allows the operating company personnel to access administrative information about SPM PRSUs. For the DISADMIN command to display this information, the SPM load file must first be datafilled in table PMLOADS. Then the operating company personnel can use the DISADMIN command on any PRSU connected with the SPM load file. If the SPM load file is not datafilled in table PMLOADS, the DISADMIN command displays only information stored in the PRSM database.

The PRSM SELECT command generates reports for load file destinations, peripheral destinations, and PRSUs. DESTID, a new field added to the PRSM database, permits the operating company personnel to access these reports for SPM.

The PRSM DBAUDIT command accepts for audit any SPM load file or destination name. The operating company personnel need to audit the SPM load file and peripheral destinations for the following reasons:

- SPM load files are not available for parsing on storage devices on the inactive central processing unit (CPU) during the following conditions:
  - an ONP
  - a DUMP/RESTORE of table PMLOADS

A DBAUDIT command executed during the post-switch activity (SWACT) phase of an ONP datafills any SPM PRSUs connected with SPM load files transferred over the DUMP/RESTORE.

- The audit maintains accuracy between the data in the PRSM database and the data in the SPM peripherals. If the load names do not match, the audit corrects the PRSM database to reflect the load name and fix content.

See the *Spectrum Peripheral Module Commands Reference Manual*, 297-1771-819 for more information on SPM-related commands.

See the *Post-Release Software Manager (PRSM) Operating Procedures*, 297-8991-540 for more information on PRSM-related commands.

## Restrictions

During an ONP on the inactive side, storage devices that contain SPM load files are not available. Some SPM PRSU information does not appear in the PRSM database until the post-SWACT phase and the subsequent DBAUDIT command executes.

The datafill in table PMLOADS or table MNCKTPAK, or a combination of the two, controls SPM PRSU status information in the PRSM database. Therefore, the PRSM database can be wrong until the system reloads the SPM node with the load file datafilled in table PMLOADS. If the SPM node does not reload, the PRSM database can indicate that SPM PRSUs are applied to an SPM peripheral when they are not. The DBAUDIT command must run, manually or automatically, to apply the SPM PRSUs.

## Logs

When operating company personnel add an SPM load file to table PMLOADS, the system generates a PRSM400 summary log for each SPM PRSU. The log indicates that a PRSU is applied to a PRSM load file destination. The system also generates a PRSM400 summary log for an SPM PRSU when an SPM load file destination load name is connected with an SPM destination. This log indicates the SPM PRSU is applied to the SPM destination when the SPM peripheral reloads.

---

## 3 Resource module in-service loading

---

### Resource module upgrade

To upgrade an SPM, you must first upgrade the resource modules (RM) of the SPM. An RM upgrade has two stages.

- Transfer a new load to the RM.
- Activate the new load on the RM.

The load transfer stage takes three to four times longer than the load activation stage. During the load transfer stage, the complete load is written into FLASH memory on the RM. The load is then copied from FLASH memory to the RAM during the load activation stage. As a result, the RM is able to remain in service during the load transfer stage. The RM goes out of service only during the load activation stage, which reduces the overall time the RM is out of service.

There are two designs for in-service RM loading.

- single RM in-service loading
- RM-to-RM loading

### Single RM in-service loading

In the single RM in-service loading method, operating company personnel download a new load from the computing module (CM) into the RM FLASH memory. The download is done by way of the message switch (MS), enhanced network (ENET), and inactive common equipment module (CEM). The RM remains in-service during load transfer. After the load transfer completes, the new load is copied from FLASH memory into random access memory (RAM). The RM changes to a SysB state when the new load is copied from FLASH memory into RAM. The new load then begins running on the RM.

### RM-to-RM loading

In the RM-to-RM loading method, the operating company personnel transfer the load from a source RM to a destination RM. The system first reads the new load from the FLASH memory of the source RM. The system then writes the new load into the FLASH memory of the destination RM. This transfer is done

by way of the inactive CEM. The destination RM remains in-service during the load transfer stage. After load transferring completes, the destination RM copies the new load from FLASH memory into RAM. The new load then begins running on the RM.

When the SPM contains multiple RMs of the same type, Nortel Networks advises using the RM-to-RM loading method. To upgrade the SPM, first use the single RM in-service loading method to seed one RM of each type. Then, perform RM-to-RM loading within the same SPM.

The RM-to-RM loading method has the following two advantages over the single RM in-service loading method:

- Because of a shorter message path within the SPM, there is a three to four times improvement in loading time
- Because load transfer occurs within the SPM, there is a reduced load on the CM, MS, and ENET

### Limitations and restrictions

The following limitations and restrictions apply to RM in-service loading:

- single RM in-service loading
  - the RM must be in-service
  - the RM must be inactive
  - both CEMs must be in-service (INSV or ISTB)
- RM-to-RM loading
  - both RMs must be within the same SPM
  - both RMs must be of the same type: (optical carrier-level 3 [OC-3] RM to OC-3 RM, asynchronous transfer mode [ATM] RM to ATM RM, digital signal processor [DSP] RM to DSP RM, voice signal processing [VSP] RM to VSP RM, Coherent [COH] RM to COH RM, or data link controller [DLC] RM to DLC RM)

*Note:* ATM is available for Succession Solutions only.

- both RMs must be in-service (INSV or ISTB) before loading begins
- the destination RM must be inactive before loading begins
- both CEMs must be in-service (INSV or ISTB)

### User interface

RM in-service loading is supported by identical changes to the LoadMod command in directories SPMDSPDIR and SPMOC3DIR. All RM loading is

also supported by the new ABTK command, which you can find in these same directories.

### **LoadMod command**

The LoadMod command is a menu command used to load the circuit pack. When you use the LoadMod command, you cannot select the NOWAIT or NOREPLY option if you specify the ALL parameter. The ALL parameter is optional. If you do not specify the ALL parameter, the command defaults to operating on the RM posted by the current MAP (maintenance and administration position) terminal. If you specify the ALL parameter, the LoadMod command operates on all the RMs selected by the Post set. Note the LoadMod command affects inactive units only. All active units fail when the LoadMod command is used with the ALL parameter.

You cannot use the InSvld and Mate parameters together. The InSvld parameter is the in-service loading indicator. If you specify this parameter, the LoadMod command executes an in-service loading through the CM. The Mate parameter is the RM-to-RM loading indicator. If you specify this parameter, the LoadMod command executes an RM-to-RM loading. The RM specified by parameter Mate Unit acts as the source RM.

You cannot use the File Name and Mate parameters together. The File Name parameter is the name of the load file. If you specify this parameter, the system uses the specified load file for loading.

The command syntax for the LoadMod command is LOADMOD: load the circuit pack.

Access the SPMDSPDIR directory by typing

```
>MAPCI;MTC;PM;POST SPM spm_no;SELECT DSP unit_no
```

or

```
>MAPCI;MTC;PM;POST SPM spm_no;SELECT DSP all
```

and pressing the Enter key.

The following figure shows the parameters available for use with the LoadMod command in directory SPMDSPDIR.

Parms:   [<File Name>    STRING]  
          [<InSvld>     {INSVLD}]  
          [<Mate>        {MATE <Mate Unit> {0 TO 27}}]  
          [<All>         {ALL}]  
          [<Options>    {NOWAIT,  
                          NOREPLY}]

Access the SPMOC3DIR directory by typing

```
>MAPCI;MTC;PM;POST SPM spm_no;SELECT OC3 unit_no
```

or

```
>MAPCI;MTC;PM;POST SPM spm_no;SELECT OC3 all
```

and pressing the Enter key.

The following figure shows the parameters available for use with the LoadMod command in directory SPMOC3DIR.

Parms:   [<File Name>    STRING]  
          [<InSvld>     {INSVLD}]  
          [<Mate>        {MATE <Mate Unit> {0 TO 1}}]  
          [<All>         {ALL}]  
          [<Options>    {NOWAIT,  
                          NOREPLY}]

### **Abtk command**

The Abtk command is an unlisted menu command used to abort the loading task on the RM. The Abtk command has no general application and you cannot apply it to other maintenance commands.

The command syntax for the Abtk command is ABTK: Abort all active tasks on the circuit pack. There are no parameters used with the Abtk command. Note the abort all active tasks command works only on loading operations or tasks.

## 4 Prepare a manual SPM upgrade

### Application

Use this procedure to prepare the following circuit packs in a Spectrum Peripheral Module (SPM) for a manual upgrade.

**Table 4-1**

| Name                                                         | Description                                             |
|--------------------------------------------------------------|---------------------------------------------------------|
| ATM                                                          | asynchronous transfer mode (ATM) resource module (RM)   |
| CEM                                                          | common equipment module (CEM)                           |
| DLC                                                          | data link controller (DLC) RM                           |
| DSP                                                          | digital signal processor (DSP) RM                       |
| OC3                                                          | optical carrier rate 3 (OC3) interface RM               |
| VSP                                                          | voice signal processor (VSP) RM                         |
|                                                              | <b>Note:</b> This includes LX66, LX85, and LX86 VSP RMs |
| <b>Note:</b> ATM is available for Succession Solutions only. |                                                         |

### Prerequisites

To add or remove SPM patches, you must have a computing module (CM) load of at least CSP12. If you do not have this required CM load and intend to add or remove SPM patches, you must upgrade the CM load.



#### **CAUTION**

##### **Possible service interruption**

During the upgrade process for SP15, the RMs are loaded before the CEMs. Patching will not work until the CEMs have been loaded with at least SP14 and the CM is on CSP12.

In order for an SPM customer using primary rate interface (PRI) to upgrade the SPM load to SP15, the SPM must be running SP12.9.0 or higher. Upgrades prior to SP12.9.0 do not contain fixes that affect provisioning and upgrading of PRI. There is a high probability of a PRI outage if the customer attempts to upgrade to SP15 from a load prior to SP12.9.0.

## Required information

Each time a new patchable maintenance non-CM load (MNCL) is released, you must datafill tables PMLOADS and MNCKTPAK with the new load name.

To make use of fixes released as post-release software updates (PRSU), you must maintain the most current SPM MNCL or patched MNCL.



### **CAUTION**

#### **Possible service interruption**

Do not datafill Service Test Access (STA) resources.  
Change datafill for existing tuples with STA resources.  
This is necessary prior to a software upgrade and is recommended even if an upgrade is not expected.

Note that previous releases of SPM allowed STA resource provisioning. Do not provision STA. If an SPM has STA resources provisioned, remove those STA resources from table MNCKTPAK according to the procedure in the *Customer Data Schema Reference Manual*.

---

**Maintenance release upgrade precaution**

To prevent SPM corruption during a maintenance or milestone upgrade, Nortel Networks recommends completely loading an entire SPM during a single upgrade with the upgrade load.

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

Nortel Networks strongly recommends completely loading all SPMs during 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, in turn, result in the reload of modules in an out-of-procedure sequence, which can be potentially service affecting.

However, if you cannot complete the loading of all SPMs during the same period, upgrade only a limited number of SPMs during that loading period.

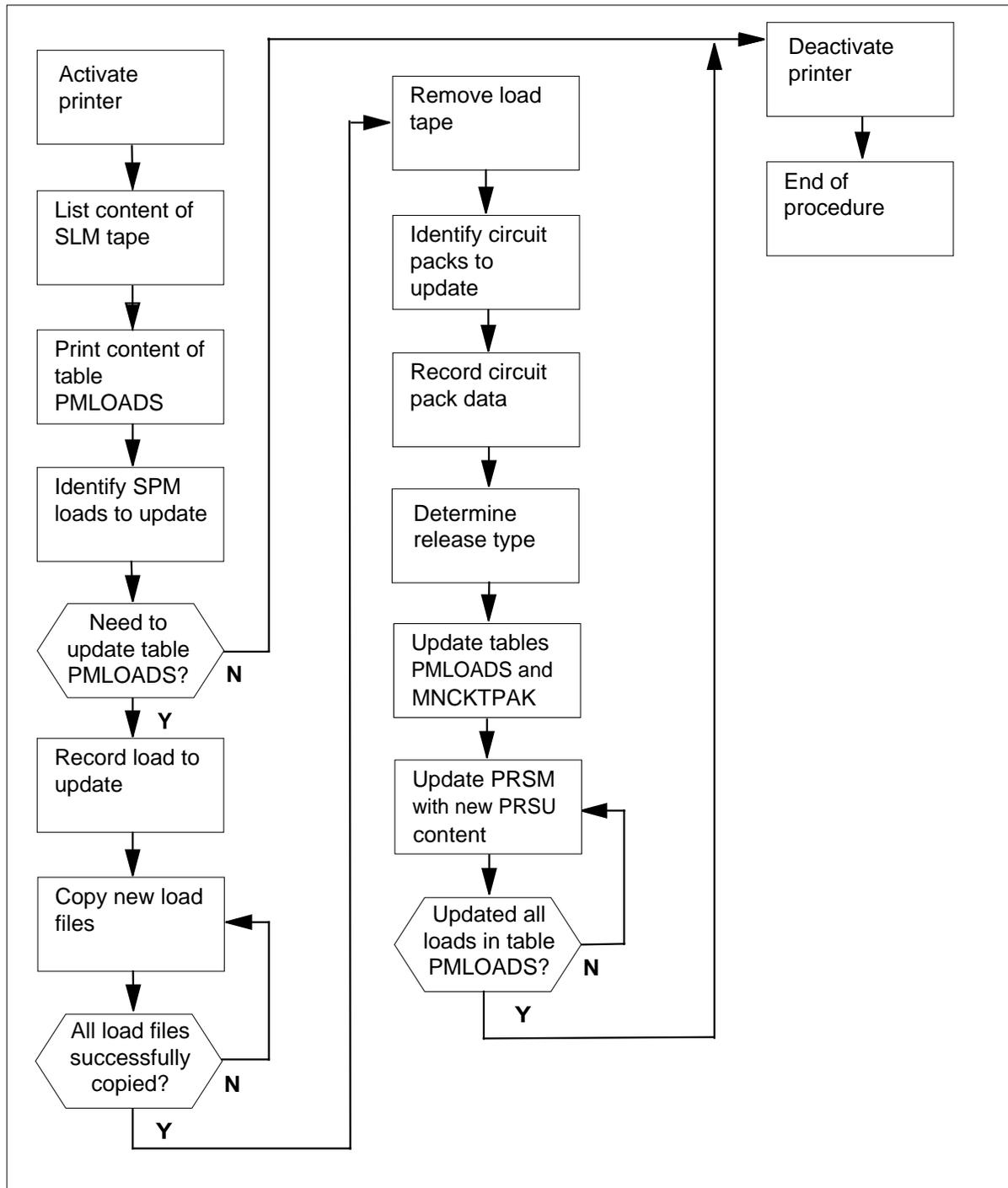
*Note:* Due to a load mismatch with table PMLOADS, SPMs not loaded with an upgrade load reflect an ISTB condition. The ISTB condition remains in effect until you have completed the upgrade on all SPMs.

**Procedure to prepare for an SPM upgrade**

Consult the following flowchart for a summary of the procedure to prepare for an SPM upgrade.

#### 4-4 Prepare a manual SPM upgrade

Figure 4-1 Summary of procedure



---

**Procedure 4-1 Steps of procedure****ATTENTION**

Follow your company policy for soaking selected circuit packs before upgrading the rest of your office. See the appendix "Limited soak-in deployment" to soak a new load on a circuit pack without changing default loads in table PMLOADS and table MNCKTPAK.

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

- 1 Review the introductory material to this procedure.
- 2 Send the terminal response to a printer by typing

```
>RECORD START ONTO printer_name
```

and pressing the Enter key.

where

**printer\_name**

is the name of the printer

Example

```
>RECORD START ONTO printer1
```

**At the SLM +tape drive**

- 3 List the content of the SPM load tape by performing the following steps.
  - a Select a system load module (SLM) disk volume as the volume for the new loads and PRSU files.
  - b Place the SPM load tape into the SLM tape drive of the selected SLM disk volume.

At the MAP display

- c Access the disk utility by typing

```
>DISKUT
```

and pressing the Enter key.

- d Insert the SLM load tape into the SLM tape drive by typing

```
IT drive_name
```

and pressing the Enter key.

where

#### 4-6 Prepare a manual SPM upgrade

---

**drive\_name**

is the name of the SLM tape drive

*Example*

**IT S00T**

- e** List the load file contents of the SLM tape by typing

**>LF drive\_name**

and pressing the Enter key.

*where*

**drive\_name**

is the name of the SLM tape drive

*Example*

**>LF S00T**

- 4** Print the contents of table PMLOADS by performing the following steps.
  - a** Access table PMLOADS by typing  
**>TABLE PMLOADS**  
and pressing the Enter key.
  - b** List the load file contents of table PMLOADS by typing  
**>LIST ALL**  
and pressing the Enter key.
  - c** Exit table PMLOADS by typing  
**>QUIT**  
and pressing the Enter key.
- 5** Identify the SPM loads you need to update by performing the following steps.
  - a** Compare the load file names on the tape to the active load file names in table PMLOADS. To determine the load file names on the tape, refer to step 3e. To determine the load file names in table PMLOADS, refer to step 4b.  
  
**Note:** For information about SPM load naming conventions and release types, see the chapter “SPM release types and naming standards.”
  - b**

**ATTENTION**

Respond correctly to the decision box in this step. Your response is critical for you to prepare for the SPM upgrade successfully. Be sure that you follow the steps that apply to the type of release upgrade for which you are preparing.

Determine if you need to update the SPM load name in table PMLOADS.

| If you are preparing for a        | Do      |
|-----------------------------------|---------|
| milestone release                 | Step 5c |
| maintenance or emergency re-lease | Step 5d |

**c** You must update table PMLOADS if the following conditions exist for a milestone release:

- The new release number of an SPM load name on the SLM tape is greater than the current release number in table PMLOADS. (The load file contents of the SLM tape shows the new release number. The active file in table PMLOADS shows current release number.)
- The postfix index number increases or remains the same.

Go to Step 5e.

**d** You must update table PMLOADS if the following conditions exist for maintenance or emergency release:

- The new release number of an SPM load name on the SLM tape is identical to the current release number in table PMLOADS. (The load file contents of the SLM tape shows the new release number. The active file in table PMLOADS shows the current release number.)
- The six-digit postfix index of the SPM load file name changes from the current release to the new release.

**e** Use the following table to determine if you need to update the SPM load name in table PMLOADS.

**Table 4-2 SPM load release types and actions (Sheet 1 of 2)**

| Milestone release number, current release vs. new release                 | Postfix index number, current release vs. new release | Release type | Action |
|---------------------------------------------------------------------------|-------------------------------------------------------|--------------|--------|
| New release number is greater than the current release number (See note.) | does not matter                                       | milestone    | update |
| New release number and current release number are the same (See note.)    | changed                                               | maintenance  | update |
| New release number and current release number are the same (See note.)    | changed                                               | emergency    | update |

**Note:** Current release number refers to the number shown in table PMLOADS. New release number refers to the number shown on the SLM tape.

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**Table 4-2 SPM load release types and actions (Sheet 2 of 2)**

| Milestone release number, current release vs. new release              | Postfix index number, current release vs. new release | Release type   | Action                        |
|------------------------------------------------------------------------|-------------------------------------------------------|----------------|-------------------------------|
| New release number and current release number are the same (See note.) | unchanged                                             | not applicable | do not update                 |
| New release number is less than the current release number (See note.) | does not matter                                       | error          | contact next level of support |

**Note:** Current release number refers to the number shown in table PMLOADS. New release number refers to the number shown on the SLM tape.

**6** Determine if you need to access table PMLOADS to update the load file names.

| If you                                                     | Do      |
|------------------------------------------------------------|---------|
| need to update the load file names in table PMLOADS        | Step 7  |
| do not need to update the load file names in table PMLOADS | Step 24 |

**7**

**ATTENTION**  
ATM is available for Succession Solutions only.

**ATTENTION**  
The DSP load contains the VSP, as well as the DSP upgrade software.

Use the following work sheet to record the load in table PMLOADS that you need to update.

**Table 4-3 Load update work sheet (Sheet 1 of 2)**

| Current load name in PMLOADS | Current active load file name in PMLOADS | New load name from SLM tape contents | New active load file name from SLM tape contents |
|------------------------------|------------------------------------------|--------------------------------------|--------------------------------------------------|
|                              |                                          |                                      |                                                  |
|                              |                                          |                                      |                                                  |

**Table 4-3 Load update work sheet (Sheet 2 of 2)**

| <b>Current load name in PMLOADS</b> | <b>Current active load file name in PMLOADS</b> | <b>New load name from SLM tape contents</b> | <b>New active load file name from SLM tape contents</b> |
|-------------------------------------|-------------------------------------------------|---------------------------------------------|---------------------------------------------------------|
|                                     |                                                 |                                             |                                                         |
|                                     |                                                 |                                             |                                                         |
|                                     |                                                 |                                             |                                                         |
|                                     |                                                 |                                             |                                                         |
|                                     |                                                 |                                             |                                                         |
|                                     |                                                 |                                             |                                                         |
|                                     |                                                 |                                             |                                                         |
|                                     |                                                 |                                             |                                                         |

The following work sheet provides a sample of a completed Load update work sheet for a milestone release.

**Table 4-4 Sample load update work sheet for a milestone release**

| <b>Current load name in PMLOADS</b> | <b>Current active load file name in PMLOADS</b> | <b>New load name from SLM tape contents</b> | <b>New active load file name from SLM tape contents</b> |
|-------------------------------------|-------------------------------------------------|---------------------------------------------|---------------------------------------------------------|
| OC314AF                             | OC314AF_010005                                  | OC315AF                                     | OC315AF_010005                                          |
| ATM14AF                             | ATM14AF_010005                                  | ATM15AF                                     | ATM15AF_010005                                          |
| DSP0014                             | DSP0014_010003                                  | DSP15AF                                     | DSP15AF_010005                                          |
| CEM14AF                             | CEM14AF_010005                                  | CEM15AF                                     | CEM15AF_010005                                          |

The following work sheet provides a sample of a completed Load update work sheet for a maintenance or emergency release.

**Table 4-5 Sample load update work sheet for a maintenance or emergency release (Sheet 1 of 2)**

| <b>Current load name in PMLOADS</b> | <b>Current active load file name in PMLOADS</b> | <b>New load name from SLM tape contents</b> | <b>New active load file name from SLM tape contents</b> |
|-------------------------------------|-------------------------------------------------|---------------------------------------------|---------------------------------------------------------|
| OC315AE                             | OC315AE_010003                                  | OC315AF                                     | OC315AF_010005                                          |
| ATM15AE                             | ATM15AE_010002                                  | ATM15AF                                     | ATM15AF_010005                                          |

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Table 4-5 Sample load update work sheet for a maintenance or emergency release (Sheet 2 of 2)

| Current load name in PMLOADS | Current active load file name in PMLOADS | New load name from SLM tape contents | New active load file name from SLM tape contents |
|------------------------------|------------------------------------------|--------------------------------------|--------------------------------------------------|
| DSP0015                      | DSP0015_010003                           | DSP15AF                              | DSP15AF_010005                                   |
| CEM15AE                      | CEM15AE_010003                           | CEM15AF                              | CEM15AF_010005                                   |

- 8** Identify the PRSUs for the SPM load files.
- a** Verify that the tape contains the \$XREF patch control file.
- 
- | If the SLM tape cartridge label text indicates | Do      |
|------------------------------------------------|---------|
| “Patches: Yes”                                 | Step 8b |
| “Patches: No”                                  | Step 8c |
- 
- b** Copy the \$XREF tile to the SLM disk volume by typing
- ```
>MFR STDVOL disk_vol drive_name tape_vol $XREF_file
```
- and pressing the Enter key.
- where
- disk\_vol**  
is the name of the selected SLM disk volume
  - drive\_name**  
is the name of the SLM tape drive
  - tape\_vol**  
is the name of the PCL-specific SLM tape cartridge volume
  - \$XREF\_file**  
is the name of the \$XREF patch control file
- Example*
- ```
>MFR STDVOL S00DPMLOADS S00T PLNA0010 XPM10RTP$XREF
```
- c** Print the \$XREF file to identify the PRSUs for the SPM load files by typing
- ```
>PRINT $XREF_file
```
- and pressing the Enter key.
- where
- \$XREF\_file**  
is the name of the \$XREF patch control file
- Example*
- ```
PRINT XPM10RTP$XREF
```
- 9** Copy all new required load files by performing the following steps.
- a** Copy one required load file from the SLM tape to a disk volume by typing
- ```
>MFR STDVOL disk_vol drive_name tape_vol new_load_file
```
- and pressing the Enter key.

where

**disk\_vol**

is the name of the selected SLM disk volume

**drive\_name**

is the name of the SLM tape drive

**tape\_vol**

is the name of the PCL-specific SLM tape cartridge volume

**new\_load\_file**

is the name of the new load file required to update the current load

*Example*

```
>MFR STDVOL S00DPMLoadS S00T PLNA0010 CEM15AF_010005
```

- b** Copy the remaining load files from the SLM tape to a disk volume.

**If**

**Do**

there are required load files that you have not copied from the SLM tape to a disk volume      Step 9a

you have copied all required load files from the SLM tape to a disk volume      Step 10

- 10** Make sure that all required load files have been correctly copied on the disk volume by performing the following steps.

- a** List the contents of the disk volume that contains the new loads by typing

```
>LF disk_vol
```

and pressing the Enter key.

where

**disk\_vol**

is the name of the selected SLM disk volume

*Example*

```
>LF S00DPMLoadS
```

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Figure 4-2 Example of MAP display

FILE NAME	O R I O O FILE R E T P L CODE G C O E D C N	MAX REC	NUM OF RECORDS IN FILE	FILE SIZE IN BLOCKS	LAST MODIFY DATE
CEM15AB_010005	O F	0	1536 10103	30341	990518
MPF15BG	O F	0	138 514	191	990209
MTMKA02	O F	0	76 302	63	980826
ENX12AU	O F	0	1020 3642	7289	990512
ENX11BA	O F	0	1020 3707	7410	990414
LRS15BJ	O F	0	1020 3707	7417	990512
LRS15BJ	I F	0	1020 3707	7414	990302
MPC403AD	O F	9	2048 162	703	980826
ERS11BA	O F	0	1020 4812	9646	990414
ED715BC	O F	0	1024 2740	5499	990209
ERS12AU	O F	0	1020 4812	9646	990512
ED715BC	O F	0	1024 2754	5558	990512
DSP15AF_010005	O V	0	256 18331	8926	990518
MPF15BG	O F	0	138 514	914	990512
OC315AF_010005	O V	0	256 19942	9754	990518

- b Compare the results of the LF disk\_vol command to the entries you made on the Load update work sheet in step 7.

If	Do
you discover required load files that were not copied on the disk volume	Step 9a
all required load files have been copied onto the disk volume	Step 11

- 11 Copy the SPM load files from the active SLM disk volume to a backup SLM disk volume.

- a List the active SPM load file SLM disk volume contents by typing

>LF disk\_vol

and pressing the Enter key.

where

**disk\_vol**

is the SPM disk volume name

Example

> LF S00DPMLOADS

- b Select a different SLM disk volume to store the backup SPM load files.

- c Copy one PM load file by typing

> COPY new\_load disk\_vol

and pressing the Enter key.

where

**new\_load**  
is the new SPM load file name

**disk\_vol**  
is the backup SLM disk volume name

Example

```
> COPY LPC08BC S01DPMLoads
```

- d** Create backup SPM load files for the remaining SPM load files.

If a backup SPM load file	Do
has not been created for all SPM load files	step 11c
has been created for all SPM load files	step 11e

- e** List the backup SPM load file SLM disk volume by typing

```
>LF disk_vol
```

and pressing the Enter key.

where

**disk\_vol**  
is the backup SPM disk volume name

Example

```
> LF S01DPMLoads
```

- f** Compare the results of the LF disk\_vol command to the entries you made on the Load update worksheet in step 7.

If all SPM load files	Do
are in the backup volume	Step 12
are not in the backup volume	Step 11c

- 12** Use the list printed in Step 8c to identify any PRSU files you need to copy.
- 13** Remove the SPM load tape from the SLM tape drive.
- 14** Quit the disk utility by typing
- ```
>QUIT
```
- and pressing the Enter key.
- 15** Store the SPM load tape in an available on-site location for future use.
- 16** Identify the SPM circuit packs to be upgraded by performing the following steps. Match the load of an SPM circuit pack in table MNCKTPAK against the current load in table PMLOADS.

**Note:** For the current load in table PMLOADS, see the Load update work sheet that you completed in step 7. If you need to update the current load in table PMLOADS, you must upgrade the SPM circuit packs.

#### 4-14 Prepare a manual SPM upgrade

---

- a Access table MNCKTPAK by typing  
`>TABLE MNCKTPAK`  
and pressing the Enter key.
- b List the corresponding circuit packs to be upgraded by typing  
`>LIST ALL ('LOAD' EQ the_load_to_update)`  
and pressing the Enter key.  
*where*  
**the\_load\_to\_update**  
is the load name of a load in table PMLOADS that you need to upgrade

**Note:** You must include the ' immediately before and after the key word LOAD, and the key word must be in upper case.

*Examples*

```
>LIST ALL ('LOAD' EQ OC314AF)
>LIST ALL ('LOAD' EQ DSP0014)
>LIST ALL ('LOAD' EQ CEM14AF)
```

**Figure 4-3 Example of MAP display for load name DSP0014**

| CPKKEY     | PEC      | RELEASE                                  | LOAD                                            | CPKINFO                            |
|------------|----------|------------------------------------------|-------------------------------------------------|------------------------------------|
| SPM 23 1 1 | VSP 0 1  | WORKING (ECAN 12)                        | \$(SYSB CR RPT) (MANB MJ RPT)                   | (ISTB MN RPT) (PROTFAIL CR RPT) \$ |
|            | NTLX66AA | 01                                       | DSP0014                                         |                                    |
| SPM 23 1 2 | VSP 1 1  | SPARE (SYSB CR RPT) (MANB MJ RPT)        | (ISTB MN RPT)                                   | (PROTFAIL CR RPT) \$               |
|            | NTLX66AA | 01                                       | DSP0014                                         |                                    |
| SPM 23 1 7 | DSP 0 1  | WORKING (COT 12) (DTMF 12) (TONESYN 12)  | \$(SYSB CR RPT) (MAN MJ RPT) (ISTB MN RPT)      | (PROTFAIL CR RPT) \$               |
|            | NTLX65AA | 01                                       | DSP0014                                         |                                    |
| SPM 23 1 8 | DSP 1 1  | SPARE (SYSB CR RPT) (MANB MJ RPT)        | (ISTB MN RPT)                                   | (PROTFAIL CR RPT) \$               |
|            | NTLX65AA | 01                                       | DSP0014                                         |                                    |
| SPM 40 1 1 | VSP 0 1  | WORKING (ECAN 12)                        | \$(SYSB CR RPT) (MANB MJ RPT)                   | (ISTB MN RPT) (PROTFAIL CR RPT) \$ |
|            | NTLX66AA | 01                                       | DSP0014                                         |                                    |
| SPM 40 1 2 | VSP 1 1  | SPARE (SYSB CR RPT) (MANB MJ RPT)        | (ISTB MN RPT)                                   | (PROTFAIL CR RPT) \$               |
|            | NTLX66AA | 01                                       | DSP0014                                         |                                    |
| SPM 40 1 7 | DSP 0 1  | WORKING (COT 80) (DTMF 64) (TONESYN 255) | (ABBIT 7) (MF 10) \$(SYSB CR RPT) (MANB MJ RPT) | (ISTB MN RPT) (PROTFAIL CR RPT) \$ |
|            | NTLX65AA | 01                                       | DSP0014                                         |                                    |
| SPM 40 1 8 | DSP 1 1  | SPARE (SYSB CR RPT) (MANB MJ RPT)        | (ISTB MN RPT)                                   | (PROTFAIL CR RPT) \$               |
|            | NTLX65AA | 01                                       | DSP0014                                         |                                    |

- 17** Use the following work sheet to record the circuit packs you must upgrade. Duplicate the work sheet as needed so you can use a separate work sheet for each SPM.

4-16 Prepare a manual SPM upgrade

Figure 4-4 Circuit pack upgrade work sheet

| Node ID<br>(SPM no.) | Shelf ID | Slot no. | Circuit pack<br>type | Unit no. | Circuit pack<br>protection<br>group ID |  |
|----------------------|----------|----------|----------------------|----------|----------------------------------------|--|
|                      | 0        | 1        |                      |          |                                        |  |
|                      |          | 2        |                      |          |                                        |  |
|                      |          | 3        |                      |          |                                        |  |
|                      |          | 4        |                      |          |                                        |  |
|                      |          | 5        |                      |          |                                        |  |
|                      |          | 6        |                      |          |                                        |  |
|                      |          | 7        | CEM                  |          | NA                                     |  |
|                      |          | 8        | CEM                  |          | NA                                     |  |
|                      |          | 9        |                      |          |                                        |  |
|                      |          | 10       |                      |          |                                        |  |
|                      |          | 11       |                      |          |                                        |  |
|                      |          | 12       |                      |          |                                        |  |
|                      |          | 13       |                      |          |                                        |  |
|                      |          | 14       |                      |          |                                        |  |
|                      | 1        | 1        |                      |          |                                        |  |
|                      |          | 2        |                      |          |                                        |  |
|                      |          | 3        |                      |          |                                        |  |
|                      |          | 4        |                      |          |                                        |  |
|                      |          | 5        |                      |          |                                        |  |
|                      |          | 6        |                      |          |                                        |  |
|                      |          | 7        |                      |          |                                        |  |
|                      |          | 8        |                      |          |                                        |  |
|                      |          | 9        |                      |          |                                        |  |
|                      |          | 10       |                      |          |                                        |  |
|                      |          | 11       |                      |          |                                        |  |
|                      |          | 12       |                      |          |                                        |  |
|                      |          | 13       |                      |          |                                        |  |
|                      |          | 14       |                      |          |                                        |  |

where

**Node ID**  
is the SPM number

**Shelf ID**  
is the shelf ID of the circuit pack

**Slot no.**  
is the slot number of the circuit pack

**Circuit pack type**  
is the type of the circuit pack

**Unit no.**  
is the unit number of the circuit pack

**Circuit pack protection group ID**  
is the ID of the corresponding protection group where the circuit pack belongs

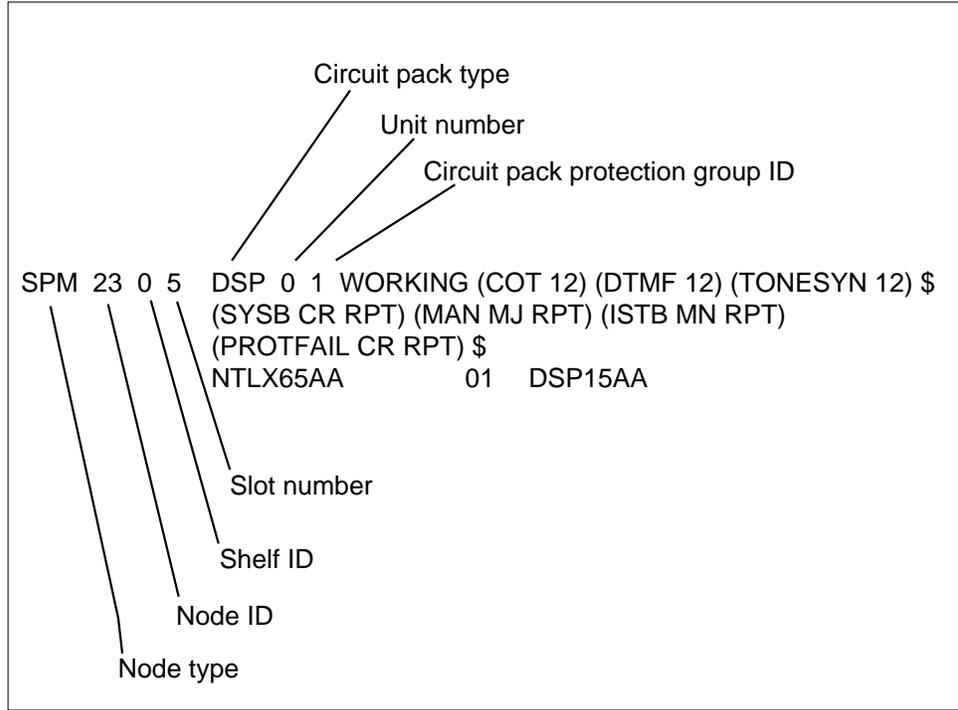
The following illustration shows sample datafill for table MNCKTPAK. For the purposes of this illustration, it shows only one example for each circuit pack type.

**Figure 4-5 Example of datafill for table MNCKTPAK**

| CPKKEY      | PEC     | RELEASE                                                                                                                                                                 | LOAD | CPKINFO |
|-------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|
| SPM 23 0 5  | DSP 0 1 | WORKING (COT 12) (DTMF 12) (TONESYN 12) \$<br>(SYSB CR RPT) (MAN MJ RPT) (ISTB MN RPT)<br>(PROTFAIL CR RPT) \$                                                          | 01   | DSP15AA |
| SPM 23 0 7  | CEM 0   | (SYSB CR RPT) (MANB MJ REP) (ISTB MN RPT)<br>(SYSBNA CR RPT) (MANBNA MJ RPT) (HLDOVR MJ RPT)<br>(HLDOVR24 MJ RPT) (VCXO70 MN RPT) (VCXO90 MJ RPT)<br>(CLKOOS MJ RPT) \$ | 01   | CEM15AA |
| SPM 23 0 9  | OC3 0 1 | WORKING (SYSB CR RPT) (MANB MJ RPT)<br>(ISTB MN RPT) (PROTFAIL NA RPT) \$                                                                                               | 01   | OC315AA |
| SPM 23 0 14 | VSP 0 1 | WORKING (ECAN 12) \$ (SYSB CR RPT) (MANB MJ RPT)<br>(ISTB MN RPT) (PROTFAIL CR RPT) \$                                                                                  | 01   | VSP15AA |

The following illustration identifies the fields you need to populate the Circuit pack upgrade work sheet for a DSP. The location of these fields for other RMs—OC3, ATM, VSP, and DLC—are identical. Note that the CEM does not belong to a protection group, and therefore does not have a circuit pack protection group ID.

**Figure 4-6 Fields used to populate the Circuit pack upgrade work sheet**



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

- OC3: OC3GRPID
- ATM: ATMGRPID
- DSP: DSPGRPID
- DLC: DLCGRPID

You must enter the protection group ID from table MNPRTGRP in table MNCKTPAK. A message displays if the protection group ID has not already been defined in table MNPRTGRP. In table MNPRTGRP, you can define the protection group in field GRPKEY, subfield GRPID. Valid values for subfield GRPID are 1 through 28.

If necessary, see the *Customer Data Schema Reference Manual* for information about tables MNCKTPAK and MNPRTGRP.

The following work sheet provides a sample of a completed Circuit pack upgrade work sheet for SPM 23.

Figure 4-7 Sample circuit pack upgrade work sheet

| Node ID<br>(SPM no.) | Shelf ID | Slot no. | Circuit pack<br>type | Unit no. | Circuit pack<br>protection<br>group ID |   |
|----------------------|----------|----------|----------------------|----------|----------------------------------------|---|
| 23                   | 0        | 1        | VSP                  | 0        | 1                                      |   |
|                      |          | 2        | VSP                  | 1        | 1                                      |   |
|                      |          | 3        | VSP                  | 2        | 1                                      |   |
|                      |          | 4        | VSP                  | 3        | 1                                      |   |
|                      |          | 5        | VSP                  | 4        | 1                                      |   |
|                      |          | 6        | VSP                  | 5        | 1                                      |   |
|                      |          | 7        | CEM                  | 0        | NA                                     |   |
|                      |          | 8        | CEM                  | 1        | NA                                     |   |
|                      |          | 9        | OC3                  | 0        | 1                                      |   |
|                      |          | 10       | OC3                  | 1        | 1                                      |   |
|                      |          | 11       |                      |          |                                        |   |
|                      |          | 12       |                      |          |                                        |   |
|                      |          | 13       |                      |          |                                        |   |
|                      |          | 14       |                      |          |                                        |   |
|                      |          | 1        | 1                    | VSP      | 6                                      | 2 |
|                      |          |          | 2                    |          |                                        |   |
|                      |          |          | 3                    |          |                                        |   |
|                      |          |          | 4                    | VSP      | 7                                      | 2 |
|                      |          |          | 5                    | DSP      | 0                                      | 1 |
|                      |          |          | 6                    |          |                                        |   |
|                      |          |          | 7                    | DSP      | 1                                      | 1 |
|                      |          |          | 8                    | DSP      | 2                                      | 1 |
|                      |          |          | 9                    | DSP      | 3                                      | 1 |
|                      |          |          | 10                   | DSP      | 4                                      | 1 |
|                      |          |          | 11                   | DSP      | 5                                      | 1 |
|                      |          |          | 12                   | DSP      | 6                                      | 1 |
|                      |          |          | 13                   | DSP      | 7                                      | 1 |
|                      |          |          | 14                   |          |                                        |   |

#### 4-20 Prepare a manual SPM upgrade

---

- 18** Use the following work sheet to record the circuit pack protection groups to be upgraded. Duplicate the work sheet as needed so you can use a separate work sheet for each SPM. For each SPM, copy the data from the Circuit pack upgrade work sheet to the following work sheet.

**Note:** A circuit pack group normally contains multiple circuit packs.



4-22 Prepare a manual SPM upgrade

where

**Node ID**  
is the SPM number

**Circuit pack type**  
is the type of the circuit pack

**Circuit pack protection group ID**  
is the ID of the corresponding protection group where the circuit pack belongs

**Unit no.**  
is the unit number of the circuit pack belonging to the circuit pack group

The following work sheet provides a sample of a completed Circuit pack protection groups work sheet for SPM 23.

Figure 4-9 Sample circuit pack protection groups work sheet

| Node ID<br>(SPM no.) | Circuit pack<br>type | Circuit pack<br>protection<br>group ID | Unit no. |   |   |   |   |   |   |   |
|----------------------|----------------------|----------------------------------------|----------|---|---|---|---|---|---|---|
|                      |                      |                                        | 0        | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23                   | CEM                  | NA                                     | 0        | 1 |   |   |   |   |   |   |
|                      | OC3                  | 1                                      | 0        | 1 |   |   |   |   |   |   |
|                      | DSP                  | 1                                      | 0        | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|                      | VSP                  | 1                                      | 0        | 1 | 2 | 3 | 4 | 5 |   |   |
|                      | VSP                  | 2                                      | 6        | 7 |   |   |   |   |   |   |

**Record the status of each DSP: Working/Spare, Active/Inactive, In-service/Out of service.**

DSP 0 1, Working, Active, In-service  
 DSP 1 1, Spare, Inactive, In-service  
 DSP 2 1, Working, Active, In-service  
 DSP 3 1, Working, Active, In-service  
 DSP 4 1, Working, Active, In-service  
 DSP 5 1, Working, Active, In-service  
 DSP 6 1, Working, Active, In-service  
 DSP 7 1, Working, Active, In-service

**ATTENTION**

Respond correctly to the decision box in this step. Your response is critical for you to prepare for the SPM upgrade successfully. Be sure that you follow the steps that apply to the type of release upgrade you are preparing.

Access table PMLOADS by typing

>TABLE PMLOADS

and pressing the Enter key.

| If you are updating table PMLOADS for an SPM | Do      |
|----------------------------------------------|---------|
| milestone release                            | Step 20 |
| maintenance or emergency re-lease            | Step 22 |

**Note:** Use the Load update work sheet to help you complete the table PMLOADS update.

**20** Update table PMLOADS and table MNCKTPAK for an SPM milestone release by performing the following steps.

**a** Add a new load name by typing

```
>ADD new_load_name new_act_file actvol backup_file
backup_vol N
```

and pressing the Enter key.

where

**new\_load\_name**  
is the load name of the new load

**new\_act\_file**  
is the load file name of the new load file

**actvol**  
is the disk volume where the new load file is stored

**backup\_file**  
is the load file name of the backup load file

**backup\_vol**  
is the disk volume where the backup load file is stored

*Example*

```
>ADD DSP15AF DSP15AF_010005 S00DPMLOADS DSP15AF_010005
S00DPMLOADS N
```

**Figure 4-10 Example of MAP display**

| LOADNAME       | ACTFILE | ACTVOL      | BKPFIL | BKPVOL | UPDACT |
|----------------|---------|-------------|--------|--------|--------|
| -----          |         |             |        |        |        |
| DSP15AF        |         |             |        |        |        |
| DSP15AF_000005 |         | S00DPMLOADS |        |        |        |
| DSP15AF_000005 |         | S00DPMLOADS |        |        | N      |

ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.

#### 4-24 Prepare a manual SPM upgrade

---

- b Confirm the system prompt by typing  
`>Y`  
and pressing the Enter key.
- c Check the Load update work sheet you completed in step 7 to determine if you updated all loads in table PMLOADS.

---

| <b>If you have</b>                     | <b>Do</b> |
|----------------------------------------|-----------|
| not updated all loads in table PMLOADS | Step 20a  |
| updated all loads in table PMLOADS     | Step 20d  |

---

- d Exit table PMLOADS and reenter table MNCKTPAK by typing  
`>QUIT`  
and pressing the Enter key.  
Use table MNCKTPAK to update the circuit pack load inventory for an SPM.
- e Determine which circuit packs you need to upgrade. Refer to the Circuit pack upgrade work sheet you completed in Step 17.
- f Update the default load for a circuit pack that you need to upgrade on the SPM by typing

`>POS SPM spm_no shelf_ID slot_no`

and pressing the Enter key.

*where*

**spm\_no**

is the ID (number) of the SPM where the circuit pack exists

**shelf\_ID**

is the ID of the SPM shelf where the circuit pack exists

**slot\_no**

is the slot on the SPM shelf where the circuit pack exists

*Example*

`>POS SPM 23 0 1`

- g Determine the new load for the circuit pack. Refer to the Load update work sheet you completed in Step 7.
- h Update the default load name for the circuit pack by typing

`>CHA LOAD new_load_name`

and pressing the Enter key.

*where*

**new\_load\_name**

is the new load name

*Examples*

`>CHA LOAD DSP15AF`

```
>CHA LOAD OC315AF
>CHA LOAD CEM15AF
```

**Figure 4-11 Example of MAP display for new DSP load name DSP15AF**

```
SPM 23 0 1 DSP 4 1 SPARE (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT)
      (PROTFALL CR RPT) $
      NTLX65AA      01      DSP15AF

ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
```

- i Confirm the system prompt by typing  
>Y  
and pressing the Enter key.
- j Check the Load update work sheet to determine if you need to upgrade other circuit packs.

| If you have                             | Do       |
|-----------------------------------------|----------|
| not upgraded all required circuit packs | Step 20f |
| upgraded all required circuit packs     | Step 20k |

- k Exit table MNCKTPAK by typing  
>QUIT  
and pressing the Enter key.

21

#### ATTENTION

This step is optional. To proceed with the SPM upgrade, you are not required to manually update PRSM with the PRSU content of the new load files. If you do not use this step to manually update PRSM, the PRSM automated process STATUS AUDIT performs a DBAUDIT on the new load files. The STATUS AUDIT is scheduled in table AUTOPRSU.

If you manually update PRSM with the new PRSU content, you are able at any time to display the PRSU content of new load files by using PRSM queries such as SELECT and REPORT commands.

- a Access the PRSM tool by typing  
>PRSM  
and pressing the Enter key.

- b** Update PRSM with the PRSU content of the new load file by typing  
`>DBAUDIT SPMLOAD new_load_file_name`  
 and pressing the Enter key.

*where*

**new\_load\_file\_name**

is the load name of the new load file required to update the current load

*Example*

`>DBAUDIT SPMLOAD CEM15AF_010005`

- c** Check the Load update work sheet you completed in step 7 to determine if you updated PRSM for all loads in table PMLOADS.

| <b>If you have</b>                                  | <b>Do</b> |
|-----------------------------------------------------|-----------|
| not updated PRSM for all new loads in table PMLOADS | Step 21b  |
| updated PRSM for all new loads in table PMLOADS     | Step 21d  |

- d** Exit the PRSM tool by typing  
`>QUIT`  
 and pressing the Enter key.  
 Go to Step 24.

**22**

**ATTENTION**

This procedure creates a minor SPM alarm under the PM banner. This alarm generates when there is a mismatch between the datafilled active load file in table PMLOADS and the software currently running on an SPM. No action is necessary.

Update table PMLOADS for an SPM maintenance or emergency release by performing the following steps.

- a** Locate a current load you need to update by typing  
`>POS current_load_name`  
 and pressing the Enter key.

*where*

**current\_load\_name**

is the load name of a load to be updated

*Example*

`>POS DSP15AF`

- b** Update the load by typing  
`>REP current_load_name new_act_file actvol backup_file backup_vol N`

and pressing the Enter key.

where

**current\_load\_name**

is the load name of a load to be updated

**new\_act\_file**

is the load file name of the new load file

**actvol**

is the disk volume where the new load file is stored

**backup\_file**

is the load file name of the backup load file

**backup\_vol**

is the disk volume where the backup load file is stored

Example

```
>REP DSP15AF DSP15AF_010005 S00DPMLOADS DSP15AF_010005
S00DPMLOADS N
```

Figure 4-12 Example of MAP display

| LOADNAME       | ACTFILE | ACTVOL      |   |
|----------------|---------|-------------|---|
| BKPFIL         | BKPVOL  | UPDACT      |   |
| DSP15AF        |         |             |   |
| DSP15AF_010005 |         | S00DPMLOADS |   |
| DSP15AF_010005 |         | S00DPMLOADS | N |

ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.

- c Confirm the system prompt by typing  
>Y  
and pressing the Enter key.
- d Check the Load update work sheet you completed in step 7 to determine if you updated all loads in table PMLOADS.

| If you have                            | Do       |
|----------------------------------------|----------|
| not updated all loads in table PMLOADS | Step 22a |
| updated all loads in table PMLOADS     | Step 23  |

**ATTENTION**

This step is optional. To proceed with the SPM upgrade, you are not required to manually update PRSM with the PRSU content of the new load files. If you do not use this step to manually update PRSM, the PRSM automated process STATUS AUDIT performs a DBAUDIT on the new load files. The STATUS AUDIT is scheduled in table AUTOPRSU.

If you manually update PRSM with the new PRSU content, you are able at any time to display the PRSU content of new load files by using PRSM queries such as SELECT and REPORT commands.

- a Access the PRSM tool by typing

**>PRSM**

and pressing the Enter key.

- b Update PRSM with the PRSU content of the new load file by typing

**>DBAUDIT SPMLOAD new\_load\_file\_name**

and pressing the Enter key.

*where*

**new\_load\_file\_name**

is the load name of the new load file required to update the current load

*Example*

**>DBAUDIT SPMLOAD CEM15AF\_010005**

- c Check the Load update work sheet you completed in Step 7 to determine if you updated PRSM for all loads in table PMLOADS.

| If you have                                         | Do       |
|-----------------------------------------------------|----------|
| not updated PRSM for all new loads in table PMLOADS | Step 23b |
| updated PRSM for all new loads in table PMLOADS     | Step 23d |

- d Exit the PRSM tool by typing

**>QUIT**

and pressing the Enter key.

- 24 Stop the terminal response from printing by typing

**>RECORD STOP ONTO printer\_name**

and pressing the Enter key.

*where*

**printer\_name**  
is the name of the printer

*Example*

>RECORD STOP ONTO printer1

25 Return to the CI level of the MAP display by typing

>QUIT ALL

and pressing the Enter key.

**If you**

**Do**

did not need to update table PM- Step 26  
LOADS

updated table PMLOADS Step 30

26 You have successfully completed this procedure. You do not need to upgrade the SPM. Do not go to the procedure "Upgrade the SPM."

27 Access table PMLOADS by typing

>TABLE PMLOADS

and pressing the Enter key.

28 Delete the old load names from table PMLOADS by typing

>DEL old\_load\_name old\_act\_file actvol backup\_file  
backup\_vol N

and pressing the Enter key.

*where*

**old\_load\_name**  
is the load name of the old load

**old\_act\_file**  
is the load file name of the old load file

**actvol**  
is the disk volume where the new load file is stored

**backup\_file**  
is the load file name of the backup load file

**backup\_vol**  
is the disk volume where the backup load file is stored

*Example*

>DEL DSP0014 DSP0014\_010076 S00DPMLOADS DSP0014\_010009  
S00DPMLOADS N

29 Confirm the system prompt by typing

>Y

and pressing the Enter key.

30 You have successfully completed this procedure and you have correctly prepared for a manual SPM upgrade. Go to the procedure "Upgrade the SPM."

**4-30** Prepare a manual SPM upgrade

---

## 5 Upgrade the SPM

### Application



#### CAUTION

##### Possible service interruption

Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to upgrade the following circuit packs in a Spectrum Peripheral Module (SPM).

**Table 5-1**

| Name | Description                                                  |
|------|--------------------------------------------------------------|
| ATM  | asynchronous transfer mode (ATM) resource module (RM)        |
| CEM  | common equipment module (CEM)                                |
| DLC  | data link controller (DLC) RM                                |
| DSP  | digital signal processor (DSP) RM                            |
| OC3  | optical carrier rate 3 (OC3) interface RM                    |
| VSP  | voice signal processor (VSP) RM                              |
|      | <b>Note:</b> This includes LX66, LX85, and LX86 VSP RMs      |
|      | <b>Note:</b> ATM is available for Succession Solutions only. |

### Prerequisites

You must perform two update procedures to meet the following prerequisites. The update procedures are “Preparing for a PM update” and “Starting a PM

update shift.” You can find these procedures in the *Peripheral Module Software Release Document*.

- 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

**Note:** You can view the state and activity of a circuit pack at each circuit pack MAP (maintenance and administration position) level or at the SPM summary MAP level.

- automatic routine exercise (REX) testing is suspended in the office

You also need to perform the procedure “Preparing a manual SPM upgrade,” which is found in this document.

## Required information

Be certain to read the following information before beginning the SPM upgrade.

### Abort an SPM upgrade

To abort an SPM upgrade, you must back out the loads by reversing the upgrade procedure used in this chapter.

The upgrade procedure requires you to load the OC3s or ATMs first, then to load the remaining RMs. The remaining RM types (DSP, VSP, DLC) may be loaded in any order. You must load the CEMs last. To abort an SPM upgrade, first back out the CEM loads. Except for the OC3 loads, back out the RM loads. Although there is no required order to back out the RMs, other than OC3s, Nortel Networks recommends that you reverse the order you used to load the RMs. Last, back out the OC3 loads.

**Note:** When you get to the step to in-service load the RM or CEM, you must modify the command to include the filename of the original load. Rather than use `LOADMOD INSVLD`, you must use `LOADMOD <filename of original load> INSVLD`.

### PANTHER

PANTHER is currently not available for SPM use.

---

### Maintenance release upgrade precaution

To prevent SPM corruption during a maintenance or milestone upgrade, Nortel Networks recommends completely loading an entire SPM during a single upgrade with the upgrade load.



#### CAUTION

##### Possible service interruption

Nortel Networks strongly recommends completely loading all SPMs during 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, in turn, result in the reload of modules in an out-of-procedure sequence, which can be potentially service affecting.

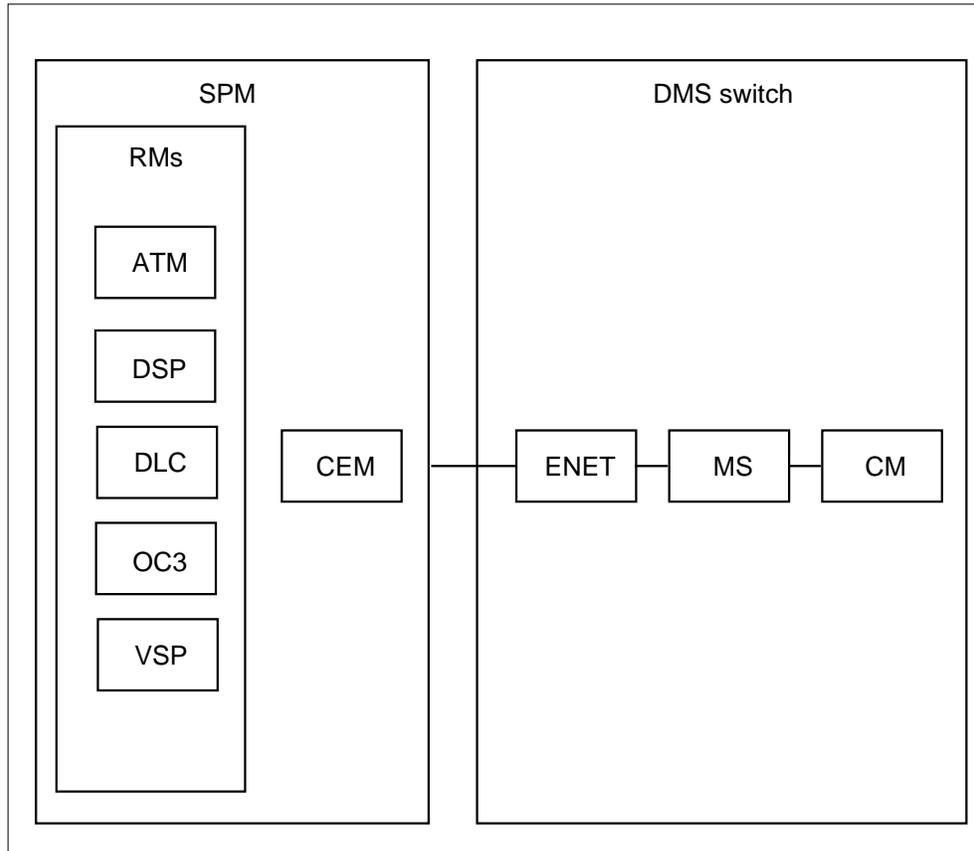
However, if you cannot complete the loading of all SPMs during the same period, upgrade only a limited number of SPMs during that loading period.

*Note:* Due to a load mismatch with table PMLOADS, SPMs not loaded with an upgrade load reflect an ISTB condition. The ISTB condition remains in effect until you have completed the upgrade on all SPMs.

### Update sequence

The following figure shows the SPM node configuration. Subtending PMs and modules must be updated before their serving PMs and modules. The upgrade procedure applies only to SPM circuit packs.

Figure 5-1 Node configuration for SPM



### Notes on loading times

This section provides sample loading times for the SPM. These loading times are based on single RM in-service loading, RM-to-RM loading, and RM sparing. The loading times provided in this section are for reference only. Use these loading times to prepare the upgrade schedule.

The loading times provided in this section represent processing time only. Your loading times may vary because of several conditions, including

- traffic
- central processing unit (CPU) occupancy
- office configuration
- load sizes
- your familiarity with the procedure
- office interruptions

**Datafill tables PMLOADS and MNCKTPAK**

Nortel Networks estimates that you need 10 minutes to datafill tables PMLOADS and MNCKTPAK.

**Sample loading times**

The loading times described in this section are based on the following provisioning:

- 18 RMs
  - 2 OC3s (1 active, 1 inactive)
  - 8 DSPs (7 active, 1 inactive)
  - 8 VSPs (7 active, 1 inactive)
  - 2 DLCs (1 active, 1 inactive)
- 2 CEMs (1 active, 1 inactive)

The loading times described in this section are based on the following system load size:

- OC3 load size, 4847 kbyte
- DSP load size, 4150 kbyte
- VSP load size, 4150 kbyte
- CEM load size, 15660 kbyte

Load the OC3s or ATMs first. Then load all the remaining RM types (DSPs, VSPs, COHs, DLCs) at the same time. Finally, load the CEMs. Total loading time is equal to the total OC3 loading time, plus the longest loading time for a single RM type, plus the total CEM loading time.

Nortel Networks does not recommend that you load the RMs one after the other. If you do, the total loading time is equal to the total loading time for each RM type plus the total CEM loading time.

**Table 5-2 RM loading times**

| RM type | First RM (Note 1) | Second RM (Note 2) | Each of third through next-to-last RM (Note 3) | Last RM (Note 4) |
|---------|-------------------|--------------------|------------------------------------------------|------------------|
| OC3     | 5 min 45 s        | 2 min 46 s         | na                                             | na               |
| DSP     | 4 min 42 s        | 2 min 03 s         | 1 min 42 s                                     | 1 min 40 s       |
| VSP     | 4 min 46 s        | 2 min 16 s         | 1 min 45 s                                     | 1 min 42 s       |

**Note 1:** Single RM in-service loading is used for the first RM. Loading the first RM of each type takes longer than subsequent RMs of the same type. For more information, see the chapter entitled “Resource module in-service loading.”

**Note 2:** RM-to-RM loading is used for the second RM. The second OC3 is also the last OC3 to be loaded. Sparing does not occur with the OC3, but it does occur with the other RM types.

**Note 3:** RM-to-RM loading is used for each of the third through next-to-last RM. Although sparing occurs for each RM in this group, the loading times are shorter because no OC3s are being loaded.

**Note 4:** RM-to-RM loading is used for the last RM. Loading time is shorter for the last RM because sparing does not occur.

The numbers in the following table are based on CEM in-service loading.

**Table 5-3 CEM loading time**

|     | First CEM   | Second CEM (See note) |
|-----|-------------|-----------------------|
| CEM | 20 min 20 s | 20 min 00 s           |

**Note:** Single CEM in-service loading is used for both CEMs. Loading time is shorter for the second CEM because sparing does not occur.

**General loading time formula**

Total loading time for one SPM is equal to the longest total loading time for one type of RM, plus total loading time for the two CEMs. In the sample times provided in the preceding tables, total loading time equals the total VSP loading time plus the total CEM loading time.

### Formula to determine SPM loading time with VSPs provisioned

If you provisioned your switch with VSPs, use the following format to determine total SPM loading time.

$$\text{VSP1} + \text{VSP2} + (\text{VSP3} \times 5) + \text{VSP8} + \text{CEM1} + \text{CEM2} = \text{load time}$$

Use the following formula to determine total loading time when your switch is provisioned with VSPs.

$$4'46" + 2'16" + (1'45" \times a) + (1'42" \times b) + 20'20" + 20'00" = c$$

where

- a**  
is 0 if 2 or 3 VSPs are provisioned, or is 1 or more if more than 3 VSPs are provisioned (count only the third through next-to-last VSP)
- b**  
is 0 if 2 VSPs are provisioned, or is 1 if more than 2 VSPs are provisioned
- c**  
is the total loading time

Example, based on 2 OC3s, 8 DSP, 8 VSPs, and 2 CEMs follows:

$$4'46" + 2'16" + (1'45" \times 5) + 1'42" + 20'20" + 20'00" = 57'49"$$

### Formula to determine SPM loading time without VSPs provisioned

If you have not provisioned your switch with VSPs, use the following format to determine total SPM loading time.

$$\text{DSP1} + \text{DSP2} + (\text{DSP3} \times 5) + \text{DSP8} + \text{CEM1} + \text{CEM2} = \text{load time}$$

For NA100 applications, use the following formula to determine total loading time.

$$4'42" + 2'03" + (1'42" \times a) + (1'40" \times b) + 20'20" + 20'00" = c$$

where

- a**  
is 0 if 2 or 3 DSPs are provisioned, or is 1 or more if more than 3 DSPs are provisioned (count only the third through next-to-last DSP)
- b**  
is 0 if 2 DSPs are provisioned, or is 1 if more than 2 DSPs are provisioned
- c**  
is the total loading time

## 5-8 Upgrade the SPM

---

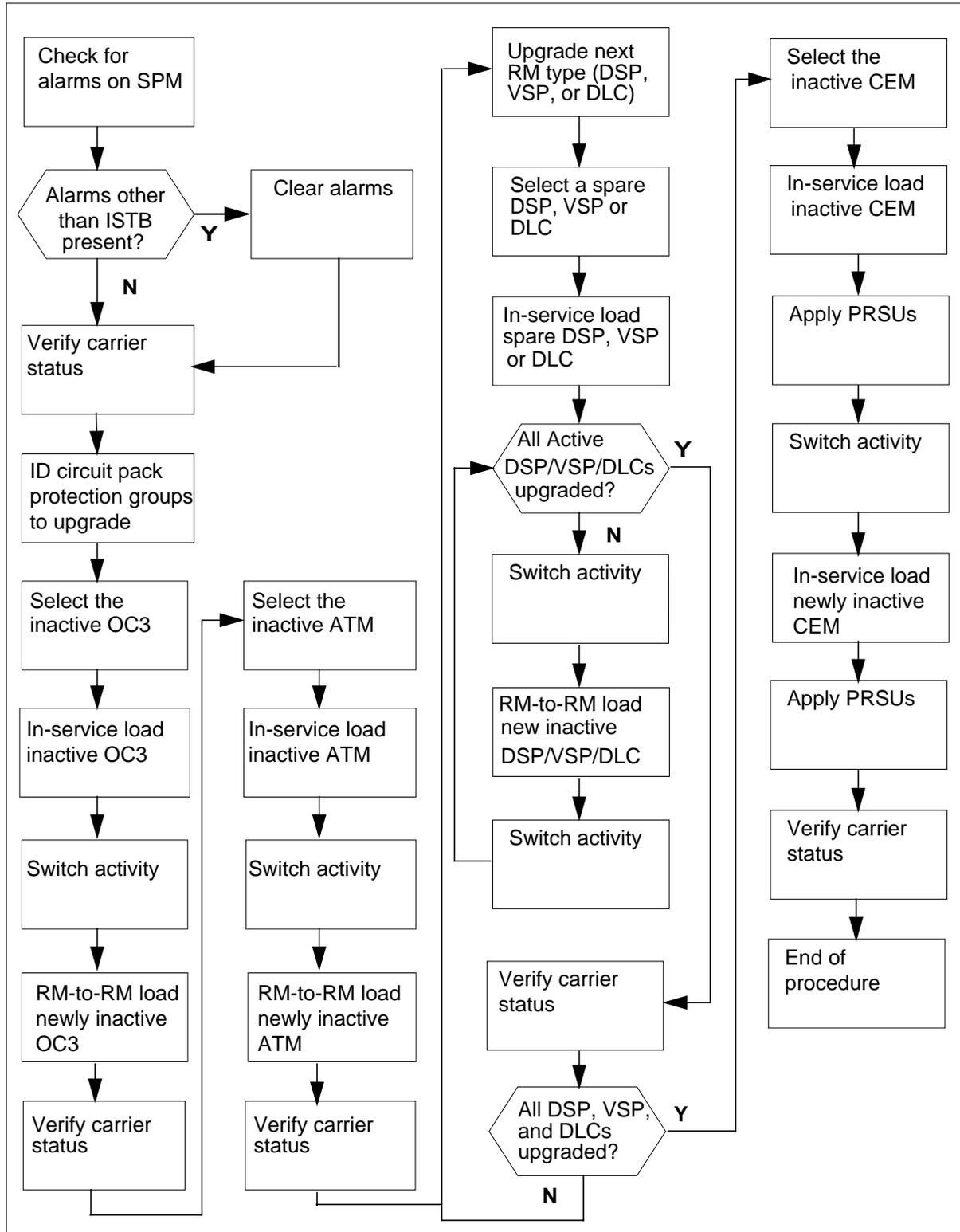
Example, based on 2 OC3s, 8 DSP, and 2 CEMs follows:

$$4'42" + 2'03" + (1'42" \times 5) + 1'40" + 20'20" + 20'00" = 57'15"$$

### **Procedure to upgrade an SPM**

Consult the following flowchart for a summary of the procedure to upgrade an SPM.

Figure 5-2 Summary of procedure



**Procedure 5-1 Steps of procedure**

**ATTENTION**

Follow your company policy for soaking selected circuit packs before upgrading the rest of your office. See the appendix “Limited soak-in deployment” to soak a new load on a circuit pack without changing default loads in table PMLOADS and table MNCKTPAK.

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

- 1 Review the introductory material to this procedure. Make sure that you meet all prerequisites before beginning this procedure.
- 2 Check for alarms on the SPM by performing the following steps.

The SPM upgrade involves upgrading circuit pack software loads running on the SPM. The circuit packs are grouped into circuit pack protection groups. Therefore, an SPM upgrade comprises the following phases:

- Check alarms on the SPM before you start the upgrade.
- Verify the status of the SPM carriers before you start the upgrade.
- Update circuit pack load inventory, if necessary.
- Upgrade all RM circuit pack protection groups that you need to upgrade.
- For each RM circuit pack protection group, upgrade all circuit packs in the groups that you need to upgrade.
- Upgrade CEMs that you need to upgrade.

- a Use the NO DISPLAY mode to post the SPM by typing

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

and pressing the Enter key.

*where*

***spm\_no***

is the ID (number) of the SPM

*Example*

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

- b Display alarms on the SPM by typing

```
>QUERYPM FLT
```

and pressing the Enter key.

- c Use the following work sheet to record the alarms raised on the SPM. Duplicate the work sheet as needed.



*where*

**Node ID**

is the SPM number

**Alarm**

is the name of the alarm

**Object**

is the object against which the alarm is raised

**Note**

is any note you feel may help you

The following work sheet provides a sample of a completed Alarms on an SPM work sheet for SPM 23.

Figure 5-4 Sample alarms on an SPM work sheet

| Node ID<br>(SPM no.) | Alarm | Object (the alarm<br>is raised against) | Note |
|----------------------|-------|-----------------------------------------|------|
| 23                   | ISTB  | SPM 23                                  |      |
|                      | ISTB  | CEM 0                                   |      |
|                      | ISTB  | CEM 1                                   |      |
|                      | ISTB  | OC3 1                                   |      |
|                      | ISTB  | VSP 0                                   |      |
|                      | ISTB  | DSP 0                                   |      |
|                      | ISTB  | DSP 1                                   |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |
|                      |       |                                         |      |

## 5-14 Upgrade the SPM

---

- d Use the map to display the SPM Carriers by typing  
`>MAPCI;MTC;TRKS;CARRIER;POST SPM spm_no 1`  
and pressing the Enter key.  
*where*  
**spm\_no**  
is the ID (number) of the SPM
- e Use the following worksheet to record the status of any SPM carriers not in an INSV or OFFL state.



**Carrier**

is the SPM carrier not INSV or OFFL

**Carrier state**

is the state of the carrier, i.e. SYSB, MANB

**Reason**

is the cause of the carrier state

The following work sheet provides a sample of a completed SPM carrier status work sheet for SPM 23.



5-18 Upgrade the SPM

---

- 3 Determine the impact of the current alarm status on the SPM upgrade.
- | If there are | Do     |
|--------------|--------|
| alarms       | Step 4 |
| no alarms    | Step 6 |
- 4 Determine the alarm types.
- | If                                      | Do     |
|-----------------------------------------|--------|
| there is an alarm other than ISTB alarm | Step 5 |
| all alarms are ISTB alarms              | Step 6 |
- 5 Perform the appropriate alarm clearing procedure in the *Alarm Clearing and Performance Monitoring Procedures* manual. After you complete the alarm clearing procedure, return to this point.
- 6

**ATTENTION**

If you are performing a milestone release upgrade, do not continue with this procedure until you have updated tables PMLOADS and MNCKTPAK. See the chapter “Prepare a manual SPM upgrade” for the procedures to add the new load names to table PMLOADS, add the new load names to table MNCKTPAK, and delete the old load names from table PMLOADS.

Determine the RM circuit pack protection groups for an SPM to upgrade by performing the following steps.

**Note:** RM circuit packs do not include CEM circuit packs.

- a Identify all RM circuit pack protection groups you need to upgrade. Refer to the Circuit pack protection groups work sheet you completed in the “Preparing a manual SPM upgrade” chapter of this document.

**b****ATTENTION**

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. Use steps 7, 8, and 9 to upgrade OC3s, ATMs, DSPs, VSPs, COHs, and DLCs at the same time.

To upgrade concurrently multiple SPMs, Nortel Networks recommends upgrading up to two SPMs at the same time. Open a MAPCI session for each RM type on each SPM. Use steps 7, 8, and 9 to upgrade OC3s, ATMs, DSPs, VSPs, and DLCs at the same time.

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

During mate loading, there is no restriction on the number of RMs that can be loaded from the mate at the same time.

Select the next RM circuit pack protection group to upgrade.

**Note:** Upgrade the OC3s first.

| <b>If</b>                                                 | <b>Do</b> |
|-----------------------------------------------------------|-----------|
| you select an OC3 or ATM group                            | Step 7    |
| you select a DSP or VSP group                             | Step 8    |
| you select a DLC group                                    | Step 9    |
| there are no RM circuit pack protection groups to upgrade | Step 10   |

**7****ATTENTION**

To abort the upgrade and back out the loads, you must reverse the upgrade procedure you have already completed. To avoid possible complications, Nortel Networks strongly recommends that you reverse the order you used to load the RM types, including DSPs, VSPs, and DLCs. Back out the OC3 or ATM loads last.

When you get to the step to in-service load the OC3 or ATM, you must modify the command to include the filename of the original load. Rather than use LOADMOD INSVLD, you must use LOADMOD <filename of original load> INSVLD.

Upgrade the OC3 or ATM circuit pack protection groups by performing the following steps.

**Note:** When you use this procedure to upgrade ATM RMs, substitute the acronym ATM for OC3.

**a** Determine the unit numbers of the OC3 RMs in the circuit pack protection group. Refer to the Circuit pack protection groups work sheet you completed in the "Preparing a manual SPM upgrade" chapter in this document.

**b** Post the SPM by typing

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

and pressing the Enter key.

where

**spm\_no**  
is the ID (number) of the SPM

*Example*

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

**Figure 5-7 Example of MAP display**

| SPM 23 INSV Class: DMSCP |    |   |      |       |    |   |      |       |    |   |      |       |    |    |      |
|--------------------------|----|---|------|-------|----|---|------|-------|----|---|------|-------|----|----|------|
| Shlf0                    | SL | A | Stat | Shlf0 | SL | A | Stat | Shlf1 | SL | A | Stat | Shlf1 | 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 | ---- |
| ---                      | -  | 6 | ---- | VSP 1 | 13 | I | Insv | ---   | -  | 6 | ---- | ---   | -  | 13 | ---- |
| CEM 0                    | 7  | A | Insv | VSP 0 | 14 | A | Insv | DLC 2 | 7  | I | Insv | ---   | -  | 14 | ---- |

**c** Record the unit number of the inactive OC3 RM in the circuit pack protection group.

**d** Select the inactive OC3 by typing

```
>SELECT OC3 inactive_oc3_unit
```

and pressing the Enter key.

where

**inactive\_oc3\_unit**  
is the unit number of the inactive OC3 RM

*Example*

```
>SELECT OC3 1
```

Figure 5-8 Example of MAP display

| CM  | MS       | IOD     | Net   | PM      | CCS  | LNS   | Trks | Ext  | Appl |        |             |        |
|-----|----------|---------|-------|---------|------|-------|------|------|------|--------|-------------|--------|
| OC3 |          | SysB    | ManB  | OffL    | CBsy | ISTb  | InSv |      |      |        |             |        |
| 0   | Quit     | PM      | 1     | 0       | 2    | 0     | 28   | 32   |      |        |             |        |
| 2   | _        | SPM     | 0     | 0       | 1    | 0     | 1    | 0    |      |        |             |        |
| 3   | ListSet  | OC3     | 0     | 0       | 0    | 0     | 0    | 2    |      |        |             |        |
| 4   |          |         |       |         |      |       |      |      |      |        |             |        |
| 5   |          | SPM 23  | OC3 1 | InAct   | InSv |       |      |      |      |        |             |        |
| 6   | Tst      |         |       |         |      |       |      |      |      |        |             |        |
| 7   | Bsy      | Loc:    | Row N | FrPos   | 24   | ShPos | 43   | ShId | 0    | Slot10 | Prot        | Grp: 1 |
| 8   | RTS      | Default | Load: | OC315AF |      |       |      |      |      | Prot   | Role: Spare |        |
| 9   | OffL     | OC3:    |       |         |      |       |      |      |      |        |             |        |
| 10  | LoadMod  |         |       |         |      |       |      |      |      |        |             |        |
| 11  |          |         |       |         |      |       |      |      |      |        |             |        |
| 12  | Next     |         |       |         |      |       |      |      |      |        |             |        |
| 13  | Select_  |         |       |         |      |       |      |      |      |        |             |        |
| 14  | QueryMod |         |       |         |      |       |      |      |      |        |             |        |
| 15  | ListAlm  |         |       |         |      |       |      |      |      |        |             |        |
| 16  | Prot     |         |       |         |      |       |      |      |      |        |             |        |
| 17  |          |         |       |         |      |       |      |      |      |        |             |        |
| 18  |          |         |       |         |      |       |      |      |      |        |             |        |

e

**ATTENTION**

The following in-service load procedure applies only when you upgrade to the next milestone release, for example, SP10 load to SP11 load or SP11 load to SP12 load. Do not use the in-service load procedure if you skip milestone releases, for example, SP10 load to SP12 load. If you skip a load, you must busy the spare OC3 RMs before loading them. This out-of-service load successfully upgrades the OC3 RMs.

In-service load the inactive OC3 RM by typing

```
>LOADMOD INSVLD
```

and pressing the Enter key.

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. You do not need to take any action for the RM to return to service.

f

**ATTENTION**

Do not apply a patch to a ManB RM. When you return to service (RTS) the RM, it boots from flash memory. The patch is not copied to flash until at least 1 hour after it was applied to the RM. If you perform an RTS on the RM before the flash is updated, the patch is no longer applied to the RM. You must manually execute the ISTBAUDIT command. To avoid delays, apply patches only to INSV or ISTb RMs. Note that the CEM does not boot from flash when an RTS is performed. The CEM boots from flash only after executing ResetMod.

Access the PRSM tool by typing

**>PRSM**

and pressing the Enter key.

**g** Audit the status of the OC3 by typing

**>DBAUDIT SPM *spm\_no* OC3 *oc3\_no***

and pressing the Enter key.

*where*

**spm\_no**

is the ID (number) of the SPM

**oc3\_no**

is the OC3 number

*Example*

**>DBAUDIT SPM 23 OC3 1**

**h** Determine if OC3 PRSUs have been provided for the OC3 load file.

| <b>If OC3 PRSUs</b>                          | <b>Do</b> |
|----------------------------------------------|-----------|
| have been provided for the OC3 load file     | Step 7i   |
| have not been provided for the OC3 load file | Step 7j   |

**i** Apply the PRSUs by typing

**>APPLY '*prsu\_id* | *prsu\_id* | *prsu\_id* IN SPM *spm\_no* OC3 *oc3\_no***

and pressing the Enter key.

*where*

**prsu\_id**

is the PRSU name

**spm\_no**

is the ID (number) of the SPM

**oc3\_no**

is the OC3 number

- Example*
- ```
>APPLY `ABC05513 | DEF10513 | GHI45513 IN SPM 23 OC3 1
```
- j Exit the PRSM tool by typing
- ```
>QUIT
```
- and pressing the Enter key.
- k Begin executing manual OC3 RM sparing to switch activity by accessing the protection level of the MAP display and typing
- ```
>PROT
```
- and pressing the Enter key.

Figure 5-9 Example of MAP display

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
Protectn			SysB	ManB	OffL	CBsy	ISTb	InSv	
0	Quit	PM	1	1	1	1	28	31	
2		SPM	0	0	0	0	2	0	
3		OC3	0	0	0	0	0	2	
4									
5		SPM 23	ISTb						
6		Prot Grp: OC3_GRP 1 Mode: Non-revertive Schema: one_plus_one							
7	Force	Sh0	U R A Stat	Sh0	U R A Stat	Sh1	U R A Stat	Sh1	U R A Stat
8	Manual	1	-- -- --	8	-- -- --	1	-- -- --	8	-- -- --
9		2	-- -- --	9	0 W A InSv	2	-- -- --	9	-- -- --
10		3	-- -- --	10	1 S I InSv	3	-- -- --	10	-- -- --
11		4	-- -- --	11	-- -- --	4	-- -- --	11	-- -- --
12		5	-- -- --	12	-- -- --	5	-- -- --	12	-- -- --
13	Select_	6	-- -- --	13	-- -- --	6	-- -- --	13	-- -- --
14		7	-- -- --	14	-- -- --	7	-- -- --	14	-- -- --
15	ListAlm	PROT:							
16									
17									
18									

- l Perform the manual switch activity by typing
- ```
>MANUAL active_oc3_unit inactive_oc3_unit
```
- and pressing the Enter key.
- where
- active\_oc3\_unit**  
is the unit number of the active OC3 RM
- inactive\_oc3\_unit**  
is the unit number of the inactive OC3 RM

*Example*

```
>MANUAL 0 1
```

**Figure 5-10 Example of MAP display**

```

A sparing action may impact services on this node.

Do you wish to continue?
Please confirm ("YES", "Y", "NO", or "N"):
    
```

- m Confirm the system prompt by typing **>Y** and pressing the Enter key.

**Figure 5-11 Example of MAP display**

```

CM      MS      IOD      Net      PM      CCS      LNS      Trks      Ext      Appl
.       .       .       .       .       .       .       .       .       .

Protectn          SysB      ManB      OffL      CBSy      ISTb      InSv
0 Quit           PM          1          1          1          1          28          31
2                SPM          0          0          0          0          2           0
3                OC3          0          0          0          0          0           2
4
5                SPM      23  ISTb
6                Prot Grp: OC3_GRP 1 Mode: Non-revertive Schema: one_plus_one
7 Force          Sh0 U R A Stat Sh0 U R A Stat Sh1 U R A Stat Sh1 U R A Stat
8 Manual         1 --- -- -- -- 8 --- -- -- -- 1 --- -- -- -- 8 --- -- -- --
9                2 --- -- -- -- 9 0 W I InSv 2 --- -- -- -- 9 --- -- -- --
10               3 --- -- -- -- 10 1 S A InSv 3 --- -- -- -- 10 --- -- -- --
11               4 --- -- -- -- 11 --- -- -- -- 4 --- -- -- -- 11 --- -- -- --
12               5 --- -- -- -- 12 --- -- -- -- 5 --- -- -- -- 12 --- -- -- --
13 Select_       6 --- -- -- -- 13 --- -- -- -- 6 --- -- -- -- 13 --- -- -- --
14               7 --- -- -- -- 14 --- -- -- -- 7 --- -- -- -- 14 --- -- -- --
15 ListAlm       manual 1 3
16               SPM 1 OC3 1 Manual : Request has been submitted.
17               SPM 1 OC3 1 Spare : Command completed. Command passed.
18
    
```

- n Begin RM-to-RM loading the inactive OC3 RM by selecting the newly inactive OC3 and typing **>SELECT OC3 inactive\_oc3\_unit** and pressing the Enter key.  
*where*  
**inactive\_oc3\_unit**  
 is the unit number of the inactive OC3 RM  
*Example*  
**>SELECT OC3 0**
- o Load the inactive OC3 RM from its mate by typing **>LOADMOD MATE active\_oc3\_unit** and pressing the Enter key.  
*where*

**active\_oc3\_unit**

is the unit number of the active OC3 RM

*Example*

```
>LOADMOD MATE 1
```

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

- p** Access the PRSM tool by typing

```
>PRSM
```

and pressing the Enter key.

- q** Audit the load file status of the OC3s by typing

```
>DBAUDIT SPM spm_no OC3
```

and pressing the Enter key.

*where*

**spm\_no**

is the ID (number) of the SPM

*Example*

```
>DBAUDIT SPM 23 OC3
```

- r** Repeat Steps 7h and 7i, or Steps 7h and 7j.

- s** Reaccess the protection level of the MAP by typing

```
>PROT
```

and pressing the Enter key.

- t** Repeat Step 7l.

- u** Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

- v** Repeat Steps 7p and 7q.

- w** Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

- x** Exit the PRSM tool by typing

```
>QUIT
```

and pressing the Enter key.

- y** Exit the SPM level MAP display by typing

```
>QUIT ALL
```

and pressing the Enter key.

- z** Check for alarms on the SPM by performing the procedures listed in Step 2 of this document.

- aa You have completed upgrading an OC3 circuit pack protection group for the SPM.

Go to Step 6b.

8

**ATTENTION**

To abort the upgrade and back out the loads, you must reverse the upgrade procedure you have already completed. To avoid possible complications, Nortel Networks strongly recommends that you reverse the order you used to load the RM types, including DSPs, VSPs, and DLCs. Back out the OC3 or ATM loads last.

When you get to the step to in-service load the DSP, you must modify the command to include the filename of the original load. Rather than use LOADMOD INSVLD, you must use LOADMOD <filename of original load> INSVLD.

**ATTENTION**

All DSP resources are initially datafilled in table MNCKTPAK. In response to the LISTRES command, the MAP display shows the “Datafilled” information. This “Datafilled” information references table MNCKTPAK.

Upgrade the DSP or VSP circuit pack protection groups by performing the following steps.

**Note 1:** When you use this procedure to upgrade VSP RMs, substitute the acronym VSP for DSP.

**Note 2:** If you are upgrading an LX66 VSP, use a DSP load. If you are upgrading an LX85 or LX86 VSP, use a COH load.

- a Determine the unit numbers of the DSP RMs in the circuit pack protection group. Refer to the Circuit pack protection groups work sheet you completed in the “Preparing a manual SPM upgrade” chapter in this document.
- b Post the SPM by typing

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

and pressing the Enter key.

*where*

**spm\_no**  
is the ID (number) of the SPM

*Example*

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

Figure 5-12 Example of MAP display

```

SPM 23  INSV      Class: DMSCP
Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 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 - ----
--- -  6 - ----  VSP 1 13 I Insv  --- -  6 - ----  --- - 13 - ----
CEM 0  7 A Insv  VSP 0 14 A Insv  DLC 2  7 I Insv  --- - 14 - ----

```

- c Select all the DSP RMs by typing

```
>SELECT DSP ALL
```

and pressing the Enter key.

Figure 5-13 Example of MAP display

```

CM      MS      IOD      Net      PM      CCS      LNS      Trks      Ext      Appl
.      .      .      .      .      .      .      .      .      .

DSP
0 Quit      PM      1      0      2      0      28      32
2      _      SPM      0      0      1      0      1      0
3 ListSet   DSP      0      0      0      0      0      4
4 ListRes
5      SPM 23  DSP 1  InAct  InSv
6 Tst
7 Bsy      Loc: Row F FrPos 7 ShPos 58 ShId 1 Slot 3 Prot Grp: 1
8 RTS      Default Load: DSP15AF      Prot Role: Spare
9 OffL
10 LoadMod
11
12 Next
13 Select_
14 QueryMod
15 ListAlm
16 Prot
17 Sperform
18

```

- d Display a list of resource information for a DSP RM by typing

```
>LISTRES
```

and pressing the Enter key.

Record the resource information for the DSP RM.

**Figure 5-14 Example of MAP display**

```

CM      MS      IOD      Net      PM      CCS      LNS      Trks      Ext      Appl
.       .       .       .       .       .       .       .       .       .

DSP           SysB      ManB      OffL      CBsy      ISTb      InSv
0 Quit      PM          1          0          2          0          28          32
2 _         SPM          0          0          1          0          1           0
3 ListSet   DSP          0          0          0          0          0           4
4 ListRes
5           SPM 23   DSP 1   InAct  InSv
6 Tst
7 Bsy      Loc: Row F FrPos 7 ShPos 58 ShId 1 Slot 3 Prot Grp: 1
8 RTS      Default Load: DSP15AF                               Prot Role: Spare
9 OffL
10 LoadMod  ListRes
11          Protecting RM SHID: 1 Slot: 3 Circuit Pack: DSP 1 RMID: 22
12 Next     COT          : Datafilled: 14 Actual: 14
13 Select_  DTMF         : Datafilled: 4 Actual: 4
14 QueryMod TONESYN      : Datafilled: 64 Actual: 64
15 ListAlm  ABBIT        : Datafilled: 14 Actual: 14
16 Prot     MF          : Datafilled: 40 Actual: 40
17 Sperform
18

```

- e Post the next DSP RM by typing  
**>NEXT**  
 and pressing the Enter key.
- f Display a list of resource information for a DSP RM by typing  
**>LISTRES**  
 and pressing the Enter key.  
 Record the resource information for the DSP RM using the hard copy from the printer.
- g Determine if the resource information for all DSP RMs on the SPM have been recorded.

| If you                                                                                                                                                                                                                             | Do      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| have not recorded the resource information for all the DSP RMs on the SPM                                                                                                                                                          | Step 8e |
| have recorded the resource information for all the DSP RMs on the SPM                                                                                                                                                              | Step 8h |
| <b>h</b> Verify that the datafilled resources match the actual resources. By comparing the datafilled resources to the actual resources, you can determine what sparing, if any, must be performed to correct resource mismatches. |         |
| If datafilled resources                                                                                                                                                                                                            | Do      |
| do not match the actual resources                                                                                                                                                                                                  | Step 8i |

| <b>If datafilled resources</b> | <b>Do</b>                                                                                                                                                                                                                                                            |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| match the actual resources     | Step 80                                                                                                                                                                                                                                                              |
| <b>i</b>                       | Access the protection level of the MAP by typing<br>>PROT<br>and pressing the Enter key.                                                                                                                                                                             |
| <b>j</b>                       | To identify the swapped resources on the cards, first type the following command for each card in question.<br>>SELECT DSP dsp_unit;LISTRES<br>and press the Enter key.<br><i>where</i><br><b>dsp_unit</b><br>is a DSP RM<br><i>Example</i><br>>SELECT DSP 0;LISTRES |

Figure 5-15 Example of MAP display

```
Protecting RM ShID; 1 Slot: 9 Circuit Pack: DSP 0 RmID: 23
COT : Datafilled: 0 Actual: 80
DTMF: Datafilled: 320 Actual: 320
TONESYN: Datafilled: 255 Actual: 0
ABBIT: Datafilled: 14 Actual: 28
MF : Datafilled: 40 Actual: 40
```

- k** Enter the following command for each card.
- ```
>SPMRESMAN SPM spm_no DSP dsp_unit
```
- where*
- spm\_no**  
is the ID (number) of the SPM
- dsp\_unit**  
is a DSP RM
- Example*
- ```
>SPMRESMAN SPM 1 DSP 0
```

Figure 5-16 Example of MAP display

```
SPM 1
ProtGroup: 1
```

|              | RMID      | Activity      | ProtWhomID | ProtGrp  | Safe to Change? |
|--------------|-----------|---------------|------------|----------|-----------------|
| <b>DSP 0</b> | <b>23</b> | <b>ACTIVE</b> | <b>26</b>  | <b>1</b> | <b>NO</b>       |
| DSP 1        | 24        | ACTIVE        | 24         | 1        | NO              |
| DSP 2        | 25        | ACTIVE        | 25         | 1        | NO              |
| <b>DSP 3</b> | <b>26</b> | <b>ACTIVE</b> | <b>23</b>  | <b>1</b> | <b>NO</b>       |
| DSP 4        | 27        | INACTIVE      | 27         | 1        | NO              |

- I Continue to Step 8r to load the DSP cards.
- m Perform DSP sparing to correct resource mismatches by typing

```
>MANUAL resource_information_match_dsp_unit
datafilled_resources_match_dsp_unit
```

and pressing the Enter key.

where

**resource\_information\_match\_dsp\_unit**  
is the DSP RM whose actual resources match the datafilled resources of a second DSP RM

**datafilled\_resources\_match\_dsp\_unit**  
is the DSP unit whose datafilled resources match the actual resources of the first DSP RM

Example

```
>MANUAL 1 0
```

Figure 5-17 Example of MAP display

```
A sparing action may impact services on this node.

Do you wish to continue?
Please confirm ("YES", "Y", "NO", or "N"):
```

- n Confirm the system prompt by typing
- ```
>Y
```

and pressing the Enter key.

Repeat steps 8m and 8n for each DSP RM so the datafilled resources match the actual resources.

The following figure shows the MAP display from Figure 5-16 after the execution of the manual and SPMRESMAN commands performed in steps 8k and 8m. Note that the RMID and ProtWhomID values match.

Figure 5-18 Example of MAP display

```
SPM 1
ProtGroup: 1
```

	RMID	Activity	ProtWhomID	ProtGrp	Safe to Change?
<b>DSP 0</b>	<b>23</b>	<b>ACTIVE</b>	<b>23</b>	<b>1</b>	<b>NO</b>
DSP 1	24	ACTIVE	24	1	NO
DSP 2	25	ACTIVE	25	1	NO
<b>DSP 3</b>	<b>26</b>	<b>ACTIVE</b>	<b>26</b>	<b>1</b>	<b>NO</b>
DSP 4	27	INACTIVE	27	1	NO

**Note 1:** When swapping multiple cards, always maintain the last card as the spare card. Then swap responsibility for sparing with the card to be upgraded.

**Note 2:** If you cannot correct the mismatches by this method, please contact your Nortel Networks Technical Assistance Service (TAS) representative.

- o Determine the state of the spare DSP. Refer to the Circuit pack protection groups work sheet you completed in the "Preparing a manual SPM upgrade" chapter in this document.

If the spare DSP	Do
is in-service and active	Step 8p
is in-service and inactive	Step 8r

- p Switch activity from the active spare DSP to the inactive working DSP in the circuit pack protection group by typing

```
>MANUAL active_spare_dsp_unit
inactive_working_dsp_unit
```

and pressing the Enter key.

where

**active\_spare\_dsp\_unit**

is the unit number of the active spare DSP RM

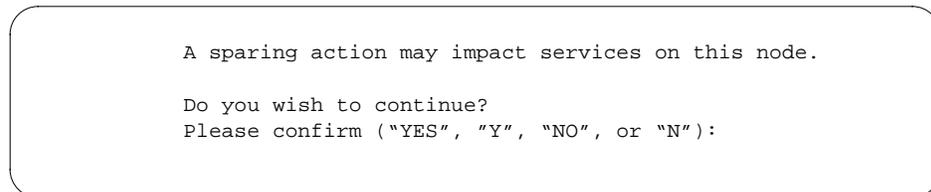
**inactive\_working\_dsp\_unit**

is the unit number of the inactive working DSP RM

*Example*

```
>MANUAL 2 1
```

**Figure 5-19 Example of MAP display**



- q Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

- r Select the spare DSP RM by typing

```
>SELECT DSP spare_dsp_unit
```

and pressing the Enter key.

where

**spare\_dsp\_unit**

is the unit number of the spare DSP RM

*Example*

```
>SELECT DSP 1
```

s

**ATTENTION**

The following in-service load procedure applies only when you upgrade to the next milestone release, for example, SP10 load to SP11 load or SP11 load to SP12 load. Do not use the in-service load procedure if you skip milestone releases, for example, SP10 load to SP12 load. If you skip a load, you must busy the spare DSP RMs before loading them. This out-of-service load successfully upgrades the DSP RMs.

In-service load the spare DSP RM by typing

**>LOADMOD INSVLD**

and pressing the Enter key.

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. You do not need to take any action for the RM to return to service.

t

**ATTENTION**

Do not apply a patch to a ManB RM. When you return to service (RTS) the RM, it boots from flash memory. The patch is not copied to flash until at least 1 hour after it was applied to the RM. If you perform an RTS on the RM before the flash is updated, the patch is no longer applied to the RM. You must manually execute the ISTBAUDIT command. To avoid delays, apply patches only to INSV or ISTb RMs. Note that the CEM does not boot from flash when an RTS is performed. The CEM boots from flash only after executing ResetMod.

Access the PRSM tool by typing

**>PRSM**

and pressing the Enter key.

**u** Audit the status of the DSP by typing

**>DBAUDIT SPM *spm\_no* DSP *dsp\_no***

and pressing the Enter key.

*where*

***spm\_no***

is the ID (number) of the SPM

***dsp\_no***

is the DSP number

*Example*

**>DBAUDIT SPM 23 DSP 1**

- v** Determine if DSP PRSUs have been provided for the DSP load file.

<b>If DSP PRSUs</b>	<b>Do</b>
have been provided for the DSP load file	Step 8w
have not been provided for the DSP load file	Step 8x

- w** Apply the PRSUs by typing

```
>APPLY `prsu_id | prsu_id | prsu_id IN SPM spm_no DSP dsp_no
```

and pressing the Enter key.

*where*

**prsu\_id**  
is the PRSU name

**spm\_no**  
is the ID (number) of the SPM

**dsp\_no**  
is the DSP number

*Example*

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

- x** Exit the PRSM tool by typing

```
>QUIT
```

and pressing the Enter key.

- y** Access the protection level of the MAP by typing

```
>PROT
```

and pressing the Enter key.

- z** Determine if you need to upgrade other DSP RMs in the circuit pack protection group.

<b>If</b>	<b>Do</b>
there are active DSP RMs in the circuit pack protection group that have not been upgraded	Step 8aa
all DSP RMs in the circuit pack (either active or inactive) have been upgraded	Step 8ai

- aa** Switch activity from an active DSP RM that you have not upgraded to an inactive DSP RM in the circuit pack protection group by typing

```
>MANUAL active_dsp_unit spare_dsp_unit
```

and pressing the Enter key.

*where*

**active\_dsp\_unit**

is the unit number of an active DSP RM that has not been upgraded

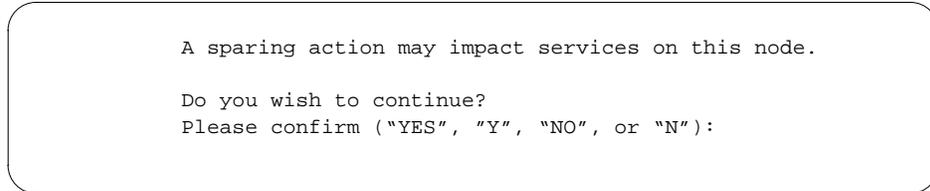
**spare\_dsp\_unit**

is the unit number of the spare DSP RM

*Example*

```
>MANUAL 2 1
```

**Figure 5-20 Example of MAP display**



**ab** Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

**ac** Select the newly inactive DSP RM by typing

```
>SELECT DSP inactive_dsp_unit
```

and pressing the Enter key.

*where*

**inactive\_dsp\_unit**

is the unit number of the newly inactive DSP RM that has not been upgraded

*Example*

```
>SELECT DSP 2
```

**ad** Load the newly inactive DSP RM from the spare DSP RM by typing

```
>LOADMOD MATE spare_dsp_unit
```

and pressing the Enter key.

*where*

**spare\_dsp\_unit**

is the unit number of the spare DSP RM

*Example*

```
>LOADMOD MATE 1
```

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

**ae** Repeat Steps 8t through 8x.

**af** Access the protection level of the MAP by typing

```
>PROT
```

and pressing the Enter key.

- ag** Switch activity from the spare DSP RM to the newly upgraded DSP RM by typing

```
>MANUAL spare_dsp_unit upgraded_dsp_unit
```

and pressing the Enter key.

where

**spare\_dsp\_unit**

is the unit number of the spare DSP RM

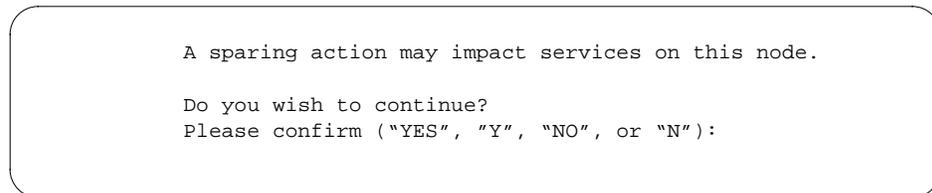
**upgraded\_dsp\_unit**

is the unit number of the newly upgraded DSP RM

*Example*

```
>MANUAL 1 2
```

**Figure 5-21 Example of MAP display**



- ah** Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

Return to step 8z.

- ai** Post the SPM by typing

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

and pressing the Enter key.

where

**spm\_no**

is the ID (number) of the SPM

*Example*

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

**Note:** At this point, the spare DSP RM should be in-service and inactive.

- aj** Select all the DSP RMs by typing

```
>SELECT DSP ALL
```

and pressing the Enter key.

- ak** Display a list of resource information for a DSP RM by typing

```
>LISTRES
```

and pressing the Enter key.

Record the resource information for the DSP RM.

- al** Post the next DSP RM by typing  
     **>NEXT**  
     and pressing the Enter key.
- am** Display a list of resource information for a DSP RM by typing  
     **>LISTRES**  
     and pressing the Enter key.  
     Record the resource information for the DSP RM.
- an** Determine if the resource information for all DSP RMs on the SPM have been recorded.

---

<b>If you</b>	<b>Do</b>
have not recorded the resource information for all the DSP RMs on the SPM	Step 8al
you have recorded the resource information for all the DSP RMs on the SPM	Step 8ao

---

- ao** Verify that the datafilled resources match the actual resources. By comparing the datafilled resources to the actual resources, you can determine what sparing, if any, must be performed to correct resource mismatches.

---

<b>If datafilled resources</b>	<b>Do</b>
do not match the actual resources	Step 8ap
match the actual resources	Step 8as

---

**Note:** The resource on the inactive spare DSP should be 0. If it is not 0, please contact your Nortel Networks TAS representative.

- ap** Access the protection level of the MAP by typing  
     **>PROT**  
     and pressing the Enter key.
- aq** Perform DSP sparing to correct resource mismatches by typing  
     **>MANUAL resource\_information\_match\_dsp\_unit**  
     **datafilled\_resources\_match\_dsp\_unit**  
     and pressing the Enter key.

*where*

**resource\_information\_match\_dsp\_unit**  
 is the DSP RM whose actual resources match the datafilled resources of a second DSP RM

**datafilled\_resources\_match\_dsp\_unit**  
 is the DSP unit whose datafilled resources match the actual resources of the first DSP RM

*Example*

**>MANUAL 1 0**

**Figure 5-22 Example of MAP display**

```

A sparing action may impact services on this node.

Do you wish to continue?
Please confirm ("YES", "Y", "NO", or "N"):

```

**ar** Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

Repeat steps 8aq and 8ar for each DSP RM so the datafilled resources match the actual resources.

If you cannot correct the mismatches by this method, please contact your Nortel Networks TAS representative.

**as** Exit the SPM level MAP display by typing

```
>QUIT ALL
```

and pressing the Enter key.

**at** Access the PRSM tool by typing

```
>PRSM
```

and pressing the Enter key.

**au** Audit the load file status of the DSP RMs by typing

```
>DBAUDIT SPM spm_no DSP
```

and pressing the Enter key.

*where*

***spm\_no***

is the ID (number) of the SPM

*Example*

```
>DBAUDIT SPM 23 DSP
```

**av** Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

When you first perform a DBAUDIT on the DSPs, the MAP display reports a database discrepancy. This report of a "Database discrepancy found in x DESTs" is normal. Note that x equals the number of DSPs datafilled. At this point in the procedure, the DBAUDIT is successful. The system also generates an SPM300 and a PRSM400 log as part of DBAUDIT. The generation of these logs does not indicate a problem. If you want to verify the success of the DBAUDIT, you may repeat the DBAUDIT. If you repeat the DBAUDIT, the MAP display will report "Database discrepancy found in 0 DESTs."

**aw** Exit the PRSM tool by typing

```
>QUIT
```

and pressing the Enter key.

- ax** Check for alarms on the SPM by performing the procedures listed in Step 2 of this document.
- ay** You have completed upgrading a DSP circuit pack protection group for the SPM.  
Go to Step 6b.

9

**ATTENTION**

To abort the upgrade and back out the loads, you must reverse the upgrade procedure you have already completed. To avoid possible complications, Nortel Networks strongly recommends that you reverse the order you used to load the RM types, including DSPs, VSPs, and DLCs. Back out the OC3 or ATM load last.

When you get to the step to in-service load the DLC, you must modify the command to include the filename of the original load. Rather than use LOADMOD INSVLD, you must use LOADMOD <filename of original load> INSVLD.

**ATTENTION**

All DLC resources are initially datafilled in table MNCKTPAK. In response to the LISTRES command, the MAP display shows the “Datafilled” information. This “Datafilled” information references table MNCKTPAK.

Upgrade the DLC circuit pack protection groups by performing the following steps.

- a** Determine the unit numbers of the DLC RMs in the circuit pack protection group. Refer to the Circuit pack protection groups work sheet you completed in the “Preparing a manual SPM upgrade” chapter in this document.

- b** Post the SPM by typing

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

and pressing the Enter key.

*where*

**spm\_no**

is the ID (number) of the SPM

*Example*

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

Figure 5-23 Example of MAP display

```

SPM 23  INSV      Class: DMSCP
Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 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 - ----
--- -  6 - ----  VSP 1 13 I Insv  --- -  6 - ----  --- - 13 - ----
CEM 0  7 A Insv  VSP 0 14 A Insv  DLC 2  7 I Insv  --- - 14 - ----

```

- c Record the unit number of the inactive DLC RM in the circuit pack protection group.

**Note:** The inactive DLC RM you select is called the seeding DLC RM. The unit number of this DLC RM is referred to as `seed_dlc_unit` for the remainder of this procedure.

- d Select the seeding DLC RM by typing

```
>SELECT DLC seed_dlc_unit
```

and pressing the Enter key.

where

**seed\_dlc\_unit**

is the unit number of the inactive DLC RM selected

*Example*

```
>SELECT DLC 1
```

- e

#### ATTENTION

The following in-service load procedure applies only when you upgrade to the next milestone release, for example, SP10 load to SP11 load or SP11 load to SP12 load. Do not use the in-service load procedure if you skip milestone releases, for example, SP10 load to SP12 load. If you skip a load, you must busy the spare DLC RMs before loading them. This out-of-service load successfully upgrades the DLC RMs.

In-service load the seeding DLC RM by typing

```
>LOADMOD INSVLD
```

and pressing the Enter key.

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

f

**ATTENTION**

Do not apply a patch to a ManB RM. When you return to service (RTS) the RM, it boots from flash memory. The patch is not copied to flash until at least 1 hour after it was applied to the RM. If you perform an RTS on the RM before the flash is updated, the patch is no longer applied to the RM. You must manually execute the ISTBAUDIT command. To avoid delays, apply patches only to INSV or ISTb RMs. Note that the CEM does not boot from flash when an RTS is performed. The CEM boots from flash only after executing ResetMod.

Access the PRSM tool by typing

**>PRSM**

and pressing the Enter key.

**g** Audit the status of the DLC by typing

**>DBAUDIT SPM *spm\_no* DLC *dlc\_no***

and pressing the Enter key.

*where*

**spm\_no**

is the ID (number) of the SPM

**dlc\_no**

is the DLC number

*Example*

**>DBAUDIT SPM 23 DLC 1**

**h** Determine if DLC PRSUs have been provided for the DSP load file.

<b>If DLC PRSUs</b>	<b>Do</b>
have been provided for the DSP load file	Step 9i
have not been provided for the DSP load file	Step 9j

**i** Apply the PRSUs by typing

**>APPLY '*prsu\_id* | *prsu\_id* | *prsu\_id* IN SPM *spm\_no* DLC *dlc\_no***

and pressing the Enter key.

*where*

**prsu\_id**

is the PRSU name

**spm\_no**

is the ID (number) of the SPM

**dlc\_no**

is the DLC number

*Example*

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

**j** Exit the PRSM tool by typing

```
>QUIT
```

and pressing the Enter key.

**k** Access the protection level of the MAP by typing

```
>PROT
```

and pressing the Enter key.

**l** Switch activity from an active DLC RM that you have not upgraded to an inactive DLC RM in the circuit pack protection group by typing

```
>MANUAL active_dlc_unit inactive_dlc_unit
```

and pressing the Enter key.

*where*

**active\_dlc\_unit**  
is the unit number of an active DLC RM that has not been upgraded

**inactive\_dlc\_unit**  
is the unit number of an inactive DLC RM in the circuit pack group

*Example*

```
>MANUAL 2 1
```

**Figure 5-24 Example of MAP display**

```
A sparing action may impact services on this node.

Do you wish to continue?
Please confirm ("YES", "Y", "NO", or "N"):
```

**m** Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

**n** Begin RM-to-RM loading by selecting the newly inactive DLC RM that you have not upgraded and by typing

```
>SELECT DLC inactive_dlc_unit
```

and pressing the Enter key.

*where*

**inactive\_dlc\_unit**  
is the unit number of the newly inactive DLC RM that has not been upgraded

*Example*

```
>SELECT DLC 2
```

- o Load the newly inactive DLC RM that you have not upgraded from the seeding DLC RM by typing

```
>LOADMOD MATE seed_dlc_unit
```

and pressing the Enter key.

where

**seed\_dlc\_unit**

is the unit number of the seeding DLC RM

*Example*

```
>LOADMOD MATE 1
```

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

- p Repeat Steps 9f through 9j.
- q Access the protection level of the MAP display by typing

```
>PROT
```

and pressing the Enter key.

- r Switch activity from the spare DLC RM to the newly upgraded DLC RM by typing

```
>MANUAL spare_dlc_unit upgraded_dlc_unit
```

and pressing the Enter key.

where

**spare\_dlc\_unit**

is the unit number of the spare DLC RM

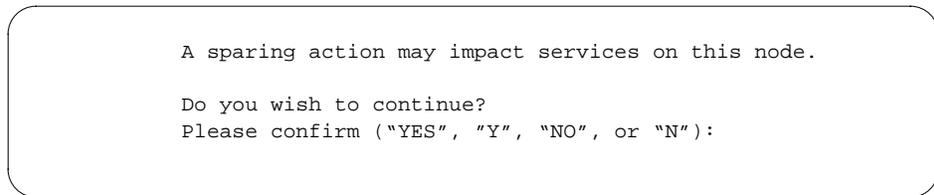
**upgraded\_dlc\_unit**

is the unit number of the newly upgraded DLC RM

*Example*

```
>MANUAL 1 2
```

**Figure 5-25 Example of MAP display**



- s Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

- t** Determine if you have upgraded all active DLC RMs in the circuit pack protection group.

<b>If you have</b>	<b>Do</b>
not upgraded all active DLC RMs in the circuit pack protection group	Step 9l
upgraded all active DLC RMs in the circuit pack protection group	Step 9u

- u** Exit the SPM level MAP display by typing

```
>QUIT ALL
```

and pressing the Enter key.

- v** Access the PRSM tool by typing

```
>PRSM
```

and pressing the Enter key.

- w** Audit the load file status of the DLC RMs by typing

```
>DBAUDIT SPM spm_no DLC
```

and pressing the Enter key.

*where*

**spm\_no**

is the ID (number) of the SPM

*Example*

```
>DBAUDIT SPM 23 DLC
```

- x** Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

When you first perform a DBAUDIT on the DLCs, the MAP display reports a database discrepancy. This report of a "Database discrepancy found in x DESTs" is normal. Note that x equals the number of DLCs datafilled. At this point in the procedure, the DBAUDIT is successful. The system also generates an SPM300 and a PRSM400 log as part of DBAUDIT. The generation of these logs does not indicate a problem. If you want to verify the success of the DBAUDIT, you may repeat the DBAUDIT. If you repeat the DBAUDIT, the MAP display will report "Database discrepancy found in 0 DESTs."

- y** Exit the PRSM tool by typing

```
>QUIT
```

and pressing the Enter key.

- z** Check for alarms on the SPM by performing the procedures listed in Step 2 of this document.

- aa** You have completed upgrading a DLC circuit pack protection group for the SPM.

Go to Step 6b.

10

**ATTENTION**

To abort the upgrade and back out the loads, you must reverse the upgrade procedure you have already completed. Back out the CEM loads first. Then back out the RM loads. To avoid complications, Nortel Networks strongly recommends that you reverse the order you used to load the RM types, including DSPs, VSPs, COHs, and DLCs. Back out the OC3 or ATM loads last.

When you get to the step to in-service load the CEM, you must modify the command to include the filename of the original load. Rather than use LOADMOD INSVLD, you must use LOADMOD <filename of original load> INSVLD.

**ATTENTION**

Step 10k in this procedure requires you to perform a protection switch of the CEM. The protection switch will fail when no OC3s are datafilled. Before upgrading the CEMs, ensure that OC3s are datafilled in table MNHSCARR.

Current software blocks a CEM protection switch when no carriers are datafilled. This block is a design intent.

Upgrade the CEM units for an SPM by performing the following steps.

- a Determine the CEM units to upgrade. Refer to the Circuit pack protection groups work sheet you completed in the "Preparing a manual SPM upgrade" chapter in this document.

If there are	Do
CEM units that you need to upgrade	Step 10b
no CEM units that you need to upgrade	Step 11

- b Post the SPM by typing  
`>MAPCI;MTC;PM;POST SPM spm_no`  
 and pressing the Enter key.

*where*  
**spm\_no**  
 is the ID (number) of the SPM

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

Figure 5-26 Example of MAP display

```

SPM 23  INSV      Class: DMSCP
Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 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 - ----
--- -  6 - ----  VSP 1 13 I Insv  --- -  6 - ----  --- - 13 - ----
CEM 0  7 A Insv  VSP 0 14 A Insv  DLC 2  7 I Insv  --- - 14 - ----

```

**c** Record the unit number of an inactive CEM.

**d** Select the inactive CEM by typing

```
>SELECT CEM inactive_cem_unit
```

and pressing the Enter key.

where

**inactive\_cem\_unit**

is the unit number of the inactive CEM

*Example*

```
>SELECT CEM 1
```

**e** In-service load the inactive CEM by typing

```
>LOADMOD INSVLD
```

and pressing the Enter key.

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

**f** Access the PRSM tool by typing

```
>PRSM
```

and pressing the Enter key.

**g** Audit the status of the CEM by typing

```
>DBAUDIT SPM spm_no CEM cem_no
```

and pressing the Enter key.

where

**spm\_no**

is the ID (number) of the SPM

**cem\_no**

is the CEM number

*Example*

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

**h** Determine if CEM PRSUs have been provided for the CEM load file.

<b>If CEM PRSUs</b>	<b>Do</b>
have been provided for the CEM load file	Step 10i
have not been provided for the CEM load file	Step 10j

**i** Apply the PRSUs by typing

```
>APPLY `prsu_id | prsu_id | prsu_id IN SPM spm_no CEM
cem_no
```

and pressing the Enter key.

*where*

**prsu\_id**  
is the PRSU name

**spm\_no**  
is the ID (number) of the SPM

**cem\_no**  
is the CEM number

*Example*

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

**j** Exit the PRSM tool by typing

```
>QUIT
```

and pressing the Enter key.

**k** Begin executing manual CEM sparing to switch activity by accessing the protection level of the MAP display and typing

```
>PROT
```

and pressing the Enter key.

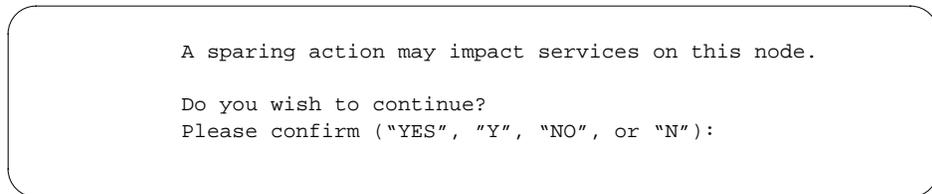
**Note:** If OC3 are not datafilled in table MNHSCARR, the manual protection switch will fail. To complete the protection switch, you must either datafill the OC3s prior to the manual protection switch or force the protection switch by using the FORCE command.

**l** Perform manual CEM activity switching by typing

```
>MANUAL
```

and pressing the Enter key.

**Figure 5-27 Example of MAP display**



- 
- m** Confirm the system prompt by typing  
>Y  
and pressing the Enter key.
- n** Begin in-service loading the newly inactive CEM by selecting the newly inactive CEM and typing  
>SELECT CEM inactive\_cem\_unit  
and pressing the Enter key.  
where  
    **inactive\_cem\_unit**  
    is the unit number of the newly inactive CEM
- Example*  
>SELECT CEM 0
- o** In-service load the newly inactive CEM by typing  
>LOADMOD INSVLD  
and pressing the Enter key.
- p** Exit the SPM level MAP display by typing  
>QUIT ALL  
and pressing the Enter key.
- q** Access the PRSM tool by typing  
>PRSM  
and pressing the Enter key.
- r** Audit the load file status of the CEMs by typing  
>DBAUDIT SPM spm\_no CEM  
and pressing the Enter key.  
where  
    **spm\_no**  
    is the ID (number) of the SPM
- Example*  
>DBAUDIT SPM 23 CEM
- s** Confirm the system prompt by typing  
>Y  
and pressing the Enter key.

When you first perform a DBAUDIT on the CEMs, the MAP display reports a database discrepancy. This report of a "Database discrepancy found in 2 DESTs" is normal. At this point in the procedure, the DBAUDIT is successful. The system also generates an SPM300 and a PRSM400 log as part of DBAUDIT. The generation of these logs does not indicate a problem. If you want to verify the success of the DBAUDIT, you may repeat the DBAUDIT. If you repeat the DBAUDIT, the MAP display will report "Database discrepancy found in 0 DESTs."

t Determine if CEM PRSUs have been provided for the CEM load file.

If CEM PRSUs	Do
have been provided for the CEM load file	Step 10u
have not been provided for the CEM load file	Step 10v

u Apply the PRSUs by typing

```
>APPLY `prsu_id | prsu_id | prsu_id IN SPM spm_no CEM cem_no
```

and pressing the Enter key.

where

**prsu\_id**  
is the PRSU name

**spm\_no**  
is the ID (number) of the SPM

**cem\_no**  
is the CEM number

*Example*

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

v Exit the PRSM tool by typing

```
>QUIT
```

and pressing the Enter key.

w Return to the protection level and repeat step 10u.

x Check for alarms on the SPM by performing the procedures listed in Step 2 of this document.

y You have successfully completed upgrading both CEMs for the SPM.

11 You have successfully completed the procedure for upgrading an SPM.

If there are	Do
additional SPMs to update during this shift	repeat this procedure
other PMs or hardware types to update during this shift	go to the appropriate procedure in the <i>Peripheral Module Software Release Document</i>
no more PMs or hardware types to update during this shift	go to "Finishing a PM update shift" in the <i>Peripheral Module Software Release Document</i>

---

## 6 Prepare a manual SPM downgrade

---

### Application

Use this procedure to prepare the following circuit packs in a Spectrum Peripheral Module (SPM) for a manual downgrade.

**Table 6-1**

Name	Description
ATM	asynchronous transfer mode (ATM) resource module (RM)
CEM	common equipment module (CEM)
DLC	data link controller (DLC) RM
DSP	digital signal processor (DSP) RM
OC3	optical carrier rate 3 (OC3) interface RM
VSP	voice signal processor (VSP) RM
	<b>Note:</b> This includes LX66, LX85, and LX86 VSP RMs
<b>Note:</b> ATM is available for Succession Solutions only.	

### Prerequisites

To add or remove SPM patches, you must have a computing module (CM) load of at least CSP12. If you do not have this required CM load and intend to add or remove SPM patches, you must upgrade the CM load.

### Required information

Each time a new patchable maintenance non-CM load (MNCL) is released, you must datafill tables PMLOADS and MNCKTPAK with the new load name.

## 6-2 Prepare a manual SPM downgrade

---

To make use of fixes released as post-release software updates (PRSU), you must maintain the most current SPM MNCL or patched MNCL.



### **CAUTION**

#### **Possible service interruption**

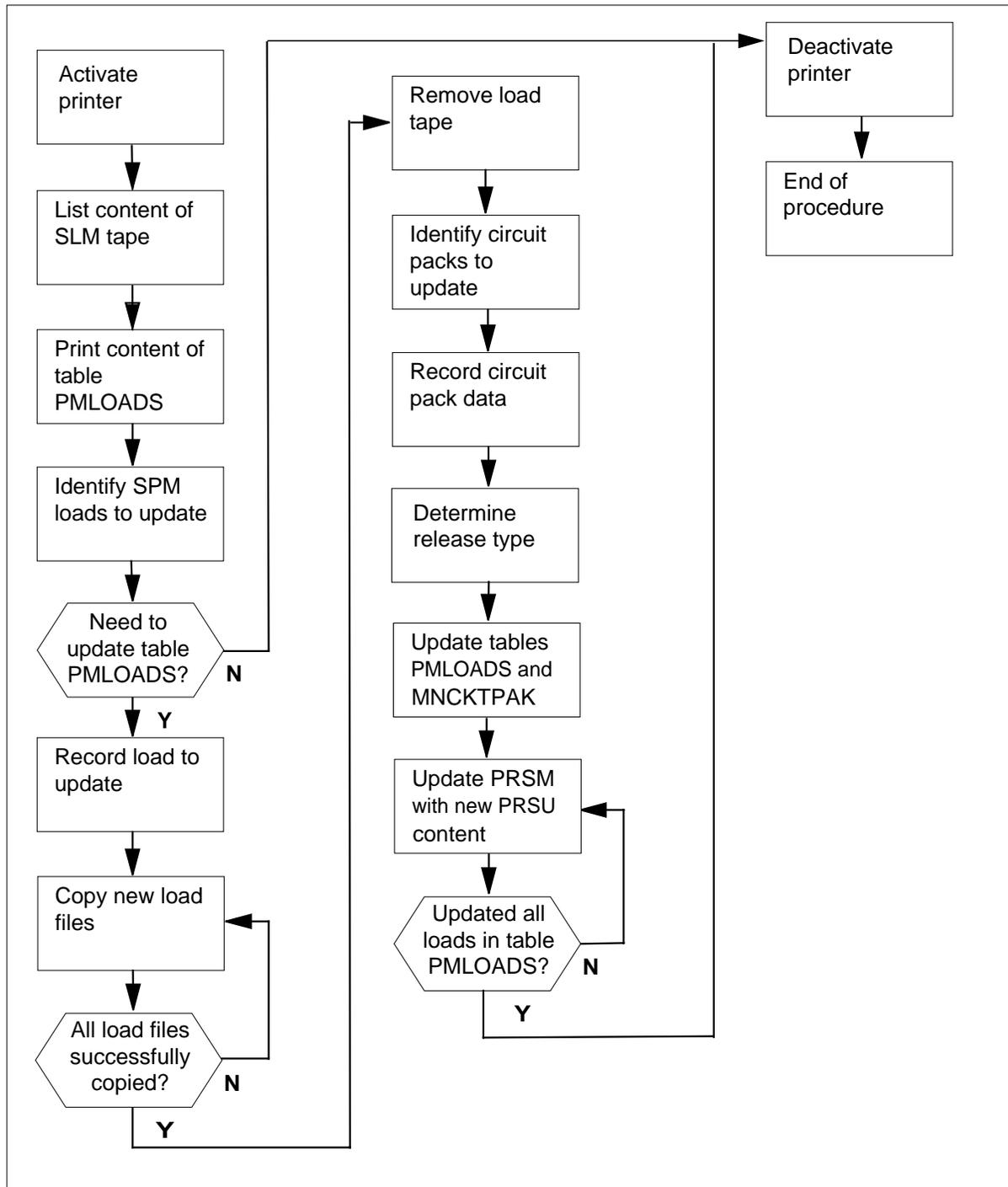
Do not datafill Service Test Access (STA) resources. Change datafill for existing tuples with STA resources. This is necessary prior to a software downgrade and is recommended even if a downgrade is not expected.

Note that previous releases of SPM allowed STA resource provisioning. Do not provision STA. If an SPM has STA resources provisioned, remove those STA resources from table MNCKTPAK according to the procedure in the *Customer Data Schema Reference Manual*.

### **Procedure to prepare for an SPM downgrade**

Consult the following flowchart for a summary of the procedure to prepare for an SPM downgrade.

Figure 6-1 Summary of procedure



**Procedure 6-1 Steps of procedure**

**ATTENTION**

Follow your company policy for soaking selected circuit packs before downgrading the rest of your office. See the appendix "Limited soak-in deployment" to soak a new load on a circuit pack without changing default loads in table PMLOADS and table MNCKTPAK.

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

- 1 Review the introductory material to this procedure.
- 2 Send the terminal response to a printer by typing  
>RECORD START ONTO **printer\_name**  
and pressing the Enter key.

*where*

**printer\_name**  
is the name of the printer

*Example*

>RECORD START ONTO **printer1**

**At the SLM tape drive**

- 3 List the content of the SPM load tape by performing the following steps.
  - a Select a system load module (SLM) disk volume as the volume for the new loads.
  - b Place the SPM load tape into the SLM tape drive of the selected SLM disk volume.

*At the MAP display*

- c Access the disk utility by typing

>DISKUT

and pressing the Enter key.

- d Insert the PM load tape into the SLM tape drive by typing

**IT drive\_name**

and pressing the Enter key.

*where*

**drive\_name**

is the name of the SLM tape drive

*Example*

**IT S00T**

- e** List the load file contents of the SLM tape by typing

**>LF drive\_name**

and pressing the Enter key.

*where*

**drive\_name**

is the name of the SLM tape drive

*Example*

**>LF S00T**

- 4** Print the contents of table PMLOADS by performing the following steps.
- a** Access table PMLOADS by typing  
**>TABLE PMLOADS**  
and pressing the Enter key.
  - b** List the load file contents of table PMLOADS by typing  
**>LIST ALL**  
and pressing the Enter key.
  - c** Exit table PMLOADS by typing  
**>QUIT**  
and pressing the Enter key.
- 5** Identify the SPM loads you need to update by performing the following steps.
- a** Compare the load file names on the tape to the active load file names in table PMLOADS. To determine the load file names on the tape, refer to Step 3e. To determine the load file names in table PMLOADS, refer to Step 4b.  
  
**Note:** For information about SPM load naming conventions and release types, see the chapter "SPM release types and naming standards."
  - b**

**ATTENTION**

Respond correctly to the decision box in this step. Your response is critical for you to prepare for the SPM downgrade successfully. Be sure that you follow the steps that apply to the type of release downgrade for which you are preparing.

6-6 Prepare a manual SPM downgrade

Determine if you need to update the SPM load name in table PMLOADS.

If you are preparing for a	Do
downgrade across streams	Step 5c
downgrade within the same stream	Step 5d

- c** You must update table PMLOADS if the following conditions exist for a downgrade across streams:
- The new release number of an SPM load name on the SLM tape is less than the current release number in table PMLOADS. (The load file contents of the SLM tape shows the new release number. The active file in table PMLOADS shows current release number.)
  - The postfix index number decreases or remains the same.
- Go to Step 5e.
- d** You must update table PMLOADS if the following conditions exist for a downgrade within the same stream:
- The new release number of an SPM load name on the SLM tape is identical to the current release number in table PMLOADS. (The load file contents of the SLM tape shows the new release number. The active file in table PMLOADS shows the current release number.)
  - The six-digit postfix index of the SPM load file name changes from the current release to the new release.
- e** Use the following table to determine if you need to update the SPM load name in table PMLOADS.

**Table 6-2 SPM load release types and actions (Sheet 1 of 2)**

Release number, current release vs. new release	Postfix index number, current release vs. new release	Downgrade type	Action
New release number is less than the current release number (See note.)	does not matter	across streams	update
New release number and current release number are the same (See note.)	changed	within same stream	update

**Note:** Current release number refers to the number shown in table PMLOADS. New release number refers to the number shown on the SLM tape.

**Table 6-2 SPM load release types and actions (Sheet 2 of 2)**

Release number, current release vs. new release	Postfix index number, current release vs. new release	Downgrade type	Action
New release number and current release number are the same (See note.)	unchanged	not applicable	do not update
New release number is higher than the current release number (See note.)	does not matter	error	contact next level of support

**Note:** Current release number refers to the number shown in table PMLOADS. New release number refers to the number shown on the SLM tape.

**6** Determine if you need to access table PMLOADS to update the load file names.

If you	Do
need to update the load file names in table PMLOADS	Step 7
do not need to update the load file names in table PMLOADS	Step 22

**7**

**ATTENTION**  
The DSP load contains the VSP, as well as the DSP downgrade software.

Use the following work sheet to record the load in table PMLOADS that you need to update.

**Table 6-3 Load update work sheet (Sheet 1 of 2)**

Current load name in PMLOADS	Current active load file name in PMLOADS	New load name from SLM tape contents	New active load file name from SLM tape contents

6-8 Prepare a manual SPM downgrade

**Table 6-3 Load update work sheet (Sheet 2 of 2)**

Current load name in PMLOADS	Current active load file name in PMLOADS	New load name from SLM tape contents	New active load file name from SLM tape contents

The following work sheet provides a sample of a completed Load update work sheet for a downgrade across streams.

**Table 6-4 Sample load update work sheet for a downgrade across streams**

Current load name in PMLOADS	Current active load file name in PMLOADS	New load name from SLM tape contents	New active load file name from SLM tape contents
OC315AF	OC315AF_010005	OC314AF	OC314AF_010005
ATM15AF	ATM15AF_010005	ATM14AF	ATM14AF_010005
DSP15AF	DSP15AF_010005	DSP0014	DSP0014_010003
CEM15AF	CEM15AF_010005	CEM14AF	CEM14AF_010005

The following work sheet provides a sample of a completed Load update work sheet for a downgrade within the same stream.

**Table 6-5 Sample load update work sheet for a downgrade within the same stream**

Current load name in PMLOADS	Current active load file name in PMLOADS	New load name from SLM tape contents	New active load file name from SLM tape contents
OC315AF	OC315AF_010005	OC315AE	OC315AE_010003
ATM15AF	ATM15AF_010005	ATM15AE	ATM15AE_010002
DSP15AF	DSP15AF_010005	DSP0015	DSP0015_010003
CEM15AF	CEM15AF_010005	CEM15AE	CEM15AE_010003

- 8 Copy all new required load files by performing the following steps.
  - a Copy one required load file from the SLM tape to a disk volume by typing `>RE FILE disk_vol drive_name new_load_file` and pressing the Enter key.

where

**disk\_vol**

is the name of the selected SLM disk volume

**drive\_name**

is the name of the SLM tape drive

**new\_load\_file**

is the name of the new load file required to update the current load

Example

```
>RE FILE S00DPMLOADS S00T CEM14AF_010005
```

- b** Copy the remaining load files from the SLM tape to a disk volume.

---

**If**

**Do**

there are required load files that you have not copied from the SLM tape to a disk volume

Step 8a

you have copied all required load files from the SLM tape to a disk volume

Step 9

- 
- 9** Make sure that all required load files have been correctly copied on the disk volume by performing the following steps.

- a** List the contents of the disk volume that contains the new loads by typing

```
>LF disk_vol
```

and pressing the Enter key.

where

**disk\_vol**

is the name of the selected SLM disk volume

Example

```
>LF S00DPMLOADS
```

6-10 Prepare a manual SPM downgrade

Figure 6-2 Example of MAP display

FILE NAME	O R I O FILE	MAX	NUM OF	FILE	LAST
	R E T P L CODE	REC	RECORDS	SIZE	MODIFY
	G C O E D	LEN	IN	IN	DATE
	C N		FILE	BLOCKS	
CEM14AF_010005	O F	0	1536 10103	30341	990518
MPF12BG	O F	0	138 514	191	990209
MTMKA02	O F	0	76 302	63	980826
ENX12AU	O F	0	1020 3642	7289	990512
ENX11BA	O F	0	1020 3707	7410	990414
LRS12BJ	O F	0	1020 3707	7417	990512
LRS12BJ	I F	0	1020 3707	7414	990302
MPC403AD	O F	9	2048 162	703	980826
ERS11BA	O F	0	1020 4812	9646	990414
ED712BC	O F	0	1024 2740	5499	990209
ERS12AU	O F	0	1020 4812	9646	990512
ED712BC	O F	0	1024 2754	5558	990512
DSP0014_010059	O V	0	256 18331	8926	990518
MPF14BG	O F	0	138 514	914	990512
OC314AF_010005	O V	0	256 19942	9754	990518

- b Compare the results of the LF disk\_vol command to the entries you made on the Load update work sheet in Step 7.

If	Do
you discover required load files that were not copied on the disk volume	Step 8a
all required load files have been copied onto the disk volume	Step 10

- 10 Eject the SPM load tape from the SLM tape drive by typing  
**>ET drive\_name**  
 and pressing the Enter key.  
 where  
     **drive\_name**  
     is the name of the SLM tape drive  
*Example*  
**>ET S00T**
- 11 Remove the SPM load tape from the SLM tape drive.
- 12 Quit the disk utility by typing  
**>QUIT**  
 and pressing the Enter key.
- 13 Store the SPM load tape in an available on-site location for future use.

- 14 Identify the SPM circuit packs to be downgraded by performing the following steps. Match the load of an SPM circuit pack in table MNCKTPAK against the current load in table PMLOADS.

**Note:** For the current load in table PMLOADS, see the Load update work sheet that you completed in Step 7. If you need to update the current load in table PMLOADS, you must downgrade the SPM circuit packs.

- a Access table MNCKTPAK by typing

```
>TABLE MNCKTPAK
```

and pressing the Enter key.

- b List the corresponding circuit packs to be downgraded by typing

```
>LIST ALL ('LOAD' EQ the_load_to_update)
```

and pressing the Enter key.

*where*

**the\_load\_to\_update**

is the load name of a load in table PMLOADS that you need to downgrade

**Note:** You must include the ' immediately before and after the key word LOAD, and the key word must be in upper case.

*Examples*

```
>LIST ALL ('LOAD' EQ OC315AF)
```

```
>LIST ALL ('LOAD' EQ DSP15AF)
```

```
>LIST ALL ('LOAD' EQ CEM15AF)
```

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Figure 6-3 Example of MAP display for load name DSP15AF

CPKKEY	PEC	RELEASE	LOAD	CPKINFO
SPM 23 1 1	VSP 0 1	WORKING (ECAN 12)	\$(SYSB CR RPT) (MANB MJ RPT)	(ISTB MN RPT) (PROTFAIL CR RPT) \$
	NTLX66AA	01	DSP15AF	
SPM 23 1 2	VSP 1 1	SPARE (SYSB CR RPT) (MANB MJ RPT)	(ISTB MN RPT)	(PROTFAIL CR RPT) \$
	NTLX66AA	01	DSP015AF	
SPM 23 1 7	DSP 0 1	WORKING (COT 12) (DTMF 12) (TONESYN 12)	\$(SYSB CR RPT) (MAN MJ RPT) (ISTB MN RPT)	(PROTFAIL CR RPT) \$
	NTLX65AA	01	DSP15AF	
SPM 23 1 8	DSP 1 1	SPARE (SYSB CR RPT) (MANB MJ RPT)	(ISTB MN RPT)	(PROTFAIL CR RPT) \$
	NTLX65AA	01	DSP15AF	
SPM 40 1 1	VSP 0 1	WORKING (ECAN 12)	\$(SYSB CR RPT) (MANB MJ RPT)	(ISTB MN RPT) (PROTFAIL CR RPT) \$
	NTLX66AA	01	DSP15AF	
SPM 40 1 2	VSP 1 1	SPARE (SYSB CR RPT) (MANB MJ RPT)	(ISTB MN RPT)	(PROTFAIL CR RPT) \$
	NTLX66AA	01	DSP15AF	
SPM 40 1 7	DSP 0 1	WORKING (COT 80) (DTMF 64) (TONESYN 255)	(ABBIT 7) (MF 10) \$(SYSB CR RPT) (MANB MJ RPT)	(ISTB MN RPT) (PROTFAIL CR RPT) \$
	NTLX65AA	01	DSP15AF	
SPM 40 1 8	DSP 1 1	SPARE (SYSB CR RPT) (MANB MJ RPT)	(ISTB MN RPT)	(PROTFAIL CR RPT) \$
	NTLX65AA	01	DSP15AF	

- 15 Use the following work sheet to record the circuit packs you must downgrade. Duplicate the work sheet as needed so you can use a separate work sheet for each SPM.

Figure 6-4 Circuit pack downgrade work sheet

Node ID (SPM no.)	Shelf ID	Slot no.	Circuit pack type	Unit no.	Circuit pack protection group ID	
	0	1				
		2				
		3				
		4				
		5				
		6				
		7	CEM		NA	
		8	CEM		NA	
		9				
		10				
		11				
		12				
		13				
		14				
	1	1				
		2				
		3				
		4				
		5				
		6				
		7				
		8				
		9				
		10				
		11				
		12				
		13				
		14				

where

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**Node ID**  
is the SPM number

**Shelf ID**  
is the shelf ID of the circuit pack

**Slot no.**  
is the slot number of the circuit pack

**Circuit pack type**  
is the type of the circuit pack

**Unit no.**  
is the unit number of the circuit pack

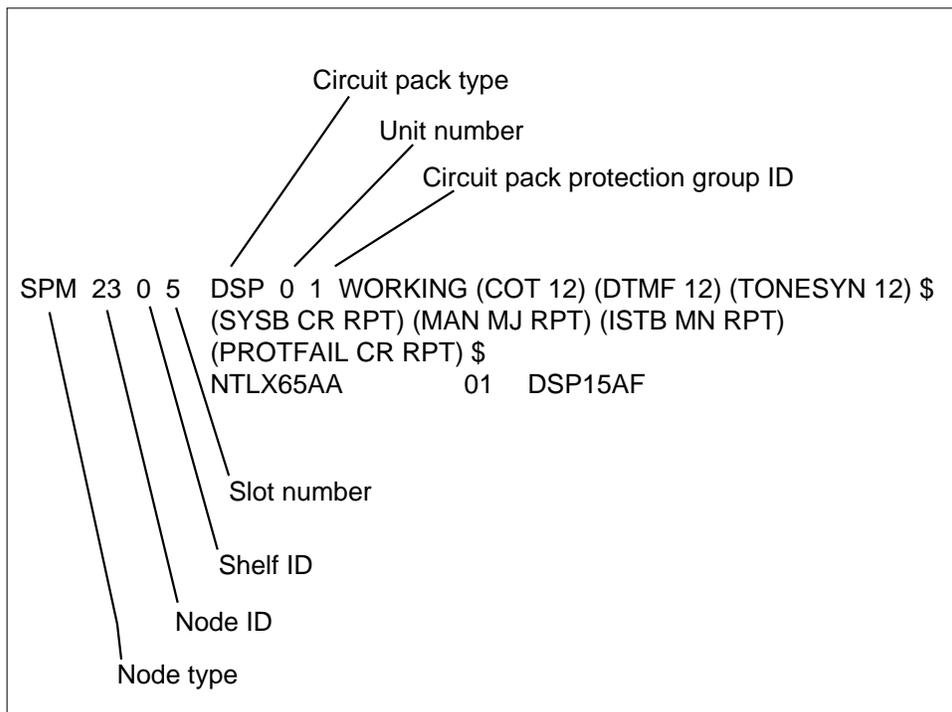
**Circuit pack protection group ID**  
is the ID of the corresponding protection group where the circuit pack belongs

The following illustration shows sample datafill for table MNCKTPAK. For the purposes of this illustration, it shows only one example for each circuit pack type.

**Figure 6-5 Example of datafill for table MNCKTPAK**

CPKKEY	PEC	RELEASE	LOAD	CPKINFO
SPM 23 0 5	DSP 0 1	WORKING (COT 12) (DTMF 12) (TONESYN 12) \$ (SYSB CR RPT) (MAN MJ RPT) (ISTB MN RPT) (PROTFAIL CR RPT) \$	NTLX65AA 01 DSP15AE	
SPM 23 0 7	CEM 0	(SYSB CR RPT) (MANB MJ REP) (ISTB MN RPT) (SYSBNA CR RPT) (MANBNA MJ RPT) (HLDOVR MJ RPT) (HLDOVR24 MJ RPT) (VCXO70 MN RPT) (VCXO90 MJ RPT) (CLKOOS MJ RPT) \$	NTLX82AA 01 CEM15AE	
SPM 23 0 9	OC3 0 1	WORKING (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT) (PROTFAIL NA RPT) \$	NTLX71AA 01 OC315AE	
SPM 23 0 14	VSP 0 1	WORKING (ECAN 12) \$ (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT) (PROTFAIL CR RPT) \$	NTLX66AA 01 DSP15AE	

The following illustration identifies the fields you need to populate the Circuit pack downgrade work sheet for a DSP. The location of these fields for other RMs—OC3, ATM, VSP, and DLC—are identical. Note that the CEM does not belong to a protection group, and therefore does not have a circuit pack protection group ID.

**Figure 6-6 Fields used to populate the Circuit pack downgrade work sheet**

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

- OC3: OC3GRPID
- ATM: ATMGRPID
- DSP: DSPGRPID
- DLC: DLCGRPID

You must enter the protection group ID from table MNPRTGRP in table MNCKTPAK. A message displays if the protection group ID has not already been defined in table MNPRTGRP. In table MNPRTGRP, you can define the protection group in field GRPKEY, subfield GRPID. Valid values for subfield GRPID are 1 through 28.

If necessary, see the *Customer Data Schema Reference Manual* for information about tables MNCKTPAK and MNPRTGRP.

The following work sheet provides a sample of a completed Circuit pack downgrade work sheet for SPM 23.

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Figure 6-7 Sample circuit pack downgrade work sheet

Node ID (SPM no.)	Shelf ID	Slot no.	Circuit pack type	Unit no.	Circuit pack protection group ID	
23	0	1	VSP	0	1	
		2	VSP	1	1	
		3	VSP	2	1	
		4	VSP	3	1	
		5	VSP	4	1	
		6	VSP	5	1	
		7	CEM	0	NA	
		8	CEM	1	NA	
		9	OC3	0	1	
		10	OC3	1	1	
		11				
		12				
		13				
		14				
		1	1	VSP	6	2
			2			
			3			
			4	VSP	7	2
			5	DSP	0	1
			6			
			7	DSP	1	1
			8	DSP	2	1
			9	DSP	3	1
			10	DSP	4	1
			11	DSP	5	1
			12	DSP	6	1
			13	DSP	7	1
			14			

- 16** Use the following work sheet to record the circuit pack protection groups to be downgraded. Duplicate the work sheet as needed so you can use a separate work sheet for each SPM. For each SPM, copy the data from the Circuit pack downgrade work sheet to the following work sheet.

**Note:** A circuit pack group normally contains multiple circuit packs.



where

**Node ID**  
is the SPM number

**Circuit pack type**  
is the type of the circuit pack

**Circuit pack protection group ID**  
is the ID of the corresponding protection group where the circuit pack belongs

**Unit no.**  
is the unit number of the circuit pack belonging to the circuit pack group

The following work sheet provides a sample of a completed Circuit pack protection groups work sheet for SPM 23.

**Figure 6-9 Sample circuit pack protection groups work sheet**

Node ID (SPM no.)	Circuit pack type	Circuit pack protection group ID	Unit no.							
			0	1						
23	CEM	NA	0	1						
	OC3	1	0	1						
	DSP	1	0	1	2	3	4	5	6	7
	VSP	1	0	1	2	3	4	5		
	VSP	2	6	7						

**Record the status of each DSP: Working/Spare, Active/Inactive, In-service/Out of service.**

DSP 0 1, Working, Active, In-service  
 DSP 1 1, Spare, Inactive, In-service  
 DSP 2 1, Working, Active, In-service  
 DSP 3 1, Working, Active, In-service  
 DSP 4 1, Working, Active, In-service  
 DSP 5 1, Working, Active, In-service  
 DSP 6 1, Working, Active, In-service  
 DSP 7 1, Working, Active, In-service

**ATTENTION**

Respond correctly to the decision box in this step. Your response is critical for you to prepare for the SPM downgrade successfully. Be sure that you follow the steps that apply to the type of release downgrade you are preparing.

6-20 Prepare a manual SPM downgrade

Access table PMLOADS by typing

>TABLE PMLOADS

and pressing the Enter key.

If you are updating table PMLOADS for an SPM	Do
downgrade across streams	Step 18
downgrade within the same stream	Step 20

**Note:** Use the Load update work sheet to help you complete the table PMLOADS update.

18 Update table PMLOADS and table MNCKTPAK for an SPM downgrade across streams by performing the following steps.

a Add a new load name by typing

```
>ADD new_load_name new_act_file actvol backup_file
backup_vol N
```

and pressing the Enter key.

where

**new\_load\_name**  
is the load name of the new load

**new\_act\_file**  
is the load file name of the new load file

**actvol**  
is the disk volume where the new load file is stored

**backup\_file**  
is the load file name of the backup load file

**backup\_vol**  
is the disk volume where the backup load file is stored

Example

```
>ADD DSP0014 DSP0014_010009 S00DPMLOADS DSP0014_010009
S00DPMLOADS N
```

Figure 6-10 Example of MAP display

LOADNAME	ACTFILE	ACTVOL	UPDACT
BKPFIL	BKPVOL		
-----			
DSP0014			
DSP0014_000001		S00DPMLOADS	
DSP0014_000001		S00DPMLOADS	N

ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.

- b Confirm the system prompt by typing  
>Y  
and pressing the Enter key.
- c Check the Load update work sheet you completed in Step 7 to determine if you updated all loads in table PMLOADS.

<b>If you have</b>	<b>Do</b>
not updated all loads in table PMLOADS	Step 18a
updated all loads in table PM-LOADS	Step 18d

- d Exit table PMLOADS and reenter table MNCKTPAK by typing  
>QUIT  
and pressing the Enter key.  
Use table MNCKTPAK to update the circuit pack load inventory for an SPM.
- e Determine which circuit packs you need to downgrade. Refer to the Circuit pack downgrade work sheet you completed in Step 15.
- f Update the default load for a circuit pack that you need to downgrade on the SPM by typing  
>POS SPM *spm\_no* *shelf\_ID* *slot\_no*  
and pressing the Enter key.  
*where*  
**spm\_no**  
is the ID (number) of the SPM where the circuit pack exists  
**shelf\_ID**  
is the ID of the SPM shelf where the circuit pack exists  
**slot\_no**  
is the slot on the SPM shelf where the circuit pack exists  
*Example*  
>POS SPM 23 0 1
- g Determine the new load for the circuit pack. Refer to the Load update work sheet you completed in Step 7.
- h Update the default load name for the circuit pack by typing  
>CHA LOAD *new\_load\_name*  
and pressing the Enter key.  
*where*  
**new\_load\_name**  
is the new load name  
*Examples*  
>CHA LOAD DSP0014

6-22 Prepare a manual SPM downgrade

---

```
>CHA LOAD OC314AF
>CHA LOAD CEM14AF
```

**Figure 6-11 Example of MAP display for new DSP load name DSP0014**

```
SPM 23 0 1 DSP 4 1 SPARE (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT)
      (PROTFAIL CR RPT) $
      NTLX65AA      01      DSP0014

ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
```

- i Confirm the system prompt by typing  
>Y  
and pressing the Enter key.
- j Check the Load update work sheet to determine if you need to downgrade other circuit packs.

---

If you have	Do
not downgraded all required circuit packs	Step 18f
downgraded all required circuit packs	Step 18k

---

- k Exit table MNCKTPAK by typing  
>QUIT  
and pressing the Enter key.

19

**ATTENTION**

This step is optional. To proceed with the SPM downgrade, you are not required to manually update PRSM with the PRSU content of the new load files. If you do not use this step to manually update PRSM, the PRSM automated process STATUS AUDIT performs a DBAUDIT on the new load files. The STATUS AUDIT is scheduled in table AUTOPRSU.

If you manually update PRSM with the new PRSU content, you are able at any time to display the PRSU content of new load files by using PRSM queries such as SELECT and REPORT commands.

- a Access the PRSM tool by typing  
>PRSM  
and pressing the Enter key.

- b** Update PRSM with the PRSU content of the new load file by typing  
`>DBAUDIT SPMLOAD new_load_file_name`  
 and pressing the Enter key.

*where*

**new\_load\_file\_name**

is the load name of the new load file required to update the current load

*Example*

`>DBAUDIT SPMLOAD CEM14AF_010005`

- c** Check the Load update work sheet you completed in Step 7 to determine if you updated PRSM for all loads in table PMLOADS.

<b>If you have</b>	<b>Do</b>
not updated PRSM for all new loads in table PMLOADS	Step 19b
updated PRSM for all new loads in table PMLOADS	Step 19d

- d** Exit the PRSM tool by typing  
`>QUIT`  
 and pressing the Enter key.  
 Go to Step 22.

20

**ATTENTION**

This procedure creates a minor SPM alarm under the PM banner. This alarm generates when there is a mismatch between the datafilled active load file in table PMLOADS and the software currently running on an SPM. No action is necessary.

Update table PMLOADS for an SPM downgrade within the same stream by performing the following steps.

- a** Locate a current load you need to update by typing  
`>POS current_load_name`  
 and pressing the Enter key.

*where*

**current\_load\_name**

is the load name of a load to be updated

*Example*

`>POS DSP0014`

- b** Update the load by typing  
`>REP current_load_name new_act_file actvol backup_file backup_vol N`

6-24 Prepare a manual SPM downgrade

and pressing the Enter key.

where

**current\_load\_name**

is the load name of a load to be updated

**new\_act\_file**

is the load file name of the new load file

**actvol**

is the disk volume where the new load file is stored

**backup\_file**

is the load file name of the backup load file

**backup\_vol**

is the disk volume where the backup load file is stored

Example

```
>REP DSP0014 DSP0014_010009 S00DPMLOADS DSP0014_010009
S00DPMLOADS N
```

Figure 6-12 Example of MAP display

LOADNAME	ACTFILE	ACTVOL	UPDACT
BKPFIL	BKPVOL		
DSP0014	DSP0014_010009	S00DPMLOADS	
DSP0014	DSP0014_010009	S00DPMLOADS	N

ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.

- c Confirm the system prompt by typing  
>Y  
and pressing the Enter key.
- d Check the Load update work sheet you completed in Step 7 to determine if you updated all loads in table PMLOADS.

If you have	Do
not updated all loads in table PMLOADS	Step 20a
updated all loads in table PM-LOADS	Step 21

**ATTENTION**

This step is optional. To proceed with the SPM downgrade, you are not required to manually update PRSM with the PRSU content of the new load files. If you do not use this step to manually update PRSM, the PRSM automated process STATUS AUDIT performs a DBAUDIT on the new load files. The STATUS AUDIT is scheduled in table AUTOPRSU.

If you manually update PRSM with the new PRSU content, you are able at any time to display the PRSU content of new load files by using PRSM queries such as SELECT and REPORT commands.

- a** Access the PRSM tool by typing

```
>PRSM
```

and pressing the Enter key.

- b** Update PRSM with the PRSU content of the new load file by typing

```
>DBAUDIT SPMLOAD new_load_file_name
```

and pressing the Enter key.

*where*

**new\_load\_file\_name**

is the load name of the new load file required to update the current load

*Example*

```
>DBAUDIT SPMLOAD CEM14AF_010005
```

- c** Check the Load update work sheet you completed in Step 7 to determine if you updated PRSM for all loads in table PMLOADS.

---

**If you have**

**Do**

---

not updated PRSM for all new loads in table PMLOADS    Step 21b

updated PRSM for all new loads in table PMLOADS    Step 21d

---

- d** Exit the PRSM tool by typing

```
>QUIT
```

and pressing the Enter key.

- 22** Stop the terminal response from printing by typing

```
>RECORD STOP ONTO printer_name
```

and pressing the Enter key.

*where*

**printer\_name**  
is the name of the printer

*Example*

- 23 **>RECORD STOP ONTO printer1**  
Return to the CI level of the MAP display by typing  
**>QUIT ALL**  
and pressing the Enter key.

---

If you	Do
did not need to update table PM-LOADS	Step 24
updated table PMLOADS	Step 25

---

- 24 You have successfully completed this procedure. You do not need to downgrade the SPM. Do not go to the procedure "Downgrade the SPM".

- 25 Access table PMLOADS by typing  
**>TABLE PMLOADS**  
and pressing the Enter key.

- 26 Delete the old load names from table PMLOADS by typing  
**>DEL old\_load\_name old\_act\_file actvol backup\_file backup\_vol N**  
and pressing the Enter key.

*where*

**old\_load\_name**  
is the load name of the old load

**old\_act\_file**  
is the load file name of the old load file

**actvol**  
is the disk volume where the new load file is stored

**backup\_file**  
is the load file name of the backup load file

**backup\_vol**  
is the disk volume where the backup load file is stored

*Example*

- >DEL DSP15AF DSP15AF\_010076 S00DPMLOADS DSP15AF\_010009 S00DPMLOADS N**
- 27 Confirm the system prompt by typing  
**>Y**  
and pressing the Enter key.
- 28 You have successfully completed this procedure and you have correctly prepared for a manual SPM downgrade. Go to the procedure "Downgrade the SPM".

---

## 7 Downgrade the SPM

---

### Application



#### CAUTION

##### Possible service interruption

Perform this procedure during a maintenance window or a period of low traffic.

Use this procedure to downgrade the following circuit packs in a Spectrum Peripheral Module (SPM).

**Table 7-1**

Name	Description
ATM	asynchronous transfer mode (ATM) resource module (RM)
CEM	common equipment module (CEM)
DLC	data link controller (DLC) RM
DSP	digital signal processor (DSP) RM
OC3	optical carrier rate 3 (OC3) interface RM
VSP	voice signal processor (VSP) RM
	<b>Note:</b> This includes LX66, LX85, and LX86 VSP RMs
<b>Note:</b> ATM is available for Succession Solutions only.	

### Prerequisites

You must perform two update procedures to meet the following prerequisites. The update procedures are "Preparing for a PM update" and "Starting a PM

update shift." You can find these procedures in the *Peripheral Module Software Release Document*.

- 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

**Note:** You can view the state and activity of a circuit pack at each circuit pack MAP (maintenance and administration position) level or at the SPM summary MAP level.

- automatic routine exercise (REX) testing is suspended in the office
- verify the status of SPM carriers

You also need to perform the procedure "Preparing a manual SPM downgrade," which is found in this document.

### Required information

Be certain to read the following information before beginning the SPM downgrade.

#### Abort an SPM downgrade

To abort an SPM downgrade, you must back out the loads by reversing the downgrade procedure used in this chapter.

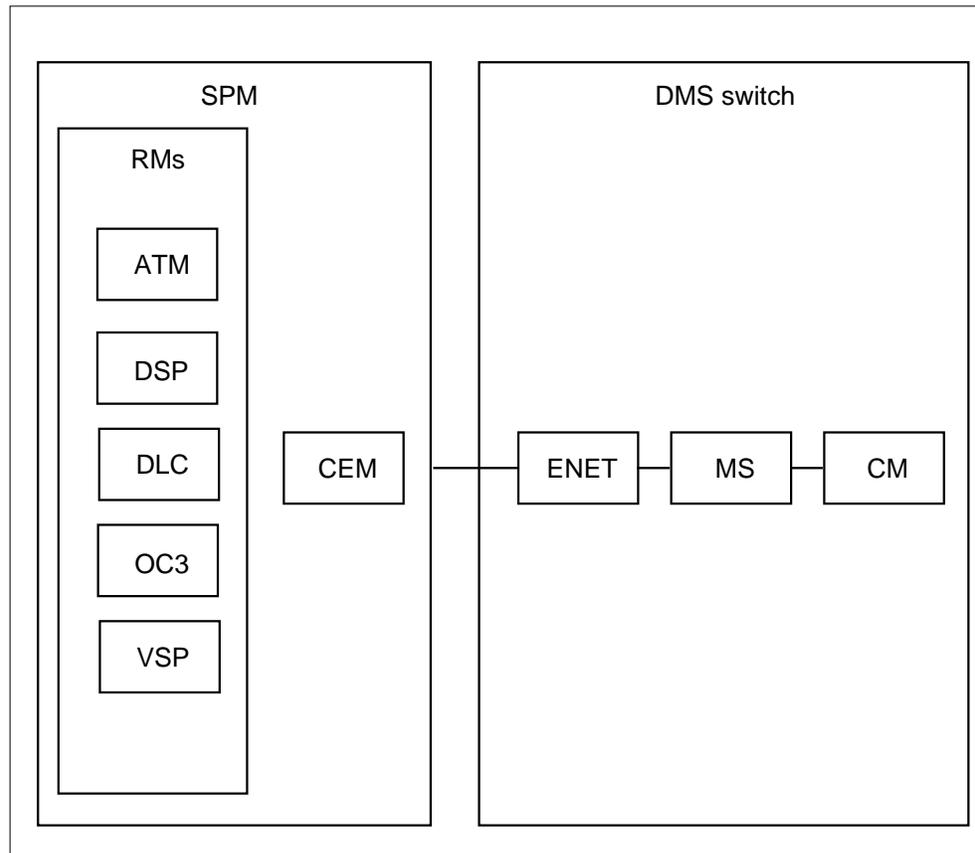
The downgrade procedure requires you to load the CEMs first, then to load the remaining RMs. The remaining RM types are loaded in the order of DLC, VSP, and DSP. You must load the OC3s last. To abort an SPM downgrade, first back out the OC3 loads. Then reverse the order you used to load the RMs. Last, back out the CEM loads.

#### PANTHER

PANTHER is currently not available for SPM use.

### Update sequence

The following figure shows the SPM node configuration. Subtending PMs and modules must be updated before their serving PMs and modules. The upgrade procedure applies only to SPM circuit packs.

**Figure 7-1 Node configuration for SPM**

## Notes on loading times

This section provides sample loading times for the SPM. These loading times are based on single RM in-service loading, RM-to-RM loading, and RM sparing. The loading times provided in this section are for reference only. Use these loading times to prepare the downgrade schedule.

The loading times provided in this section represent processing time only. Your loading times may vary because of several conditions, including

- traffic
- central processing unit (CPU) occupancy
- office configuration
- load sizes
- your familiarity with the procedure
- office interruptions

### **Datafill tables PMLOADS and MNCKTPAK**

Nortel Networks estimates that you need 10 minutes to datafill tables PMLOADS and MNCKTPAK.

### **Sample loading times**

The loading times described in this section are based on the following provisioning:

- 18 RMs
  - 2 OC3s (1 active, 1 inactive)
  - 8 DSPs (7 active, 1 inactive)
  - 8 VSPs (7 active, 1 inactive)
  - 2 DLCs (1 active, 1 inactive)
- 2 CEMs (1 active, 1 inactive)

The loading times described in this section are based on the following system load size:

- OC3 load size, 4847 kbyte
- DSP load size, 4150 kbyte
- VSP load size, 4150 kbyte
- CEM load size, 15660 kbyte

Load the CEMs first. Then load all the remaining RM types (DLCs, VSPs, DSPs) at the same time. Finally, load the OC3s and ATMs. Total loading time is equal to the total OC3 loading time, plus the longest loading time for a single RM type, plus the total CEM loading time.

Nortel Networks does not recommend that you load the RMs one after the other. If you do, the total loading time is equal to the total loading time for each RM type plus the total CEM loading time.

**Table 7-2 RM loading times**

RM type	First RM (Note 1)	Second RM (Note 2)	Each of third through next-to-last RM (Note 3)	Last RM (Note 4)
OC3	5 min 45 s	2 min 46 s	na	na
DSP	4 min 42 s	2 min 03 s	1 min 42 s	1 min 40 s
VSP	4 min 46 s	2 min 16 s	1 min 45 s	1 min 42 s

**Note 1:** Single RM in-service loading is used for the first RM. Loading the first RM of each type takes longer than subsequent RMs of the same type. For more information, see the chapter entitled "Resource module in-service loading."

**Note 2:** RM-to-RM loading is used for the second RM. The second OC3 is also the last OC3 to be loaded. Sparing does not occur with the OC3, but it does occur with the other RM types.

**Note 3:** RM-to-RM loading is used for each of the third through next-to-last RM. Although sparing occurs for each RM in this group, the loading times are shorter because no OC3s are being loaded.

**Note 4:** RM-to-RM loading is used for the last RM. Loading time is shorter for the last RM because sparing does not occur.

The numbers in the following table are based on CEM in-service loading.

**Table 7-3 CEM loading time**

	First CEM	Second CEM (See note)
CEM	20 min 20 s	20 min 00 s

**Note:** Single CEM in-service loading is used for both CEMs. Loading time is shorter for the second CEM because sparing does not occur.

### General loading time formula

Total loading time for one SPM is equal to the longest total loading time for one type of RM, plus total loading time for the two CEMs. In the sample times provided in the preceding tables, total loading time equals the total VSP loading time plus the total CEM loading time.

**Formula to determine SPM loading time with VSPs provisioned**

If you provisioned your switch with VSPs, use the following format to determine total SPM loading time.

$$\text{VSP1} + \text{VSP2} + (\text{VSP3} \times 5) + \text{VSP8} + \text{CEM1} + \text{CEM2} = \text{load time}$$

Use the following formula to determine total loading time when your switch is provisioned with VSPs.

$$4'46'' + 2'16'' + (1'45'' \times a) + (1'42'' \times b) + 20'20'' + 20'00'' = c$$

where

- a**  
is 0 if 2 or 3 VSPs are provisioned, or is 1 or more if more than 3 VSPs are provisioned (count only the third through next-to-last VSP)
- b**  
is 0 if 2 VSPs are provisioned, or is 1 if more than 2 VSPs are provisioned
- c**  
is the total loading time

Example, based on 2 OC3s, 8 DSP, 8 VSPs, and 2 CEMs follows:

$$4'46'' + 2'16'' + (1'45'' \times 5) + 1'42'' + 20'20'' + 20'00'' = 57'49''$$

**Formula to determine SPM loading time without VSPs provisioned**

If you have not provisioned your switch with VSPs, use the following format to determine total SPM loading time.

$$\text{DSP1} + \text{DSP2} + (\text{DSP3} \times 5) + \text{DSP8} + \text{CEM1} + \text{CEM2} = \text{load time}$$

For NA100 applications, use the following formula to determine total loading time.

$$4'42'' + 2'03'' + (1'42'' \times a) + (1'40'' \times b) + 20'20'' + 20'00'' = c$$

where

- a**  
is 0 if 2 or 3 DSPs are provisioned, or is 1 or more if more than 3 DSPs are provisioned (count only the third through next-to-last DSP)
- b**  
is 0 if 2 DSPs are provisioned, or is 1 if more than 2 DSPs are provisioned
- c**  
is the total loading time

---

Example, based on 2 OC3s, 8 DSP, and 2 CEMs follows:

$$4'42" + 2'03" + (1'42" \times 5) + 1'40" + 20'20" + 20'00" = 57'15"$$

## Procedure to downgrade an SPM

The basic downgrade procedure of an SPM is, in effect, the opposite of the upgrade procedure. The order of both is as follows:

- Upgrade order: OC3s -> ATMs -> DSPs -> VSPs -> DLCs -> CEMs
- Downgrade order: CEMs -> DLCs -> VSPs -> DSPs -> ATMs -> OC3s

### Downgrade procedure

Downgrading an SPM from one load to another within the same stream (i.e. 12.10 -> 12.9 or 14.4 ->14.3) in-service is supported. However, downgrading an SPM from one stream to a previous stream (i.e. 14.3 -> 12.10 or 15.2 -> 14.6) in-service is not supported. Doing so will require the SPM to be out of service for a period of time.

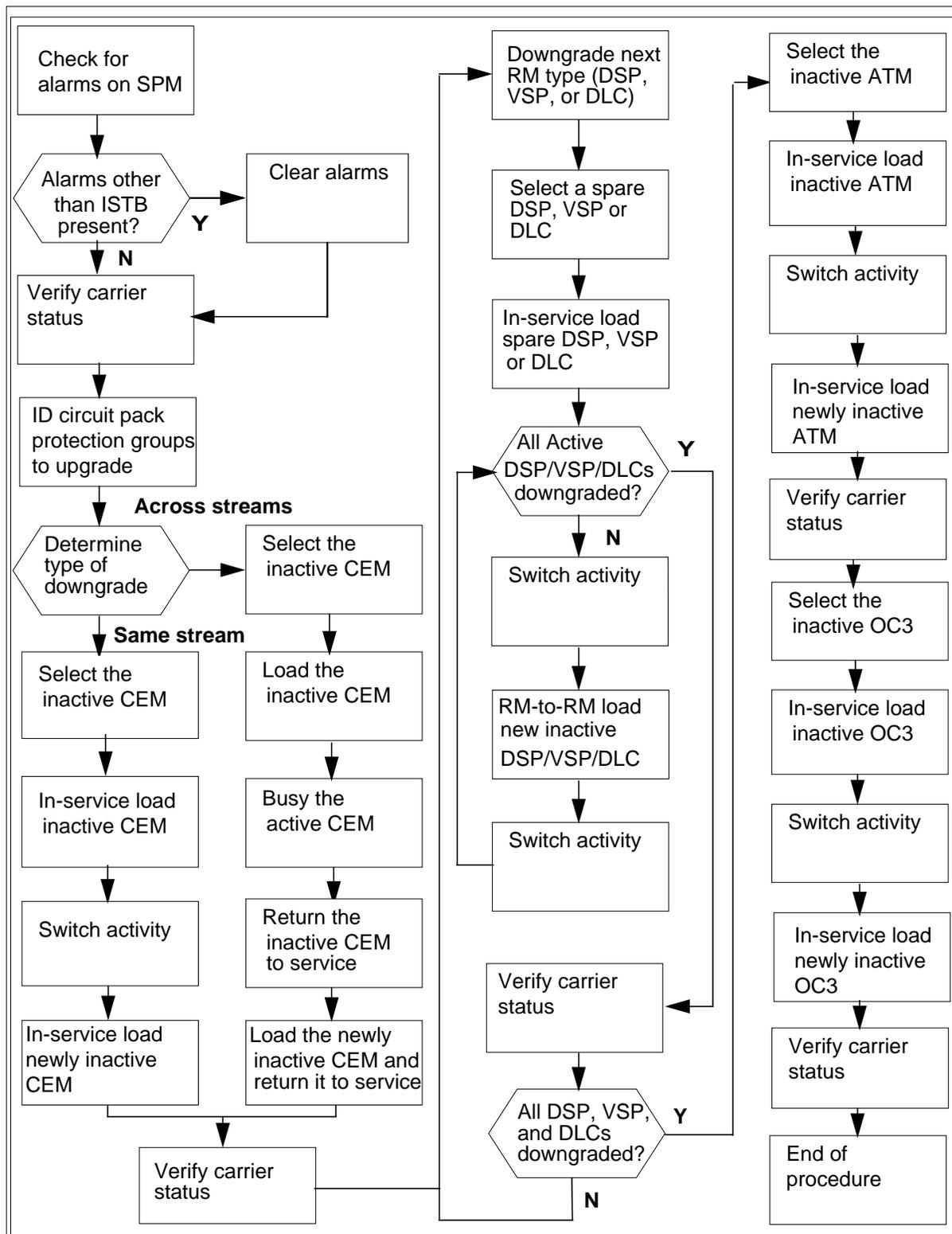
The following procedure outlines one method of downgrading. Another method would require the updating of table PMLOADS and table MNCKTPAK. If both these tables have been properly datafilled, it will not be necessary to include the <filename> argument with the loadmod command as in the procedure below.

#### **ATTENTION**

When completed with the following procedure, the SPM will show a load mismatch fault. This fault is not service affecting. To correct the fault, the SPM load names need to be corrected in table PMLOADS and table MNCKTPAK.

Consult the following flowchart for a summary of the procedure to downgrade an SPM to the same stream.

Figure 7-2 Summary of procedure



---

**Procedure 7-1 Steps of procedure**
***At the CI level of the MAP display***

- 1 Review the introductory material to this procedure. Make sure that you meet all prerequisites before beginning this procedure.
- 2 Check for alarms on the SPM by performing the following steps.  
 The SPM downgrade involves downgrading circuit pack software loads running on the SPM. The circuit packs are grouped into circuit pack protection groups. Therefore, an SPM downgrade comprises the following phases:
  - Check alarms on the SPM before you start the downgrade.
  - Verify the status of the SPM carriers before you start the downgrade
  - Update circuit pack load inventory, if necessary.
  - Downgrade CEMs that you need to downgrade.
  - Downgrade all RM circuit pack protection groups that you need to downgrade.
  - For each RM circuit pack protection group, downgrade all circuit packs in the groups that you need to downgrade.
  - a Use the NO DISPLAY mode to post the SPM by typing  
 >MAPCI NODISP;MTC;PM;POST SPM *spm\_no*  
 and pressing the Enter key.  
*where*  
     **spm\_no**  
     is the ID (number) of the SPM  
*Example*  
 >MAPCI NODISP;MTC;PM;POST SPM 23
  - b Display alarms on the SPM by typing  
 >QUERYPM FLT  
 and pressing the Enter key.
  - c Use the following work sheet to record the alarms raised on the SPM. Duplicate the work sheet as needed.



*where*

**Node ID**

is the SPM number

**Alarm**

is the name of the alarm

**Object**

is the object against which the alarm is raised

**Note**

is any note you feel may help you

The following work sheet provides a sample of a completed Alarms on an SPM work sheet for SPM 23.



- d Use the map to display the SPM Carriers by typing  
`>MAPCI;MTC;TRKS;CARRIER;POST SPM spm_no 1`  
and pressing the Enter key.  
*where*  
**spm\_no**  
is the ID (number) of the SPM
- e Use the following worksheet to record the status of any SPM carriers not in an INSV or OFFL state.



*where*

**Carrier**

is the SPM carrier not INSV or OFFL

**Carrier state**

is the state of the carrier, i.e. SYSB, MANB

**Reason**

is the cause of the carrier state

The following work sheet provides a sample of a completed SPM carrier status work sheet for SPM 23.



- 
- 3 Determine the impact of the current alarm status on the SPM downgrade.
- | If there are | Do     |
|--------------|--------|
| alarms       | Step 4 |
| no alarms    | Step 6 |
- 4 Determine the alarm types.
- | If                                      | Do     |
|---|--------|
| there is an alarm other than ISTB alarm | Step 5 |
| all alarms are ISTB alarms              | Step 6 |
- 5 Perform the appropriate alarm clearing procedure in the *Alarm Clearing and Performance Monitoring Procedures* manual. After you complete the alarm clearing procedure, return to this point.
- 6 Downgrade the CEM units before any other units.
- | If   | Do     |
|--|--------|
| you are downgrading the CEM units within the same stream (i.e. 12.10 -> 12.9 or 14.4 ->14.3) | Step 7 |
| you are downgrading the CEM units across streams (i.e. 14.3 -> 12.10)                        | Step 8 |
- 7 Perform the following steps to downgrade the CEM units within the same stream.
- a Determine the CEM units to downgrade. Refer to the Circuit pack protection groups work sheet you completed in the "Preparing a manual SPM downgrade" chapter in this document.
- | If there are                            | Do      |
|---|---------|
| CEM units that you need to downgrade    | Step 7b |
| no CEM units that you need to downgrade | Step 9  |
- b Post the SPM by typing
- ```
>MAPCI;MTC;PM;POST SPM spm_no
```
- and pressing the Enter key.
- where
- spm\_no**  
is the ID (number) of the SPM
- Example*
- ```
>MAPCI;MTC;PM;POST SPM 23
```
-

Figure 7-7 Example of MAP display

```

SPM 23  INSV      Class: DMSCP
Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 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 - ----
--- -  6 - ----  VSP 1 13 I Insv  --- -  6 - ----  --- - 13 - ----
CEM 0  7 A Insv  VSP 0 14 A Insv  DLC 2  7 I Insv  --- - 14 - ----

```

**c** Record the unit number of an inactive CEM.

**d** Select the inactive CEM by typing

```
>SELECT CEM inactive_cem_unit
```

and pressing the Enter key.

where

**inactive\_cem\_unit**

is the unit number of the inactive CEM

*Example*

```
>SELECT CEM 1
```

**e** In-service load the inactive CEM by typing

```
>LOADMOD <filename> INSVLD
```

and pressing the Enter key.

where

**filename**

is the name of the replacement load file

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

**f** Access the protection level of the MAP by typing

```
>PROT
```

and pressing the Enter key.

**g** Switch activity from an active CEM that you have not downgraded to an inactive CEM in the circuit pack protection group by typing

```
>MANUAL
```

and pressing the Enter key.

**Figure 7-8 Example of MAP display**

```

A sparing action may impact services on this node.

Do you wish to continue?
Please confirm ("YES", "Y", "NO", or "N"):

```

- h** Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

- i** Select the newly active CEM by typing

```
>SELECT CEM inactive_cem_unit
```

and pressing the Enter key.

*where*

**inactive\_cem\_unit**

is the unit number of the newly inactive CEM that has not been downgraded

*Example*

```
>SELECT CEM 0
```

- j** In-service load the newly inactive CEM by typing

```
>LOADMOD <filename> INSVLD
```

and pressing the Enter key.

*where*

**filename**

is the name of the replacement load file

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

- k** Check for alarms on the SPM by performing the procedures listed in Step 2 of this document.

- l** You have successfully downgraded both CEMs for the SPM.

Go to Step 9.

**8**



**CAUTION**

**Loss of Service**

Downgrading the SPM across streams will cause the SPM to be out of service for a period of time.

7-20 Downgrade the SPM

Perform the following steps to downgrade the CEM units across streams.

- a Determine the CEM units to downgrade. Refer to the Circuit pack protection groups work sheet you completed in the "Preparing a manual SPM downgrade" chapter in this document.

If there are	Do
CEM units that you need to downgrade	Step 8b
no CEM units that you need to downgrade	Step 9

- b Post the SPM by typing

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

and pressing the Enter key.

where

**spm\_no**  
is the ID (number) of the SPM

Example

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

Figure 7-9 Example of MAP display

SPM 23 INSV Class: DMSCP											
Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat
DSP 2	1	A	Insv	CEM 1	8	I	Insv	DLC 1	1	A	Insv
DSP 4	2	A	Insv	OC3 0	9	A	Insv	---	2	-	----
DSP 1	3	I	Insv	OC3 1	10	I	Insv	---	3	-	----
DSP 3	4	A	Insv	VSP 2	11	A	Insv	---	4	-	----
---	5	-	----	VSP 4	12	A	Insv	---	5	-	----
---	6	-	----	VSP 1	13	I	Insv	---	6	-	----
CEM 0	7	A	Insv	VSP 0	14	A	Insv	DLC 2	7	I	Insv
								---	14	-	----

- c Record the unit numbers of the active and inactive CEMs.

- d Select the inactive CEM by typing

```
>SELECT CEM inactive_cem_unit
```

and pressing the Enter key.

where

**inactive\_cem\_unit**  
is the unit number of the inactive CEM

Example

```
>SELECT CEM 1
```

- e Busy the inactive CEM by typing

```
>BSY
```

and pressing the Enter key.

- f Load the inactive CEM by typing  
`>LOADMOD <filename> NOWAIT`

where

**filename**

is the name of the loadfile you are downgrading to.

**Note:** Once the CEM is loaded with the previous load, continue with Step 8g. The use of the NOWAIT option ensures that the command prompt is immediately returned to the user.

- g Select the active CEM by typing  
`>SELECT CEM active_cem_unit`

and pressing the Enter key

where

**active\_cem\_unit**

is the unit number of the active CEM

*Example*

`>SELECT CEM 0`

- h



**CAUTION**

**Possible service interruption**

Performing this step will drop all RMs to a CBSY state and all SPM traffic will be lost until Step j is performed.

Busy the active CEM by typing

`>BSY FORCE`

and pressing the Enter key.

- i Select the inactive CEM by typing  
`>SELECT CEM inactive_cem_unit`

and pressing the Enter key.

where

**inactive\_cem\_unit**

is the unit number of the inactive CEM

*Example*

`>SELECT CEM 1`

- j Return the inactive CEM to service by typing

`>RTS`

and pressing the Enter key.

**Note:** This will result in the CEM coming in service and taking activity. RMs and circuits will begin to recover.

**k** Select the newly inactive CEM by typing

```
>SELECT CEM inactive_cem_unit
```

and pressing the Enter key.

*where*

**inactive\_cem\_unit**

is the unit number of the newly inactive CEM

*Example*

```
>SELECT CEM 0
```

**l** Load the newly inactive CEM with the previous load by typing

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

and pressing the Enter key.

*where*

**filename**

is the name of the loadfile you are downgrading to.

**m** Once loading is complete, return the inactive CEM to service by typing

```
>RTS
```

and pressing the Enter key.

**n** Check for alarms on the SPM by performing the procedures listed in Step 2 of this document.

**o** You have successfully downgraded both CEMs for the SPM.

**9** Select the next RM circuit pack protection group to downgrade in the following order of precedence:

<b>If</b>	<b>Do</b>
there are DLCs to downgrade	Step 10
there are VSPs or DSPs to downgrade	Step 11
there are ATMs or OC3s to downgrade	Step 12
there are no RM circuit pack protection groups to upgrade	Step 13

**10** Downgrade the DLC circuit pack protection groups by performing the following steps.

**a** Determine the unit numbers of the DLC RMs in the circuit pack protection group. Refer to the Circuit pack protection groups work sheet you completed in the "Preparing a manual SPM downgrade" chapter in this document.

**b** Post the SPM by typing

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

and pressing the Enter key.

*where*

**spm\_no**  
is the ID (number) of the SPM

*Example*

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

**Figure 7-10 Example of MAP display**

```
SPM 23  INSV      Class: DMSCP
Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 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 - ----
--- -  6 - ----  VSP 1 13 I Insv  --- -  6 - ----  --- - 13 - ----
CEM 0  7 A Insv  VSP 0 14 A Insv  DLC 2  7 I Insv  --- - 14 - ----
```

- c** Record the unit number of the inactive DLC RM in the circuit pack protection group.

**Note:** The inactive DLC RM you select is called the seeding DLC RM. The unit number of this DLC RM is referred to as `seed_dlc_unit` for the remainder of this procedure.

- d** Select the seeding DLC RM by typing

```
>SELECT DLC seed_dlc_unit
```

and pressing the Enter key.

*where*

**seed\_dlc\_unit**

is the unit number of the inactive DLC RM selected

*Example*

```
>SELECT DLC 2
```

- e** In-service load the seeding DLC RM by typing

```
>LOADMOD <filename> INSVLD
```

and pressing the Enter key.

*where*

**filename**

is the name of the loadfile you are downgrading to

**Note:** During execution of the `LOADMOD INSVLD` command, the RM automatically goes to a SysB state and then returns to service. You will observe the `Insv-SysB-Insv` state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

- f** Access the protection level of the MAP by typing

```
>PROT
```

and pressing the Enter key.

- g Switch activity from an active DLC RM that you have not downgraded to an inactive DLC RM in the circuit pack protection group by typing

**>MANUAL active\_dlc\_unit inactive\_dlc\_unit**

and pressing the Enter key.

*where*

**active\_dlc\_unit**

is the unit number of an active DLC RM that has not been downgraded

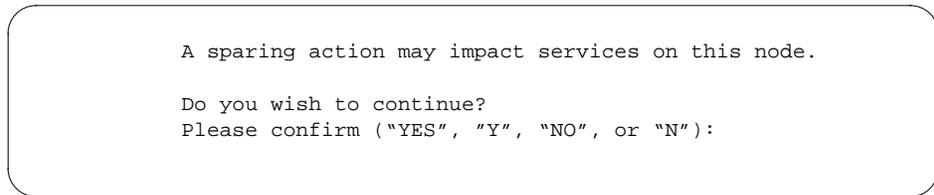
**inactive\_dlc\_unit**

is the unit number of an inactive DLC RM in the circuit pack group

*Example*

**>MANUAL 1 2**

**Figure 7-11 Example of MAP display**



- h Confirm the system prompt by typing  
**>Y**  
and pressing the Enter key.

- i Begin RM-to-RM loading by selecting the newly inactive DLC RM that you have not downgraded and by typing

**>SELECT DLC inactive\_dlc\_unit**

and pressing the Enter key.

*where*

**inactive\_dlc\_unit**

is the unit number of the newly inactive DLC RM that has not been downgraded

*Example*

**>SELECT DLC 1**

- j Load the newly inactive DLC RM that you have not downgraded from the seeding DLC RM by typing

**>LOADMOD MATE seed\_dlc\_unit**

and pressing the Enter key.

*where*

**seed\_dlc\_unit**

is the unit number of the seeding DLC RM

*Example*

**>LOADMOD MATE 2**

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

- k** Access the protection level of the MAP display by typing  
`>PROT`  
 and pressing the Enter key.
- l** Switch activity from the spare DLC RM to the newly downgraded DLC RM by typing  
`>MANUAL spare_dlc_unit downgraded_dlc_unit`  
 and pressing the Enter key.  
*where*  
     **spare\_dlc\_unit**  
         is the unit number of the spare DLC RM  
     **downgraded\_dlc\_unit**  
         is the unit number of the newly downgraded DLC RM

*Example*

```
>MANUAL 2 1
```

**Figure 7-12 Example of MAP display**

```
A sparing action may impact services on this node.

Do you wish to continue?
Please confirm ("YES", "Y", "NO", or "N"):
```

- m** Confirm the system prompt by typing  
`>Y`  
 and pressing the Enter key.
- n** Determine if you have downgraded all active DLC RMs in the circuit pack protection group.

<b>If you have</b>	<b>Do</b>
not downgraded all active DLC RMs in the circuit pack protection group	Step 10g
downgraded all active DLC RMs in the circuit pack protection group	Step 10o

- o** Exit the SPM level MAP display by typing  
`>QUIT ALL`  
 and pressing the Enter key.

- p** Access the PRSM tool by typing  
**>PRSM**  
and pressing the Enter key.
- q** Audit the load file status of the DLC RMs by typing  
**>DBAUDIT SPM *spm\_no* DLC**  
and pressing the Enter key.

*where*

**spm\_no**  
is the ID (number) of the SPM

*Example*

**>DBAUDIT SPM 23 DLC**

- r** Confirm the system prompt by typing  
**>Y**  
and pressing the Enter key.

When you first perform a DBAUDIT on the DLCs, the MAP display reports a database discrepancy. This report of a "Database discrepancy found in x DESTs" is normal. Note that x equals the number of DLCs datafilled. At this point in the procedure, the DBAUDIT is successful. The system also generates an SPM300 and a PRSM400 log as part of DBAUDIT. The generation of these logs does not indicate a problem. If you want to verify the success of the DBAUDIT, you may repeat the DBAUDIT. If you repeat the DBAUDIT, the MAP display will report "Database discrepancy found in 0 DESTs."

- s** Exit the PRSM tool by typing  
**>QUIT**  
and pressing the Enter key.
- t** Check for alarms on the SPM by performing the procedures listed in Step 2 of this document.
- u** You have completed downgrading a DLC circuit pack protection group for the SPM.  
Go to Step 9.

- 11** Downgrade the VSP or DSP circuit pack protection groups by performing the following steps.

**Note 1:** When you use this procedure to downgrade DSP RMs, substitute the acronym DSP for VSP.

**Note 2:** If you are downgrading an LX66 VSP, use a DSP load. If you are downgrading an LX85 or LX86 VSP, use a COH load.

- a** Determine the unit numbers of the VSP RMs in the circuit pack protection group. Refer to the Circuit pack protection groups work sheet you completed in the "Preparing a manual SPM downgrade" chapter in this document.
- b** Post the SPM by typing  
**>MAPCI ;MTC ;PM ;POST SPM *spm\_no***  
and pressing the Enter key.  
*where*

**spm\_no**  
is the ID (number) of the SPM

*Example*

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

**Figure 7-13 Example of MAP display**

```
SPM 23  INSV      Class: DMSCP
Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 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 - ----
--- - 6 - ----  VSP 1  13 I Insv  --- - 6 - ----  --- - 13 - ----
CEM 0   7 A Insv  VSP 0  14 A Insv  DLC 2   7 I Insv  --- - 14 - ----
```

- c** Record the unit number of the inactive VSP RM in the circuit pack protection group.

**Note:** The inactive VSP RM you select is called the seeding VSP RM. The unit number of this VSP RM is referred to as `seed_vsp_unit` for the remainder of this procedure.

- d** Select the seeding VSP RM by typing

```
>SELECT VSP seed_vsp_unit
```

and pressing the Enter key.

*where*

**seed\_vsp\_unit**

is the unit number of the inactive VSP RM selected

*Example*

```
>SELECT VSP 1
```

- e** In-service load the seeding VSP RM by typing

```
>LOADMOD <filename> INSVLD
```

and pressing the Enter key.

*where*

**filename**

is the name of the loadfile you are downgrading to

**Note:** During execution of the `LOADMOD INSVLD` command, the RM automatically goes to a SysB state and then returns to service. You will observe the `Insv-SysB-Insv` state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

- f** Access the protection level of the MAP by typing

```
>PROT
```

and pressing the Enter key.

- g** Switch activity from an active VSP RM that you have not downgraded to an inactive VSP RM in the circuit pack protection group by typing

**>MANUAL active\_vsp\_unit inactive\_vsp\_unit**

and pressing the Enter key.

*where*

**active\_vsp\_unit**

is the unit number of an active VSP RM that has not been downgraded

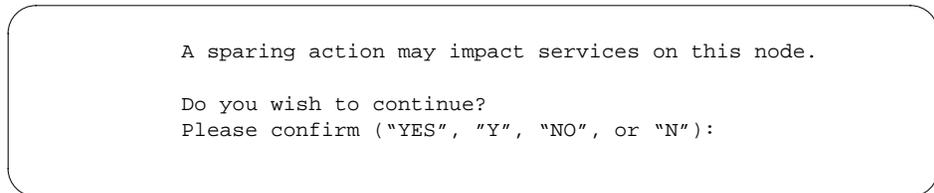
**inactive\_vsp\_unit**

is the unit number of an inactive VSP RM in the circuit pack group

*Example*

**>MANUAL 0 1**

**Figure 7-14 Example of MAP display**



- h** Confirm the system prompt by typing

**>Y**

and pressing the Enter key.

- i** Begin RM-to-RM loading by selecting the newly inactive VSP RM that you have not downgraded and by typing

**>SELECT VSP inactive\_vsp\_unit**

and pressing the Enter key.

*where*

**inactive\_vsp\_unit**

is the unit number of the newly inactive VSP RM that has not been downgraded

*Example*

**>SELECT VSP 0**

- j** Load the newly inactive VSP RM that you have not downgraded from the seeding VSP RM by typing

**>LOADMOD MATE seed\_vsp\_unit**

and pressing the Enter key.

*where*

**seed\_vsp\_unit**

is the unit number of the seeding VSP RM

*Example*

**>LOADMOD MATE 1**

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

- k** Access the protection level of the MAP display by typing  
`>PROT`  
 and pressing the Enter key.
- l** Switch activity from the spare VSP RM to the newly downgraded VSP RM by typing  
`>MANUAL spare_vsp_unit downgraded_vsp_unit`  
 and pressing the Enter key.  
*where*  
**spare\_vsp\_unit**  
 is the unit number of the spare VSP RM  
**downgraded\_vsp\_unit**  
 is the unit number of the newly downgraded VSP RM

*Example*

```
>MANUAL 1 0
```

**Figure 7-15 Example of MAP display**

```
A sparing action may impact services on this node.

Do you wish to continue?
Please confirm ("YES", "Y", "NO", or "N"):
```

- m** Confirm the system prompt by typing  
`>Y`  
 and pressing the Enter key.
- n** Determine if you have downgraded all active VSP RMs in the circuit pack protection group.

If you have	Do
not downgraded all active VSP RMs in the circuit pack protection group	Step 11g
downgraded all active VSP RMs in the circuit pack protection group	Step 11o

- o** Exit the SPM level MAP display by typing  
`>QUIT ALL`  
 and pressing the Enter key.

- p Access the PRSM tool by typing

>PRSM

and pressing the Enter key.

- q Audit the load file status of the VSP RMs by typing

>DBAUDIT SPM *spm\_no* VSP

and pressing the Enter key.

where

**spm\_no**

is the ID (number) of the SPM

*Example*

>DBAUDIT SPM 23 VSP

- r Confirm the system prompt by typing

>Y

and pressing the Enter key.

When you first perform a DBAUDIT on the VSPs, the MAP display reports a database discrepancy. This report of a "Database discrepancy found in x DESTs" is normal. Note that x equals the number of VSPs datafilled. At this point in the procedure, the DBAUDIT is successful. The system also generates an SPM300 and a PRSM400 log as part of DBAUDIT. The generation of these logs does not indicate a problem. If you want to verify the success of the DBAUDIT, you may repeat the DBAUDIT. If you repeat the DBAUDIT, the MAP display will report "Database discrepancy found in 0 DESTs."

- s Exit the PRSM tool by typing

>QUIT

and pressing the Enter key.

- t Check for alarms on the SPM by performing the procedures listed in Step 2 of this document.

- u You have completed downgrading a VSP circuit pack protection group for the SPM.

Go to Step 9.

- 12 Downgrade the ATM or OC3 circuit pack protection groups by performing the following steps.

**Note:** When you use this procedure to downgrade OC3s, substitute the acronym OC3 for ATM.

- a Determine the unit numbers of the ATM RMs in the circuit pack protection group. Refer to the Circuit pack protection groups work sheet you completed in the "Preparing a manual SPM downgrade" chapter in this document.

- b Post the SPM by typing

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

and pressing the Enter key.

where

**spm\_no**

is the ID (number) of the SPM

*Example*

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

**Figure 7-16 Example of MAP display**

```
SPM 23  INSV      Class: DMSCP
Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
ATM 0  1 A Insv  CEM 1  8 I Insv  DLC 1  1 A Insv  --- -  8 - ----
ATM 1  2 I Insv  OC3 0  9 A Insv  --- -  2 - ----  --- -  9 - ----
DSP 1  3 I Insv  OC3 1 10 I Insv  --- -  3 - ----  --- - 10 - ----
DSP 2  4 A Insv  VSP 2 11 A Insv  --- -  4 - ----  --- - 11 - ----
--- -  5 - ----  VSP 4 12 A Insv  --- -  5 - ----  --- - 12 - ----
--- -  6 - ----  VSP 1 13 I Insv  --- -  6 - ----  --- - 13 - ----
CEM 0  7 A Insv  VSP 0 14 A Insv  DLC 2  7 I Insv  --- - 14 - ----
```

- c** Record the unit number of the inactive ATM RM in the circuit pack protection group.
- Note:** The inactive ATM RM you select is called the seeding ATM RM. The unit number of this ATM RM is referred to as `seed_atm_unit` for the remainder of this procedure.
- d** Select the seeding ATM RM by typing
- ```
>SELECT ATM seed_atm_unit
```
- and pressing the Enter key.
- where
- seed\_atm\_unit**  
is the unit number of the inactive ATM RM selected
- Example*
- ```
>SELECT ATM 1
```
- e** In-service load the seeding ATM RM by typing
- ```
>LOADMOD <filename> INSVLD
```
- and pressing the Enter key.
- where
- filename**  
is the name of the loadfile you are downgrading to
- Note:** During execution of the `LOADMOD INSVLD` command, the RM automatically goes to a SysB state and then returns to service. You will observe the `Insv-SysB-Insv` state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.
- f** Access the protection level of the MAP by typing
- ```
>PROT
```
- and pressing the Enter key.
- g** Switch activity from an active ATM RM that you have not downgraded to an inactive ATM RM in the circuit pack protection group by typing
- ```
>MANUAL active_atm_unit inactive_atm_unit
```

and pressing the Enter key.

where

**active\_atm\_unit**

is the unit number of an active ATM RM that has not been downgraded

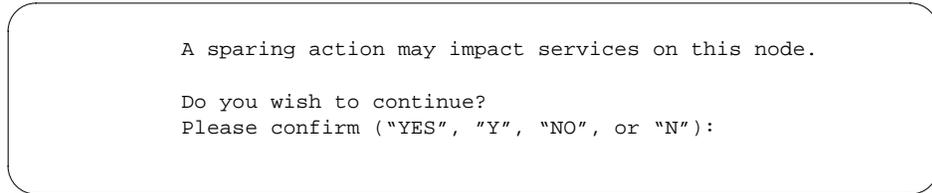
**inactive\_atm\_unit**

is the unit number of an inactive ATM RM in the circuit pack group

*Example*

```
>MANUAL 1 0
```

**Figure 7-17 Example of MAP display**



- h Confirm the system prompt by typing

```
>Y
```

and pressing the Enter key.

- i Begin RM-to-RM loading by selecting the newly inactive ATM RM that you have not downgraded and by typing

```
>SELECT ATM inactive_atm_unit
```

and pressing the Enter key.

where

**inactive\_atm\_unit**

is the unit number of the newly inactive ATM RM that has not been downgraded

*Example*

```
>SELECT ATM 0
```

- j Load the newly inactive ATM RM that you have not downgraded from the seeding ATM RM by typing

```
>LOADMOD MATE seed_atm_unit
```

and pressing the Enter key.

where

**seed\_atm\_unit**

is the unit number of the seeding ATM RM

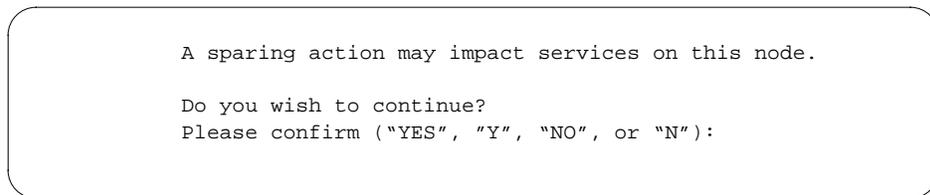
*Example*

```
>LOADMOD MATE 1
```

**Note:** During execution of the LOADMOD INSVLD command, the RM automatically goes to a SysB state and then returns to service. You will observe the Insv-SysB-Insv state change on the MAP terminal. If the RM goes SysB before the command completes, you do not need to take any action.

- k** Access the protection level of the MAP display by typing  
`>PROT`  
 and pressing the Enter key.
- l** Switch activity from the spare ATM RM to the newly downgraded ATM RM by typing  
`>MANUAL spare_atm_unit downgraded_atm_unit`  
 and pressing the Enter key.
- where
- spare\_atm\_unit**  
 is the unit number of the spare ATM RM
- downgraded\_atm\_unit**  
 is the unit number of the newly downgraded ATM RM
- Example*
- `>MANUAL 0 1`

**Figure 7-18 Example of MAP display**



- m** Confirm the system prompt by typing  
`>Y`  
 and pressing the Enter key.
- n** Determine if you have downgraded all active ATM RMs in the circuit pack protection group.

| <b>If you have</b>                                                     | <b>Do</b> |
|------------------------------------------------------------------------|-----------|
| not downgraded all active ATM RMs in the circuit pack protection group | Step 12g  |
| downgraded all active ATM RMs in the circuit pack protection group     | Step 12o  |

- o** Exit the SPM level MAP display by typing  
`>QUIT ALL`  
 and pressing the Enter key.
- p** Access the PRSM tool by typing  
`>PRSM`  
 and pressing the Enter key.
- q** Audit the load file status of the ATM RMs by typing  
`>DBAUDIT SPM spm_no ATM`

and pressing the Enter key.

*where*

**spm\_no**

is the ID (number) of the SPM

*Example*

**>DBAUDIT SPM 23 ATM**

- r** Confirm the system prompt by typing

**>Y**

and pressing the Enter key.

When you first perform a DBAUDIT on the ATMs, the MAP display reports a database discrepancy. This report of a "Database discrepancy found in x DESTs" is normal. Note that x equals the number of ATMs datafilled. At this point in the procedure, the DBAUDIT is successful. The system also generates an SPM300 and a PRSM400 log as part of DBAUDIT. The generation of these logs does not indicate a problem. If you want to verify the success of the DBAUDIT, you may repeat the DBAUDIT. If you repeat the DBAUDIT, the MAP display will report "Database discrepancy found in 0 DESTs."

- s** Exit the PRSM tool by typing

**>QUIT**

and pressing the Enter key.

- t** Check for alarms on the SPM by performing the procedures listed in Step 2 of this document.

- u** You have completed downgrading a ATM circuit pack protection group for the SPM.

Go to Step 9.

- 13** You have successfully completed the procedure for downgrading an SPM.

| <b>If there are</b>                                       | <b>Do</b>                                                                                     |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| additional SPMs to downgrade during this shift            | repeat this procedure                                                                         |
| other PMs or hardware types to update during this shift   | go to the appropriate procedure in the <i>Peripheral Module Software Release Document</i>     |
| no more PMs or hardware types to update during this shift | go to "Finishing a PM update shift" in the <i>Peripheral Module Software Release Document</i> |

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# Appendix A Limited soak-in deployment

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## Application

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

Perform this procedure during a maintenance window or a period of low traffic.

**ATTENTION**

The limited soak-in procedure is not part of the Spectrum Peripheral Module (SPM) upgrade procedure. It is provided in case you need to test or soak a new load quickly, without performing the entire upgrade procedure.

Use this procedure to soak a new load on a circuit pack without changing default loads in table PMLOADS and table MNCKTPAK.

## Prerequisites

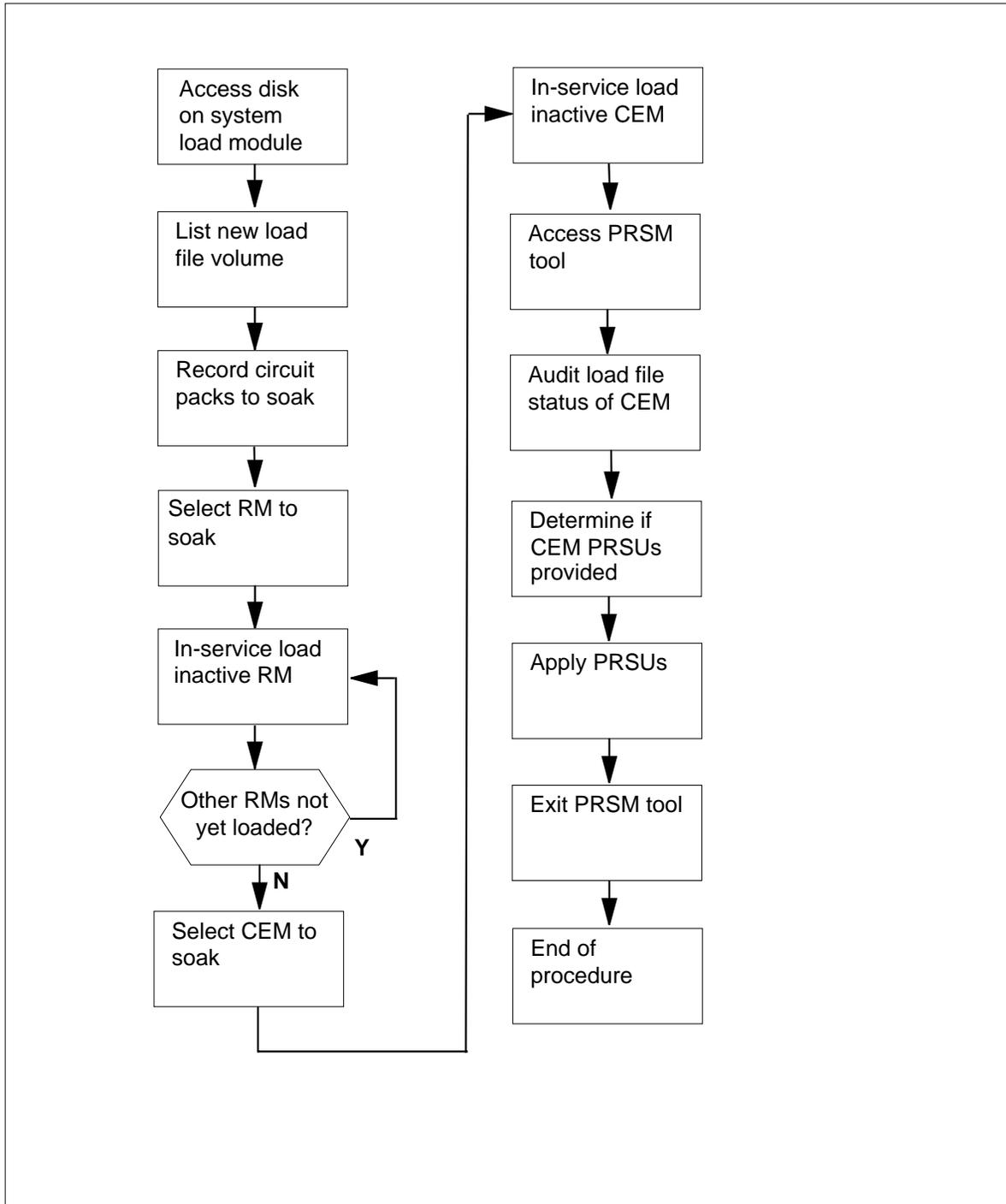
Upgrade the SPM as described in the procedure "Upgrade the SPM" found in this document.

## Update sequence

The "Limited soak-in deployment" procedure contains the following basic steps:

1. Make the new load file visible to the command interpreter (CI) directory.
2. Select the circuit pack to soak the load.
3. In-service load the selected circuit pack with the new load.

Figure A-1 Summary of procedure



## Steps of procedure

### ATTENTION

When this soak-in deployment is used, the PRSM database is not aware of the new load file or any associated fix content. The PRSM database can only be made aware of new load files and fix content by datafilling the load file in table PMLOADS.

When running a load that does not match PMLOADS datafill, it is normal to see a PMLOADS MISMATCH error.

### Procedure A-1

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

- 1 Access the disk on the system load module by typing  
**DISKUT**  
and pressing the Enter key.

- 2 List files by typing  
**>LF new\_load\_file\_vol**  
and pressing the Enter key.  
*where*  
**new\_load\_file\_vol**  
is the disk volume of the new load file

*Example*

```
>LF S00DPMLOADS
```

- 3 Post the SPM by typing  
**>MAPCI;MTC;PM;POST SPM spm\_no**  
*where*

**spm\_no**  
is the ID (number) of the SPM

*Example*

```
>MAPCI;MTC;PM;POST SPM 1
```

*Example*

```
>MTC;PM;POST SPM 1
```

Figure A-2 Example of MAP display

| SPM 23 INSV Class: DMSCP |   |   |   |                 |     |   |    |                 |      |     |   |                 |   |      |     |   |    |   |      |
|--------------------------|---|---|---|-----------------|-----|---|----|-----------------|------|-----|---|-----------------|---|------|-----|---|----|---|------|
| Shlf0 SL A Stat          |   |   |   | Shlf0 SL A Stat |     |   |    | Shlf1 SL A Stat |      |     |   | Shlf1 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 | - | ---- |
| ---                      | - | 6 | - | ----            | VSP | 1 | 13 | I               | Insv | --- | - | 6               | - | ---- | --- | - | 13 | - | ---- |
| CEM                      | 0 | 7 | A | Insv            | VSP | 0 | 14 | A               | Insv | DLC | 2 | 7               | I | Insv | --- | - | 14 | - | ---- |

4 Record the circuit pack types and unit numbers of the circuit packs you intend to soak.

5 Select an RM circuit pack you want to soak the load by typing

```
>SELECT cpk_type unit_no
```

and pressing the Enter key.

where

**cpk\_type**  
is the circuit pack type

**unit\_no**  
is the circuit pack unit number

Example

```
>SELECT DSP 1
```

**Note:** This procedure uses the DSP RM in its examples. When you use this procedure to soak other RMs, replace DSP with the acronym for your RM.

6 In-service load the inactive RM you plan to soak by typing

```
>LOADMOD new_load_file_name INSVLD
```

and pressing the Enter key.

where

**new\_load\_file\_name**  
is the new load to be soaked

Example

```
>LOADMOD DSP15AF_010005 INSVLD
```

- 7 Make sure that you have loaded all the RMs that you plan to soak.

**Table A-1**

| If                                                           | Do     |
|--------------------------------------------------------------|--------|
| there is an RM that you plan to soak but have not yet loaded | Step 5 |
| you have loaded all the RMs that you plan to soak            | Step 8 |

- 8 Select the CEM circuit pack you want to soak the load by typing

```
>SELECT CEM unit_no
```

and pressing the Enter key.

*where*

**unit\_no**

is the circuit pack unit number

*Example*

```
>SELECT CEM 1
```

- 9 In-service load the inactive CEM you plan to soak by typing

```
>LOADMOD new_load_file_name INSVLD
```

and pressing the Enter key.

*where*

**new\_load\_file\_name**

is the new load to be soaked

*Example*

```
>LOADMOD CEM15AF_010005 INSVLD
```

- 10 Access the PRSM tool by typing

```
>PRSM
```

and pressing the Enter key.

- 11 Audit the load file status of the CEMs by typing

```
>DBAUDITSPM spm_no CEM cem_no
```

and pressing the Enter key.

*where*

**spm\_no**

is the ID (number) of the SPM

**cem\_no**

is the CEM number

*Example*

```
>DBAUDIT SPM 0 CEM 1
```

12 Determine if CEM PRSUs have been provided for the CEM load file.

Table A-2

| If CEM PRSUs                                 | Do      |
|----------------------------------------------|---------|
| have been provided for the CEM load file     | Step 13 |
| have not been provided for the CEM load file | Step 14 |

13 Apply the PRSUs by typing  
>APPLY `prsu\_id | prsu\_id | prsu\_id IN SPM spm\_no CEM  
cem\_no

and pressing the Enter key.

*where*

**prsu\_id**  
is the PRSU name

**spm\_no**  
is the SPM number

**cem\_no**  
is the CEM number

*Example*

>APPLY `ABC05513 | DEF10513 | GHI45513 IN SPM 0 CEM 1

14 Exit the PRSM tool by typing

>QUIT

and pressing the Enter key.

15 You have successfully completed this procedure. Follow your company policy regarding the time required for soaking selected circuit packs. Then return to the "Upgrade the SPM" chapter of this document.



DMS-100 Family  
**North American DMS-100**  
Spectrum Peripheral Module Release Document

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