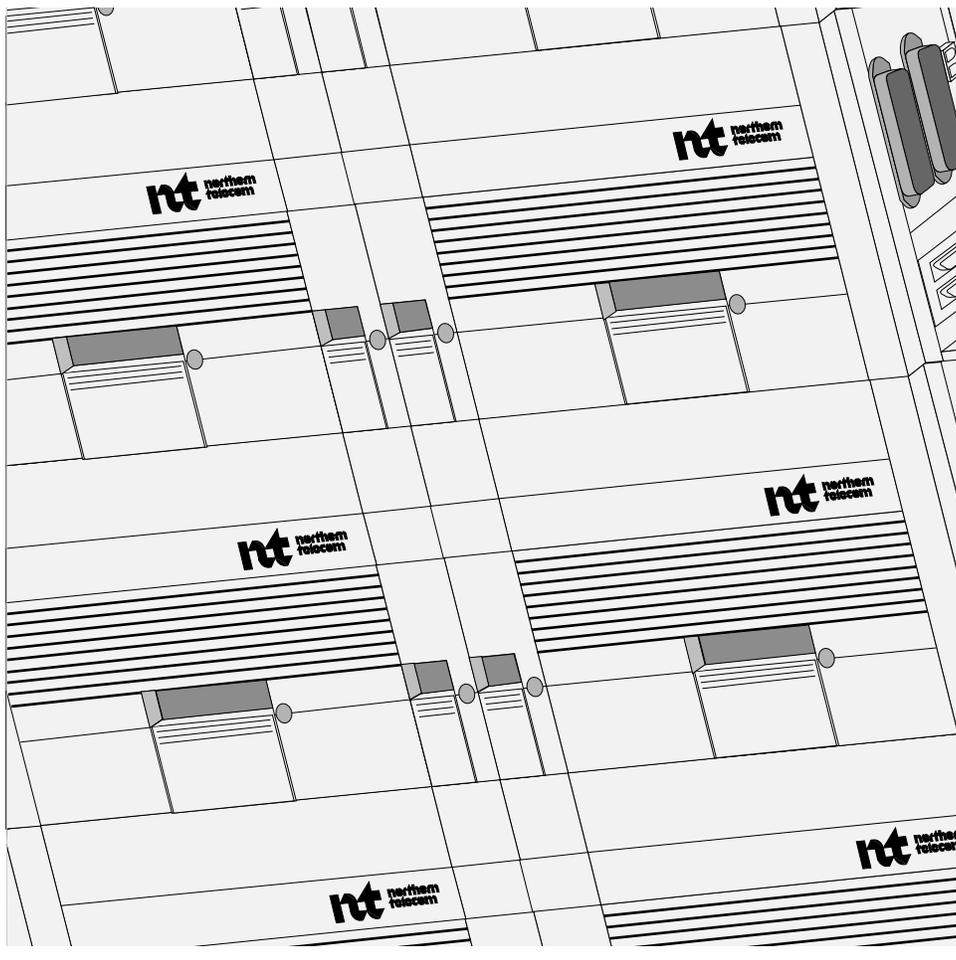**P0906799**   **323-3001-245**

SONET Products

AccessNode

Setting Up Your System: Single-Ended
Powering Up, Commissioning, Provisioning, and Testing

Issue 2.0   October 1999

NORTEL
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AccessNode

Setting Up Your System: Single-Ended

Publication history

October 1999

AN17.20 Standard release of the document, Issue 2.0. The NTP was updated to include a procedure to unassign CRVs using the MVIPROV CI tool.

June 1999

AN17 Standard release of the document, Issue 1.0. The NTP was updated to include asynchronous TIC and TR-08 information.

February 1999

AN16 Standard release of the document, Issue 1.0. This is the initial release of this document.

Contents

Planning to set up a single-ended system

Major processes in setting up a single-ended system

There are five major processes in setting up a new single-ended system, and each major process consists of a set of procedures. The five major processes are as follows and must be performed in this order:

1   Powering up the equipment

2   Commissioning the equipment

3   Provisioning the equipment

4   Testing the equipment

5   Setting OSS interfaces

The following NTPs contain optional commissioning and testing procedures that are not required fro all systems. Scan these NTPs to determine which procedures you need to meet your company's testing requirements:

- *Optional Commissioning Procedures*, 323-3001-220

- *Site Testing Procedures*, 323-3001-221

- *System Testing Procedures*, 323-3001-222

- *Line Test Interface Commissioning Procedures*, 323-3001-223

- *DS1 Feeder Testing Procedures*, 323-3001-225

Line card testing

After completing these five major processes, you need to test the line cards in the system. The procedures for testing the line cards are not in this manual. For the line card testing procedures refer to *Line Card Testing Procedures, 323-3001-316*, in *Operations, Administration, and Provisioning*, Volume 4B. For line card provisioning procedures, refer to *Line Card Provisioning Procedures*, 323-3001-315, *Operations, Administration, and Provisioning*, Volume 4B.

Procedures in each major process

Within each of the major processes there are procedures for completing that process, and this manual steps you through those processes. In the sections on powering up the equipment, commissioning the equipment, and provisioning the equipment, the procedures are listed in the order in which they must be performed.

Recording the results of the process

As you perform the procedures, you should record your actions on the forms provided:

- Appendix A: System setup checklist
- Appendix B: Commissioning data record form
- Appendix C: X.25 interface worksheet

Prerequisites

Before you begin setting up the new single-ended system, you should do the following:

- Make sure the system is not in service.
- Obtain a copy of the System Setup Checklist located in "Appendix A: System setup checklist" on page 7-1
- Make sure you have all the equipment you need. Equipment for commissioning is listed in the "Equipment requirements" section of this chapter.
- Plan the network element IDs (NEID) you are assigning to each network element (NE) in the system. All NEIDs must be unique within the network.
- Identify the OPC span of control configuration that applies to the system to be commissioned.
- Obtain the operations controller (OPC) user identification (user ID) and password for the system line-up and test (SLAT) security level. The default userID is "slat" with password "slat."
- Have the admin security level NE logon userID and password for each NE to be commissioned. The default userID is "admin" with password "admin."
- Install a control network cable between local NEs bridged in a single OPC span of control. A control network termination must be installed at each control network port that is not connected. Otherwise failed communications can result between the NE and OPC.

Planning network elements

Once an NE number is assigned during commissioning, it cannot be changed without affecting all integrated, universal, and DS1 tandem services. Therefore it is very important for the NE numbers to be assigned according to a specific numbering plan that adheres to the following rules:

- All NEs in an OPC span of control must have unique numbers. The numbers can run from 1 to 32767.

- All NEs connecting to the same DMS-100 Supernode must have unique NE numbers.

- All NEs across the Network Manager span of control must have unique NE numbers.

- The fiber central office terminal (FCOT) and remote fiber terminal (RFT) in a system must have unique NE numbers.

Users should develop a regional numbering scheme, which larger than the OPC span of control to which the NE belongs, so as to minimize NE renumbering in the event that NEs are later transferred to another OPC span of control, or that OPC spans of control are later consolidated.

Limitations on NE numbers

Do not assign an NE number of 5, 05, 005, or 0005 to any NE (FCOT or RFT) interfacing a SuperNode running BCS35 or lower. NE 5 is the NE number assigned to the associated SuperNode in a digital multiplex switch (GR-303 DMS) configuration and is not provisionable in this product release. For additional information, refer to the SMA document, *Subscriber Carrier Module–100 Access Translations Guide*, 297-2741-350.

Equipment requirements

The following is a list of the equipment required to commission, provision, and test an NE. All tools should be approved for use in the equipment area.

- an operations controller module, NT7E24, placed in slots 5 to 8 of the FCOT BLSR or TN BLSR shelf

- either a VT100-compatible terminal with a 9-pin female to 9-pin male RS-232 cable and VT100 emulation software or a personal computer used as a VT100 terminal emulator. The personal computer must have an RS232 cable (25-pin D-sub miniature male to 9-pin D-sub male).

- a user terminal, Digital Equipment Corporation VT100 or equivalent, with an RS-232 cable with a 25-pin D-subminiature male connector at each end

- two blank tapes for data backup

- two control network terminator plugs

- a null modem 9-pin (male) to 25-pin (female) RS-232 cable, NT7E44

- a digital multimeter, Fluke 85 or equivalent

- an electrically safe stepladder or step stool
- a work light
- a small flat-head screwdriver

Using a laptop computer to emulate a VT100 terminal

In this document, it is assumed that a laptop computer is used to emulate the VT100 terminal. You must meet these requirements:

- Make sure the laptop is configured for use as an OPC terminal as described in *Network Element User Interface Description*, 323-3001-300, and *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.

- Make sure you have a null modem 9-pin (male) to 9-pin (female) RS-232 cable with the following pin connections:

OPC-to-VT100 cable		OPC-to-laptop cable	
9-pin male (OPC)	**25-pin female (VT100)**	**9-pin male (OPC)**	**9-pin female (laptop)**
1	4	1,6	4
2	2	2	3
3	3	3	2
4	5,6	4	1,6
5	7	5	5
7	8	7	8
6, 8	20	8	7

RS-232 signals

All VT100-compatible terminals used with the OPC should support the following RS-232 signals:

- CD (Carrier Detect)
- TxD (Transmit Data)
- RxD (Receive Data)
- CTS (Clear To Send)
- DSR (Data Set Ready)
- DTR (Data Terminal Ready)
- RTS (Request To Send)

If you are using a North American DEC VT320 or VT420 terminal, connect pin 4 (DTR) to pin 1 (CD) at the OPC end of the NT7E44 cable, that is, at the 9-pin (male) connector.

System shelf

The access bandwidth manager (ABM) shelf supports transport DS1s and DS3s, and the termination of DS0 circuits on line cards installed in copper distribution shelves (CDSs).

Processor requirements for ABM shelves

Before you begin commissioning the system, verify that you have the correct AccessNode processor card (APC) for the ABM shelf as listed in Table 1-1.

Table 1-1
Processor requirements

If you are commissioning this shelf	Then you must use this processor	And the system automatically loads the software with this number
ABM for 28 voice modules or a DMS-X	NT4K52FB (64 Mb) or NT4K52GB (64 Mb for DMS Access or DMS-X interface to APC-100)	ACCL
Note 1: You can use the optional NT4K58LA serial I/O card in the upper part of the common equipment shelf, which allows access to the DMSTerm tool.)		
Note 2: If you use the DMS-X interface to APC-100, you must use the NT4K52GB processor in each ABM shelf.		

Shelf functions

ABM shelf functions are supported on a single-ended system:

This shelf function	Is used in these applications	For this shelf
RFT	• single-ended • DS1-fed	ABM

Circuits

- Transport DS1s require a DS1/VT mapper at any NE where the transport DS1s are accessed at the DS1 level.

- DS1 tandem circuits are non-locally switched or non-switched DS0s terminated on line cards at the RFT. They are mapped to DS1 channels at the site where they interface with a digital line at the FCOT in point-to-point, or at the RFT in single-ended or DS1-fed systems.

- Digital multiplex switch (GR-303 DMS/MVI) circuits are DS0s from the RFT that exit the FCOT on DS1s and terminate on a digital switch. GR-303 DMS/MVI circuits require a DS1/VT mapper at the FCOT, but GR-303

DMS/MVI and DS1 tandem circuits can use the same mapper. These circuits terminate on line cards at the RFT. GR-303 DMS/MVI circuits are supported in all topologies and applications, except in the UDLC application. Examples are:

— GR-303 DMS (GR-303 DMS circuits that terminate at a Nortel DMS switch)

— GR-303 MVI (GR-303 circuits meeting the multi-vendor interface standard)

— TR-08 (GR-303 DMS circuits meeting the TR-08 interface standard. TR-08 circuits require a particular DS1/VT mapper unit.)

Equipment cautions and warnings

This section has the warnings and precautions for personal safety and for proper handling and operation of equipment.

Radio-frequency emissions notice

The following regulatory notice applies to the equipment:

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Static electricity

It is usual for static electrical charges to build up on the body if a person walks a short distance. This buildup of static electricity is sufficient to damage some circuit packs if it is not properly discharged first. Circuit packs that are sensitive to damage by static electricity should be packaged in antistatic material. The following precautions are recommended.

<table>
<tr>
<td>⚠️</td>
<td>**CAUTION**
Risk of equipment damage
Wear a grounded antistatic wrist strap or equivalent protection when handling circuit packs, to avoid damaging electronic parts.</td>
</tr>
</table>

Handling circuit packs

Units that are sensitive to static electricity are marked in their antistatic shipping bags with the following symbol:

ATTENTION
OBSERVER LES PRECAUTIONS
POUR LA MANIPULATION DES
DISPOSITIFS SENSIBLES AUX
CHARGES STATIQUES

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
SENSITIVE DEVICES
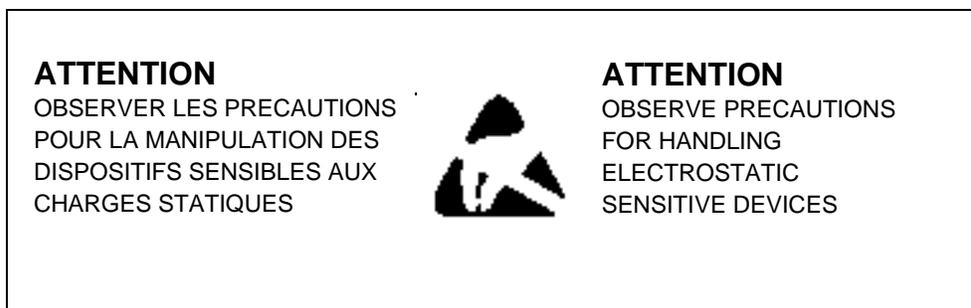
To avoid static electrical damage when handling circuit packs, follow these rules:

• Do not remove circuit packs from their antistatic packages unless you are using antistatic protection, such as wearing an antistatic wrist strap. The wrist strap is attached to a long cord, which must terminate at a good ground source, so that static buildup is harmlessly discharged. Alternative antistatic methods include conductive carpet, conductive shoes, or heel grounders. Use the equipment recommended by your company.

• Handle each circuit pack by the faceplate or stiffener. Do not touch electrical connections, pins, or soldered surfaces.

Protect optical connectors by covering them with clean dust caps.

Storing and transporting circuit packs

When storing and transporting circuit packs, follow these rules:

• Never transport, stack, or store circuit packs without first replacing them in their antistatic material and original shipping package. This avoids physical damage and accumulation of dirt or dust on goldplated contacts. Be careful not to damage any parts when inserting the circuit pack into its packaging.

• Avoid storage in areas where the relative humidity can exceed 95% and where the temperature can exceed 70° C, because boards can warp or corrode.

Laser radiation

Laser products are subject to federal and state or provincial regulations, and local practices. Regulation 21 CFR 1040 of the U.S. Bureau of Radiological Health requires manufacturers to certify each laser product as Class I, II, III, or IV, depending upon the characteristics of the laser radiation emitted. In terms of health and safety, Class I products present the least hazard (none at all), while Class IV products present the greatest hazard.

> **CAUTION**
> **Risk of eye damage**
> At all times when handling optical fibers, follow the safety procedures recommended by your company.
>
> Read and follow the precautions below, to decrease the risk of exposure to laser radiation.

Although Nortel optical products have a Class I certification, hazardous exposure to laser radiation could occur when fibers that interconnect system components are disconnected or broken.   Certain procedures carried out during testing require the handling of optical fibers without dust caps, and therefore increase the risk of exposure. Exposure to either visible or invisible laser light could cause eye damage under certain conditions.

The caution label at the right appears on the optical interface card, near the optical connector, and should be complied with.

Caution
Avoid direct exposure to beam. Invisible light can blind. Keep all optical connectors capped.

Handling optical fibers

During service, maintenance, repair, or removal of cables or equipment, follow these rules:

- Avoid direct exposure to fiber ends or optical connector ends, where the laser signal can be accessed.
- Follow the manufacturer's instructions when using an optical test set. Incorrect calibration or control settings could result in hazardous levels of radiation.

Splicing optical fibers

During the splicing of any fiber cable, you may be required to look at the fibers using an eye loupe (a small magnifier). Take the following precautions:

- Prior to starting, power off all laser sources related to those fibers, and make sure the laser sources remain off (whether located at the central office, subscriber premises, or remote location).

- Prior to starting, disconnect any optical test sets from the fibers (whether locally or remotely connected).

- Use only the optical instruments approved by your company.

Repairing optical fibers

When there is an accidental break in the fiber feeder cable, take these steps:

- Notify both central office personnel and field repair personnel of the problem.

- Identify to central office personnel which fibers have been damaged.

- Power off all laser sources related to the damaged fibers (whether located at the central office, subscriber premises, or remote location).

Equipment warning label

The equipment label is located in the top left corner of the back cover. It reads as follows:

To be installed only in restricted access areas (dedicated equipment rooms, equipment closets, or the like) in accordance with articles 110-16, 110-17, and 110-18 of the National Electrical Code, ANSI/NFPA No. 70.

Powering up the equipment

Use the procedures in this chapter to inspect new network elements and power up the equipment in preparation for commissioning.

Procedures in powering up the equipment

The following table lists the procedures in this chapter. These procedures guide you through powering up the equipment, and need to be performed in order.

Procedure	Page
2-1 Inspecting the network element	2-2
2-2 Verifying power at the BIP (ABM shelf)	2-5
2-3 Verifying circuit packs in the ABM shelf	2-9
2-4 Equipping the ABM and CDS shelves with circuit packs	2-12
2-5 Powering up the common equipment (ABM shelf)	2-21

Procedure 2-1
Inspecting the network element

Use this procedure to visually inspect the network element.

Note: For proper electromagnetic interference (EMI) protection, you must replace the shelf cover after you have finished the inspection.

Action

Step	Action
1	Make sure the bay is not powered. Set all the breakers on the breaker interface panel (BIP) to the 0 position. See Figure 2-1 on page 2-2.
	The white power LED at the BIP is off and all circuit breakers are in the 0 (zero) position.
2	Remove the BIP cover.

Figure 2-1
BIP for the ABM shelf

PC-16498
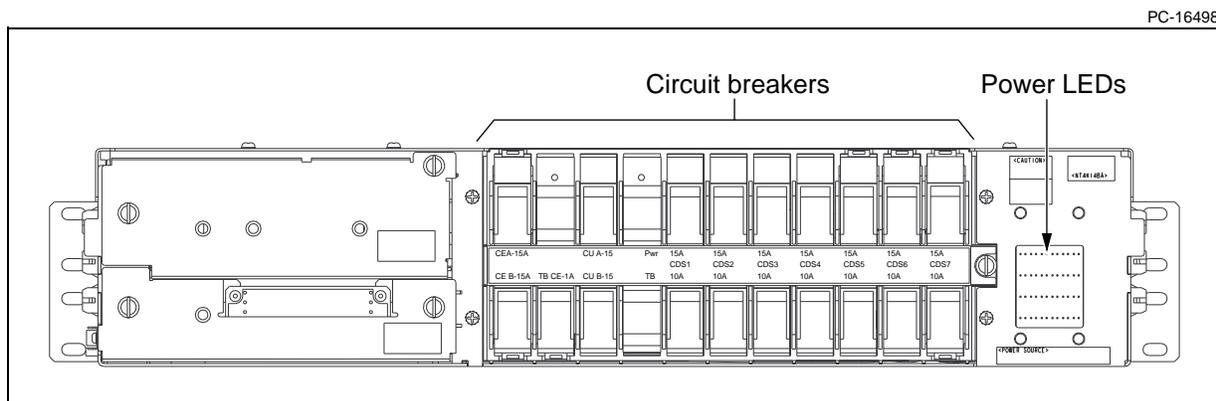
—continued—

Procedure 2-1 (continued)
Inspecting the network element

Step	Action

3   Remove the remaining cover (or covers) while conducting tests.

If this is a	Then
bay configuration	remove the cover of the common-equipment shelf according to *Routine Maintenance Procedures,* 323-3001-546, in *Maintenance,* Volume 5C.
MBP or MPP	remove the cabinet covers, pedestal grilles, and cover of the common-equipment shelf, according to the procedures in *Modular Business Package Installation Manual*, 323-3001-206.
Series 800A outside plant cabinet	open the cabinet doors and remove the cover of the common-equipment shelf, according to the procedures in *Series 800A Outside Plant Cabinet Installation Manual*, 323-3001-210.

4   Examine all shelf backplanes (inside and outside) for warping, cracking, or bent pins.

Note: If you are inspecting an network element (NE) with an access bandwidth manager (ABM) shelf and copper distribution shelves (CDSs), verify that the equipment side remains disconnected from the outside plant subscriber loops (at the protection modules)

> **CAUTION**
> **Risk of equipment damage**
> During initial setup of the system, Nortel Networks recommends that the equipment side remains disconnected from the outside plant subscriber loops (at the protection modules) until the line cards are installed and powered up. For example, when using five-pin protector modules, pull the modules out slightly, to the first detent position.

—**continued**—

Procedure 2-1 (continued)
Inspecting the network element

Step	Action
5	Check that all cable connections and mechanical connections are secure for each of the following:

- BIP
- common-equipment shelf, including both the main shelf and upper shelf having the input/output (I/O) cards
- cooling unit (bay configuration), blower unit (MBP/MPP), cooling fans (Series 800A outside plant cabinet), or cable organizer panel cooling unit (COPCU on the multiple-shelf enhanced TBM bay)
- local craft access panel (LCAP)
- all CDSs (if installed)
- air filter
- alarm leads (to office alarms, if required)
- ground connections from the AccessNode bay to the office ground system installed according to the chapter that describes power and ground distribution, in *Site Installation Planning and Engineering*, 323-3001-200, in the *Engineering, Configuration, and Ordering Guide,* Volume 1

> **CAUTION**
> **Risk of processor reboot failure**
> Make sure the I/O cards are correctly installed to prevent processor reboot failure.

6   Finish repairs before going on to the next procedure.

7   Check off this procedure on the System Setup Checklist.

—**end**—

Procedure 2-2
Verifying power at the BIP (ABM shelf)

Before connecting the power cables to the BIP:

- Verify that BIP power cables are connected in the proper polarity and voltage to the power source at the battery-distribution fuse board (BDFB).

- Visually check the BDFB connections to verify that the correct color coded cables are connected to the corresponding voltage and polarity source connectors on the BDFB as shown in Table 2-1.

Table 2-1
dc power sources

Location	dc power source
Central office	−48 V dc BFDB or power distribution frame
Customer	−48 V dc power plant (customer supplied) or optional modular power package (MPP)

Series 800A outside plant cabinet and MPP	−48 V dc power supplied by
	  - NT5C06 rectifiers
	  - NT6C14 dc distribution shelf

—continued—

Procedure 2-2 (continued)
Verifying power at the BIP (ABM shelf)

Action

Step	Action

1 Turn on power to the BDFB.

2 Measure the voltage and verify the proper polarity using the digital voltmeter (DVM) on the disconnected end of the BIP power cables shown below.

Note: The DVM reading should be −54.5 ± 0.2 V at the remote location and −52.0 ± 0.2 V in the central office. The remote location voltage may vary due to different battery suppliers trickle charge voltage outputs. The central office voltage should be set up according to Telco manuals.

PC-10342
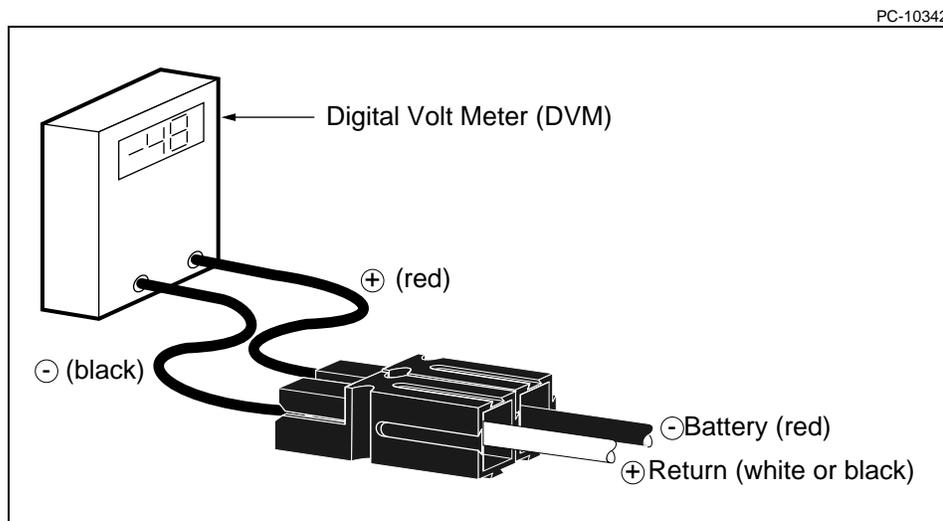
—**continued**—

Procedure 2-2 (continued)
Verifying power at the BIP (ABM shelf)

Step	Action
3	Turn off the power to the BDFB.
4	Examine and position the connectors on the BIP power cables so that when the cables are connected to the BIP the proper polarity is as shown below.

PC-11303
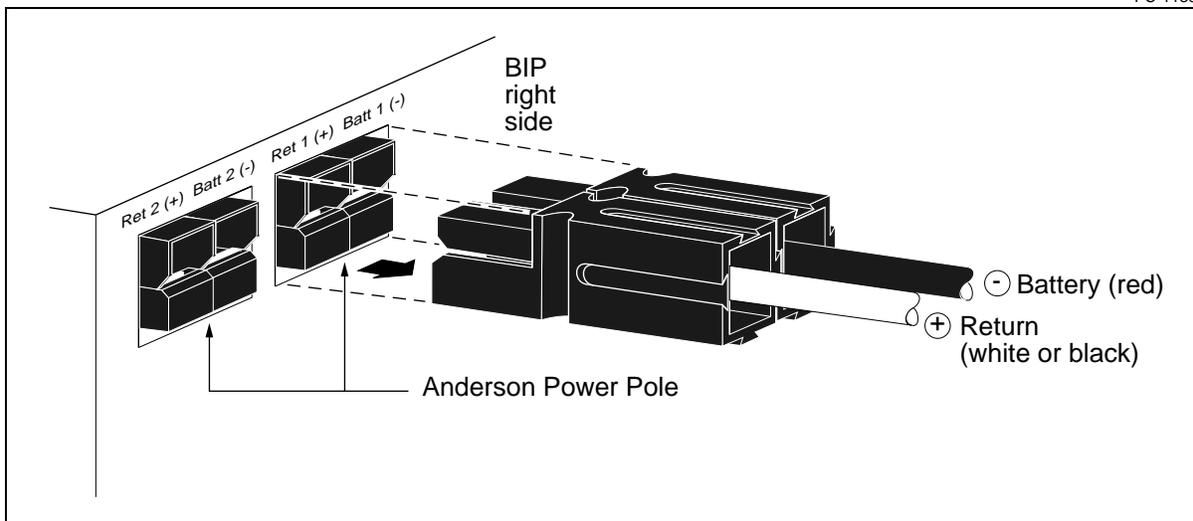
5	Connect input power cables to the BIP Anderson Powerpole connectors on the side of the BIP.
6	Ensure all BIP circuit breakers are in the OFF position.
7	Ensure that the TBF card and Alarm Relay Card are removed from the BIP.
8	Ensure that no cables are connected to the left or right side of the BIP.
9	Turn on source power (BDFB breakers or fuses) to the BIP.
10	Close all circuit breakers on the BIP.
11	Using the DVM, measure the output voltage at the two pin mate-n-loc connectors on both sides of the BIP and verify proper polarity. See Figure 2-2 on the following page.
12	Check off this procedure on the System Setup Checklist.

—**continued**—

Procedure 2-2 (continued)
Verifying power at the BIP (ABM shelf)

Step	Action

Figure 2-2
Output voltage at BIP connectors

PC-16510

Left side of BIP

Power to the system
(inputs #3 and #4)

Power to the
cooling unit

BIP Ctl 1
44-pin
D-sub connector
for control cable to
common-equipment
shelf

CDS TB 1 to 7:
Talk battery power to the
copper-distribution shelves

Right side of BIP

Power to the system
(inputs #1 and #2)

CE Pwr A and B:
Power to the common-
equipment shelf

CDS pwr 1 to 7:
Power to the copper-
distribution shelves

—**end**—

Procedure 2-3
Verifying circuit packs in the ABM shelf

Use the procedures in this chapter to verify the common equipment in the ABM shelf prior to commissioning.

Minimum requirements

The minimum set of modules required to operate the system is one processor card (Proc) and one maintenance interface card (MIC) if your shelf is not carrying traffic or if the shelf is only used for commissioning.

Modules in the ABM shelf

The following is a list of the modules that can be placed in the ABM shelf in a single-ended system:

- two processor cards (Proc), NT4K52. The second card is recommended, but optional; only one is required for the DS1-fed AccessNode operations controller (DFA OPC) shelf.

  Note: Use NT4K52GB for all applications including DMS Access.

- one MIC, NT4K53

- working and protection DS1/VT mapper circuit packs, NT7E04. Quantity depends on your system configuration.

If the network element	Then
carries TR-08 services	the DS1/VT mapper type NT7E04CA.
	Note: The protection mapper must be the same type as NT7E04CA or a circuit pack mismatch alarm is generated.

- two DS1 protection bridge cards, NT4K31

- DS1 input and output cards, NT4K32 and NT4K33

- two transport interface cards (TIC), NT4K56

- two access interface cards (AIC), NT4K55

- one test access card (TAC), NT4K54

- one OPC, NT7E24. DFA OPC shelf sites only

- one integrated remote test unit (IRTU), NT4K57. Remote fiber terminal (RFT) site only.

- OC-3 fiber packs

- blank faceplates: to improve airflow, all unused slots must be so equipped

—continued—

Procedure 2-3 (continued)
Verifying circuit packs in the ABM shelf

Figure 2-3 and Figure 2-4 show the circuit pack layout for single-ended systems. The circuit pack layout for RFTs in single-ended systems is the same as that for point-to-point systems.

CDS modules

The following modules are inserted, but not engaged, in each CDS:

- two CDS power (CDSP) cards, NT4K62
- two metallic test access cards (MTACs), NT4K73
- four line interface cards (LICs), NT4K70

Circuit packs on the ABM BIP

The following circuit packs are placed in the ABM BIP:

- one alarm relay card (NT4K64). See Figure 2-7 on page 2-17.
- one talk battery filter card (NT4K61). See Figure 2-8 on page 2-18.

Figure 2-3
ABM circuit pack layout of the OPC shelf in single-ended systems

PC-16560

—continued—

Procedure 2-3 (continued)
Verifying circuit packs in the ABM shelf

Figure 2-4
ABM circuit pack layout of the RFT in single-ended systems

PC-16559

Note: DFA RFTs located at the central office can house the OPC; therefore, the shelf layout above
would also include the OPC in slots 5 through 8.

—**end**—

Procedure 2-4
Equipping the ABM and CDS shelves with circuit packs

Use this procedure to install common-equipment circuit packs in the ABM shelf, the BIP, and the CDSs.

Requirements

The following requirements must be met before performing this procedure.

- Make sure the system is not in service.
- Make sure all circuit breakers on the BIP are in the OFF position.
- Obtain all the required circuit packs and the mapper layout available for your system.

  Note: The mapper layout for this system is planned according to the mapper layouts in 323-3001-154, *Mapper Layouts Planning Guide,* in the *Engineering, Configuration, and Ordering Guide*, Volume 1.

- Make sure that cabinets or bays and shelves are installed and inspected for damage; that all cables are installed, except for the OPC Ethernet cable, NT4K86L series, and that input and output cards are already installed in the I/O section of the shelf.

  Note: This procedure includes the insertion of all possible circuit packs in an ABM shelf. Before beginning, determine what circuit packs are required for the ABM shelf using 323-3001-154, *Mapper Layouts Planning Guide*, in the *Engineering, Configuration, and Ordering Guide*, Volume 1. Skip the steps that insert circuit packs that are not required for your system.

Procedure 2-4 (continued)
Equipping the ABM and CDS shelves, and ABM BIP with circuit packs

Action

Step	Action

1   Put on the antistatic wrist strap. Make sure it is correctly grounded to the electrostatic discharge (ESD) jack on the LCAP as shown in Figure 2-5.

Figure 2-5
LCAP for the access bandwidth manager shelf

PC-10273

ESD
ground
jack
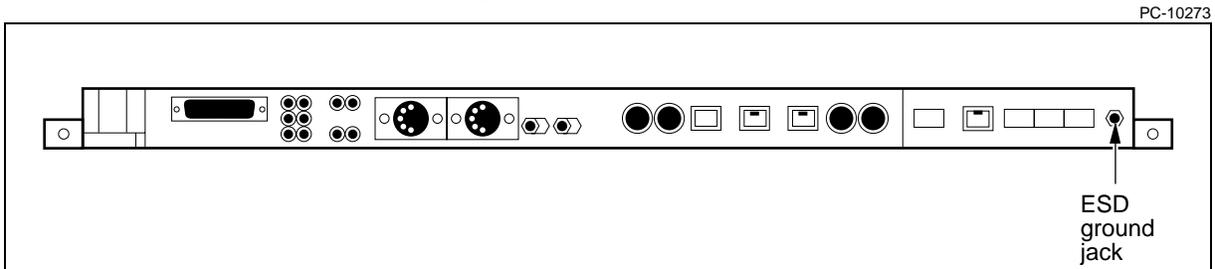
2   Carefully unwrap the Proc circuit pack(s) and check them for physical damage. If any Proc is damaged, replace it. Use this approach on all circuit packs.

Note: The common-equipment shelf layout for an ABM is shown in Figure 2-4 on page 2-11.

3   With the top and bottom ejector latches in the closed position, carefully place the processor circuit pack (or packs if a second one is being installed) into slots 17 and 18 in the ABM shelf, but leave the circuit pack(s) disengaged.

Note: A circuit pack is in the disengaged position when the latches are closed and prevent full insertion of the circuit pack. Do not force the disengaged circuit pack when you insert it. Push it only as far as the closed latches allow it to go. Refer to the Figure 2-6 on page 2-14.

> **CAUTION**
> **Risk of equipment damage**
> Do not install the shelf cover with the circuit packs in the disengaged position, as damage to circuit packs can result.

—continued—

Procedure 2-4 (continued)
Equipping the ABM and CDS shelves, and ABM BIP with circuit packs

Step   Action

Figure 2-6
Circuit pack latches

PC-16561

Unlock
position

locked
position

Ejector latch
(Side view)
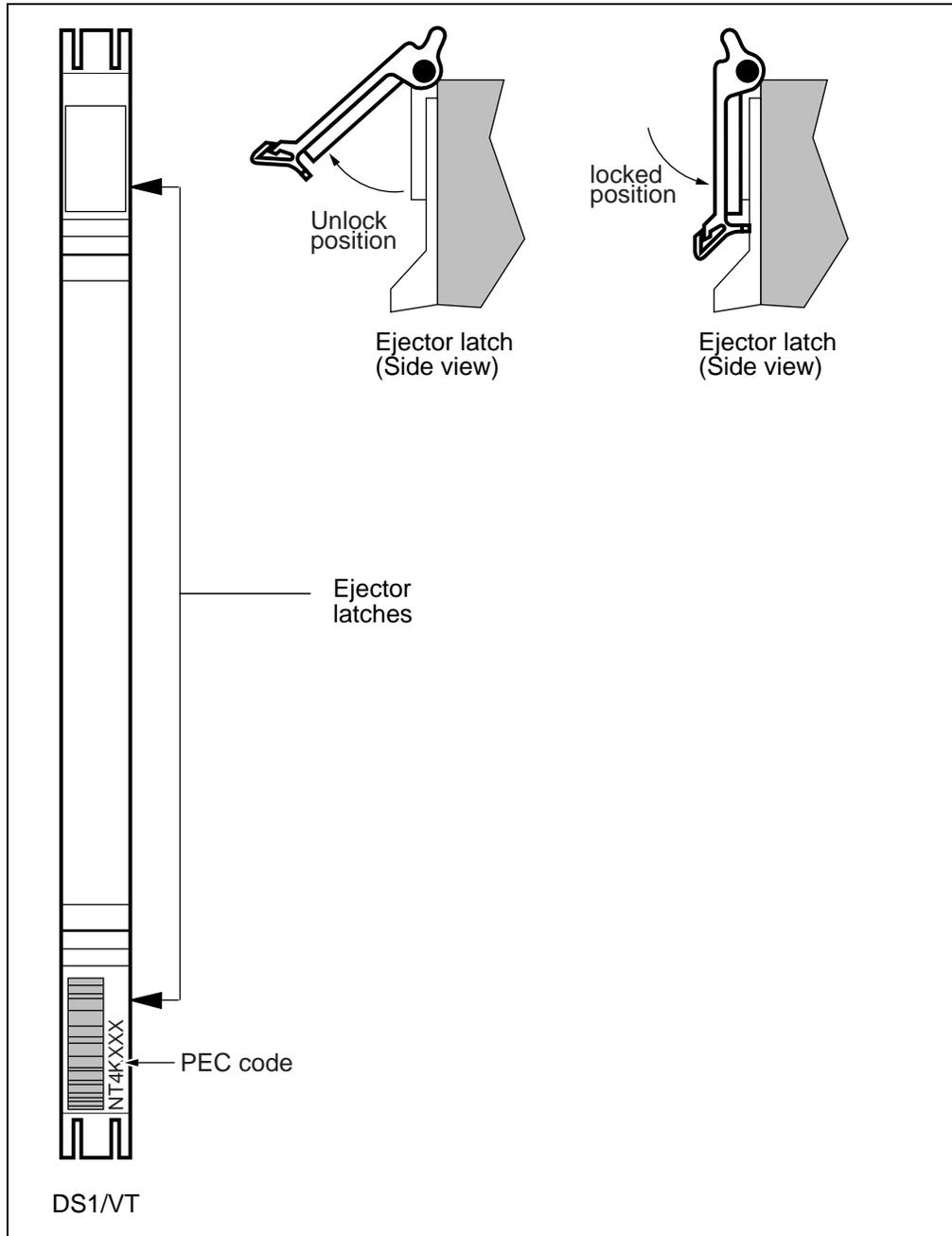
Ejector latch
(Side view)

Ejector
latches

PEC code

NT4KXXX

DS1/VT

—continued—

Procedure 2-4 (continued)
Equipping the ABM and CDS shelves, and ABM BIP with circuit packs

Step	Action
4	With the latches in the closed position, carefully place the MIC in slot 19 of the ABM shelf and leave it disengaged.
5	Make sure the serial number shown on the right side of the OPC (near the bottom of the motherboard) matches the serial number entered on the Commissioning Data Record form for this NE. See also Procedure 3-5, "Entering system-level data" on page 3-12.
6	With the latches in the closed position, carefully place the OPC in slots 5 to 8, but leave it disengaged. If the Ethernet cable is installed, plug its connector into the Ethernet jack on the faceplate of the OPC.

> **CAUTION**
> **Risk of equipment damage**
> The operations controller is very heavy, so handle it carefully to avoid dropping it or damaging equipment guides.

If this NE is	Then go to
equipped with CDSs	step 7
not equipped with CDSs	step 11

Equipping the ABM shelf with CDSs

7	With the latches in the closed position, insert the two transport interface cards (TICs) in slots 11 and 14. Leave the TICs disengaged.
8	With the latches in the closed position, insert the two AICs in slots 13 and 16. Leave the AICs disengaged.
9	With the latches in the closed position, insert the TAC in slot 20. Leave the TAC disengaged.

—continued—

Procedure 2-4 (continued)
Equipping the ABM and CDS shelves, and ABM BIP with circuit packs

Step	Action

10 If the IRTU is required (this card is optional), then, with the latches in the closed position, insert the IRTU in slot 21 of the RFT only. Leave the IRTU disengaged.

Note 1: An IRTU is not required at the OPC shelf site in single-ended systems.

Note 2: If the ABM shelf is from an earlier release, the ABM shelf must be modified to accommodate the IRTU. In this case, refer to *System Expansion Procedures*, 323-3001-324, in *Operations, Administration and Provisioning,* Volume 4C.

11 Use the following table to go to the appropriate step:.

If the ABM shelf is	Then go to
to be equipped with any DS1/VT mappers	step 12
not to be equipped with any DS1/VT or mappers	step 13

	CAUTION
⚠	**Risk of equipment damage**
	The IRTU requires careful handling. When returning the IRTU for repair, observe all handling and transporting precautions described in Chapter 1 of this document.

Equipping the ABM shelf with DS1/VT mappers

12 With the latches in the closed position, insert the DS1/VT mapper circuit pack(s) into the correct slot. Leave the circuit packs disengaged. The DS1/VT mapper layout forms (these were filled out in *Mapper Layouts Planning Guide,* 323-3001-154, in the *Engineering, Configuration, and Ordering Guide*, Volume 1, show where mapper circuit packs should be installed.

Note: TR-08 services require the working and protection DS1 mappers to be type NT7E04CA or NT7E04EA. If the mappers are not this type, a circuit pack mismatch alarm occurs. To avoid this alarm, make sure the first NT7E04CA mapper is installed as the protection mapper.

	CAUTION
⚠	If you have a fiber-fed system that is not provisioned for maximum DS1 capacity and you plan to expand from a DS1 configuration to a mixed DS1 configuration in the future, the mappers should be installed in specific slots. This avoids unnecessary removal and re-testing of the circuit packs at a later date.

—continued—

Procedure 2-4 (continued)
Equipping the ABM and CDS shelves, and ABM BIP with circuit packs

Step   Action

If the bay with the ABM shelf is	Then
not already powered up	• remove the BIP cover, if not already done. • insert the alarm relay card but leave it disengaged. See Figure 2-7 below. • if the bay is equipped with CDSs, insert the talk battery filter card and engage it into the shelf. Refer to Figure 2-8 on page 2-18 for an example of the talk battery filter card. go to step 12.
powered up and the BIP cover is removed	go to step 13.

13   Check that all circuit packs required for your configuration are present and placed in the correct ABM shelf slots (with the exception of FCOT ESI cards that are installed later).

Figure 2-7
Alarm relay card on the ABM BIP

PC-16500
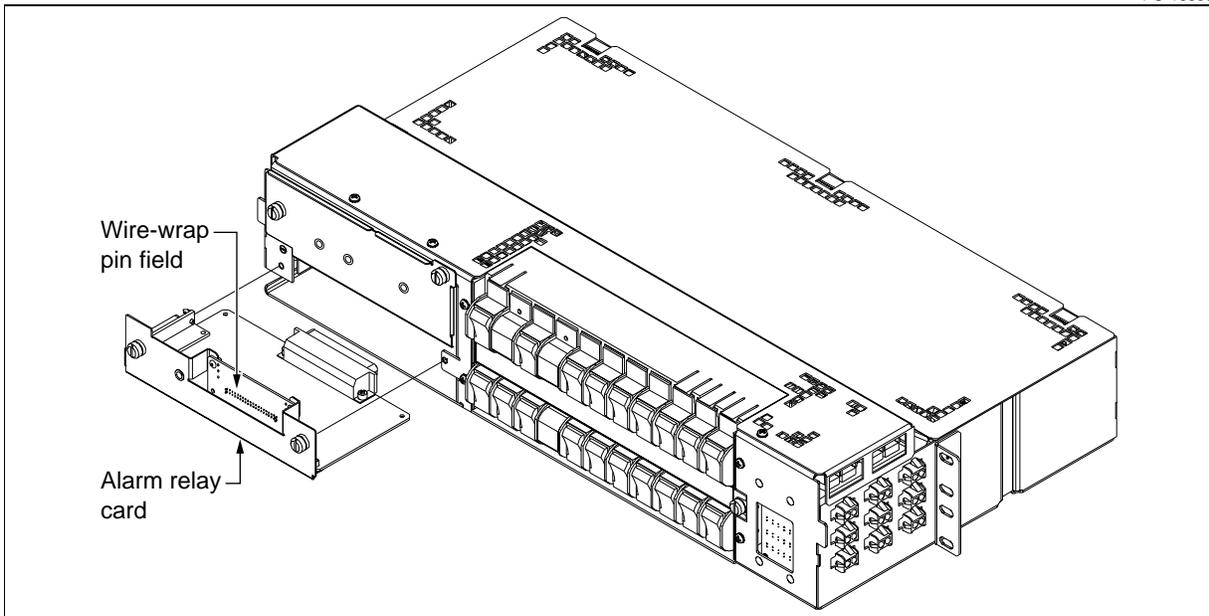
Wire-wrap pin field

Alarm relay card

—continued—

Procedure 2-4 (continued)
Equipping the ABM and CDS shelves, and ABM BIP with circuit packs

Step	Action

Figure 2-8
Talk battery filter card on the ABM BIP

PC-16499

Talk battery filter card
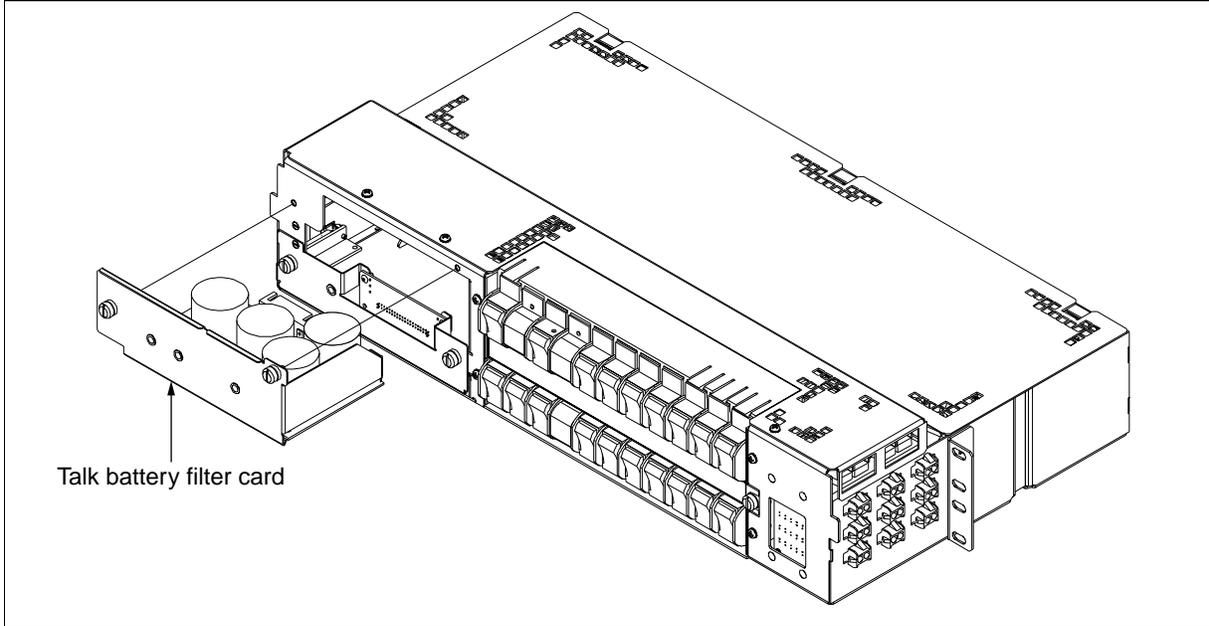
14 Update the utility card, located in the ABM shelf cover between the two handles. Record information pertinent to your organization's methods and operations.

If this NE is	Then go to
equipped with CDS shelves	step 15
not equipped with CDS shelves	step 25

Inserting Circuit Packs, CDS Shelves

15 To unlock the left drawer of the first CDS (CDS 1), use a small screwdriver to turn the locking knob (beside the handle) one-quarter turn to the left. Grasp the handle and pull open the drawer.

16 Insert the metallic test access card (MTAC) in the slot labeled MTA A (see Figure 2-9 on page 2-19). Make sure the MTAC is engaged.

17 Insert the two narrowband line interface cards (NLICs) in slots LIC A and LIC B. Make sure the NLICs are engaged.

Note: The MTAC and NLIC are full-height cards.

—**continued**—

Procedure 2-4 (continued)
Equipping the ABM and CDS shelves, and ABM BIP with circuit packs

Step	Action

Figure 2-9
Top view of the copper-distribution shelf

PC-10750

Rear

LC2	LC48		LC50	LC96
LC4	LC46		LC52	LC94
LC6	LC44		LC54	LC92
LC8	LC42		LC56	LC90
LC10	LC40		LC58	LC88
LC12	LC38	CDSP A CDSP B	LC60	LC86
LC14	LC36		LC62	LC84
LC16	LC34		LC64	LC82
LC18	LC32		LC66	LC80
LC20	LC30		LC68	LC78
LC22	LC28		LC70	LC76
LC24	LC26		LC72	LC74
LIC A			**LIC C**	
MTA A	**LIC B**		**MTA B**	**LIC D**

Left drawer   Right drawer
Front

Note 1: The odd-numbered line card slots are not visible from the top, only from the side.

Note 2: The narrowband line-interface cards (LIC A-D) and metallic test access cards (MTA A and B) are full-height common cards.

18	Close the left drawer. Unlock the right drawer as you did the left drawer in step 15.
19	Open the right drawer.
20	Insert the MTAC in slot MTA B. Make sure the MTAC is fully engaged.
21	Insert the two NLICs in slots LIC C and LIC D. Make sure the NLICs are fully engaged.
22	Close the right drawer.
23	Insert the CDS power cards in slots CDSP A and CDSP B located between the two line card drawers. To lock each power card in position, use a small screwdriver to turn the locking knob (beside the handle) one-quarter turn or until the dots are aligned.
24	Repeat steps 15 through 23 for CDS 2 to CDS 7, if the shelves are equipped.

—**continued**—

Procedure 2-4 (continued)
Equipping the ABM and CDS shelves, and ABM BIP with circuit packs

Step	Action
25	After all circuit packs are installed or placed in the appropriate shelves, remove the antistatic wrist strap you are wearing.
26	Apply shelf slot designation labels (such as DS1/VT mapper) as appropriate.
27	Check off this procedure on the System Setup Checklist.

Instructions for inserting line cards are in *Line Card Testing Procedures*, 323-3001-316, in *Operations, Administration, and Provisioning,* Volume 4B.

—**end**—

Procedure 2-5
Powering up the common equipment (ABM shelf)

Use this procedure when powering up the access bandwidth manager (ABM) shelf to do the following:

- individually check the operation of each circuit breaker before applying power to all of the common equipment and cooling to the power units

- verify that power connections from the two power feeds to the common-equipment shelf are not reversed and the Proc cards, OC-3 or OC-12 circuit packs, and MIC are powered from both power feeds

Line equipment, including the TAC and the CDSs, is powered up after you complete commissioning of the basic NE.

Requirements

The following requirements must be met before starting this procedure:

- Make sure that circuit packs for this configuration are installed in the ABM shelf but not engaged according to Procedure 2-4 on page 2-12.

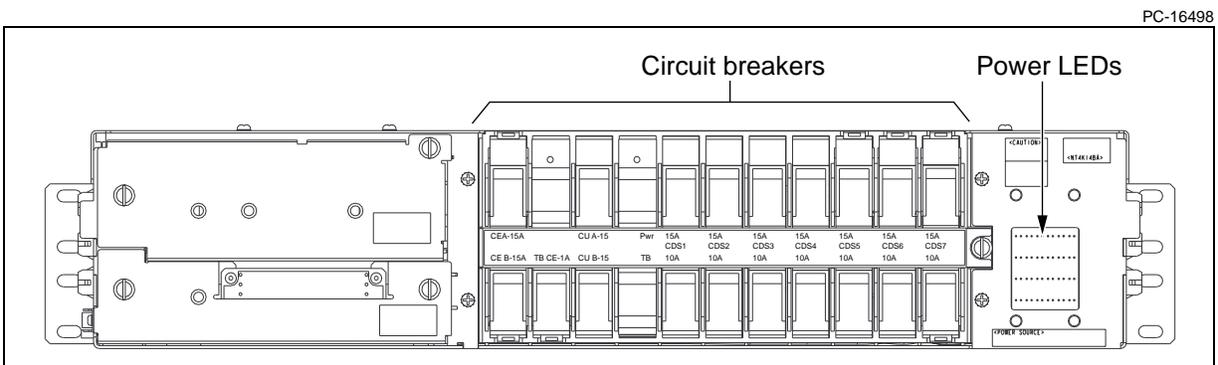- Verify that power is supplied to the BIP.

> **CAUTION**
> **Risk of equipment damage**
> If the common-equipment shelf contains an OPC module and is powered down without first performing the OPC shutdown procedure, then the OPC disk drive can be damaged.

The BIP for the ABM shelf is shown in Figure 2-10 below.

Figure 2-10
BIP for the ABM shelf

PC-16498

—continued—

Procedure 2-5 (continued)
Powering up the common equipment (ABM shelf)

Action

Step	Action

1 Put on the antistatic wrist strap. Make sure it is properly grounded to the ESD jack on the LCAP.

If this is a new ABM shelf on a	Then go to
bay that is not equipped	step 2
previously equipped bay	step 3

2 At the dc power source (battery distribution fuse bay, power distribution panel, or modular business package), close the circuit breakers that supply power to the BIP on this bay.

3 On the new ABM common-equipment shelf, fully engage the Proc circuit packs as follows:

    a. Pull open the top and bottom latches on the circuit pack.

    b. Close the latches to rotate the tabs into the shelf grooves and firmly seat the circuit pack on the backplane connector.

> **CAUTION**
> **Risk of equipment damage**
> When seating the circuit pack on the backplane pins, do not force the circuit pack, as that can damage the pins. If you have trouble seating the circuit pack, check that it is in the right slot. If it is in the right slot, pull the circuit pack back out, then try again to seat it, pressing gently.

4 Disconnect the B modular power connector on the common-equipment power (CEP) I/O card in slot 55 of the ABM shelf.

5 Fully engage the MIC circuit pack.

6 Close only the CE_A circuit breaker associated with the shelf position by moving it to the 1 position. Verify that power is being supplied to the shelf by observing the MIC and Proc LED activity.

Note: It is not the intent of this procedure to make sure specific LEDs light up, but to verify that power is being supplied to the shelf. In fact, the actual LED indicator(s) should be ignored since the system is not yet commissioned.

If	Then go to
there was no LED lamp activity	step 7
at least one LED lamp lit up	step 8

—**continued**—

Procedure 2-5 (continued)
Powering up the common equipment (ABM shelf)

Step	Action
7	Make sure the CEP I/O card in slot 54 is connected to the CE_A breaker and that the CEP I/O card in slot 55 is connected to the CE_B breaker. Then, repeat steps 6 and 7.
8	After verifying the MIC and Proc LEDs, open the CE_A circuit breaker that was closed in the previous step.
9	Reconnect any disconnected CEP I/O card power connectors.
10	Disconnect the A modular power connector on the CEP I/O card in slot 54 of the ABM shelf.
11	Close only the B circuit breaker associated with the shelf position by moving it to the 1 position. Verify that power is being supplied to the shelf by observing the MIC and Proc LED activity.

Note: It is not the intent of this procedure to make sure specific LEDs light up, but to verify that power is being supplied to the shelf. In fact, the actual LED indicator(s) should be ignored since the system is not commissioned.

If	Then go to
there was no LED lamp activity	step 12
at least one LED lamp lit up	step 13

Step	Action
12	Make sure the CEP I/O card in slot 54 is connected to the CE_A breaker and that the CEP I/O card in slot 55 is connected to the CE_B breaker. Then, repeat steps 11 and 12.
13	After verifying the MIC and Proc LEDs, open the CE_A circuit breaker that was closed in the previous step.
14	Once the MIC and Proc LEDs are verified, open the B circuit breaker that was closed in the previous step.
15	Reconnect the disconnected A CEP I/O card power connector.
16	Close the CE A circuit breaker on the shelf. Wait ten seconds and then close the CE B circuit breaker.

—**continued**—

Procedure 2-5 (continued)
Powering up the common equipment (ABM shelf)

Step	Action

17 Fully engage all remaining circuit packs, one at a time (in no specific order), on the common-equipment shelf. Wait ten seconds between each circuit pack engagement.

> ⚠ **CAUTION**
> **Risk of equipment damage**
> When seating the circuit pack on the backplane pins do not force the circuit pack. Forcing the circuit pack can damage the pins. If you have trouble seating the circuit pack, check that it is in the right slot. If it is in the right slot, pull the circuit pack out of its slot and try to seat it again, pressing gently.
>
> Use the tabs to insert and seat circuit packs.

For a new ABM shelf on a bay that is not previously equipped

18 Proceed according to the following tasks:

If the NE is	Then
an RFT mounted in a Series 800A outside plant cabinet	• close both circuit breakers CU A and CU B on the BIP.
	• remove the cover of the thermostat and write down the thermostat setting. The thermostat is located on the inside right wall of the cabinet when accessed from the front.
	• turn down the thermostat until all fans start operating. If the fans fail to operate, check the wiring. If you cannot identify the problem, call your Nortel Networks representative.
	• turn the thermostat to its original setting and reinstall the thermostat cover.

—**continued**—

Procedure 2-5 (continued)
Powering up the common equipment (ABM shelf)

Step   Action

If the NE is	Then follow the instructions in this column	However, if at an MBP site, follow the instructions in this column
NOT an RFT mounted in a Series 800A outside plant cabinet	• on the ABM BIP, close only the CU A circuit breaker by moving it to the 1 position. *The fans in the cooling unit should start to operate. If the fans do not operate, check that there is power coming from the power source and check the power supply cable for correct polarity.* *If the BIP power LED does not light up when you close the CU A circuit breaker:* • open the CU A circuit breaker by moving it to the 0 position. *The fans in the cooling unit shut off.* • on the ABM BIP close only the CU B circuit breaker by moving it to the 1 position. *The fans in the cooling unit should start to operate. If the fans do not operate, check that there is power coming from the power source and check the power supply cable for correct polarity.* ***Note:*** The BIP power LED will not light up when you close the CU B circuit breaker. • open the CU B circuit breaker by moving it to the 0 position. *The fans in the cooling unit shut off.*	• turn on the CB1 circuit breaker located on the faceplate of the blower unit on each MBP cabinet. Circuit breaker CB2 is not used. To access the blower unit, remove the front pedestal cover. Refer to the procedure for removing MBP covers in *Modular Business Package Installation Manual*, 323-3001-206. • turn off the CB1 circuit breaker located on the faceplate of the blower unit on each MBP cabinet. • turn on the CB1 circuit breaker located on the faceplate of the blower unit on each MBP cabinet. • turn off the CB1 circuit breaker located on the faceplate of the blower unit on each MBP cabinet.

—continued—

Procedure 2-5 (continued)
Powering up the common equipment (ABM shelf)

Step	Action
19	On the ABM BIP, close only the circuit breakers labeled CU A and CU B. For an MBP site, turn on the CB1 circuit breaker located on the faceplate of the blower unit on each MBP cabinet.
20	On the BIP, close the cooling unit circuit breakers CU A and CU B.
21	On the BIP, close the circuit breaker labeled TBFCE (the talk battery power to the test access card). The BIP is shown below.
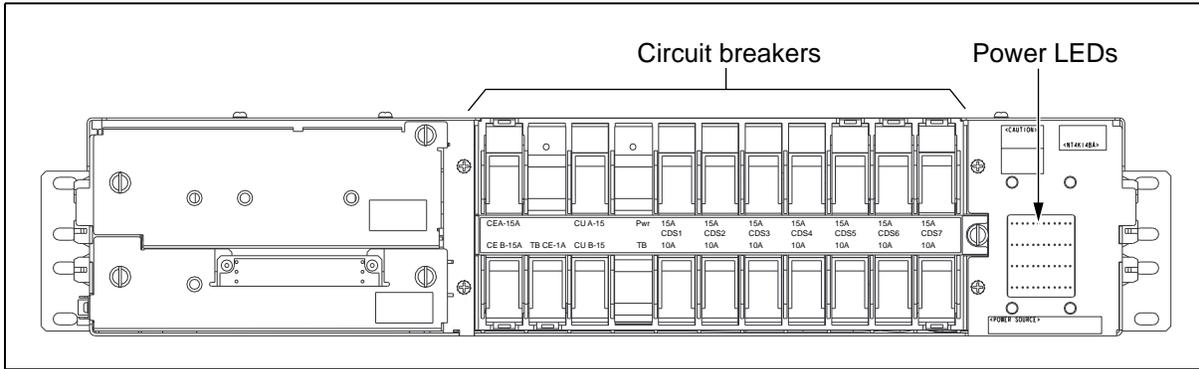
The test access card (TAC) completes self-testing.

If a	Then the circuit pack
green LED is on	is active.
red LED is on	has failed. Check that there is power coming from the power source.

22	Close the circuit breaker labeled Power CDS 1, which provides shelf power to the copper-distribution shelf 1 (CDS 1).
23	Close the circuit breaker labeled TB CDS1, which provides talk battery to CDS 1.

The circuit packs in CDS 1 start to boot. Narrowband line interface cards (NLICs) complete self-tests and provision all line card slots with the default line card type. If you do not obtain these results, check that there is power coming from the power source to CDS 1. |
| **24** | Verify that talk battery is properly connected to the CDS by performing a line card diagnostic. |
| **25** | Open the Power CDS1 circuit breaker and the TB CDS1 10A circuit breaker on the BIP. |

—continued—

Procedure 2-5 (continued)
Powering up the common equipment (ABM shelf)

Step	Action
26	Repeat steps 22 to 25 for each set of circuit breakers associated with installed CDSs.
27	When the operation of all line equipment circuit breakers is verified as correct, close all circuit breakers on the BIP.

If the NE is	Then
• powered by the optional modular power package (MPP) or • mounted in a Series 800A outside plant cabinet	go to step 28.
• NOT powered by the optional modular power package (MPP) or • NOT mounted in a Series 800A outside plant cabinet	go to step 29.

Step	Action
28	If rectifiers have the ON/RFA LED lit in red, then perform the load-balancing procedure. Refer to Chapter 3, "Commissioning the system."
29	Verify that all loss-of-power alarms are cleared.
30	Make sure the fans on the cooling unit are operating and that air flow through the equipment is not obstructed. *Note:* Leave all remaining circuit breakers in the open (0) position, including the TB CE. Alarms are generated indicating loss of power in these circuits, but these alarms should automatically clear when the line equipment is powered up.

If	Then
this NE is powered by NT5C06 rectifiers and the NT6C14 dc distribution shelf	go to step 31.
this NE is not powered by NT5C06 rectifiers and the NT6C14 dc distribution shelf	go to step 34.

—**continued**—

Procedure 2-5 (continued)
Powering up the common equipment (ABM shelf)

Step	Action
31	Check all rectifiers for the ON/RFA LED conditions.
	If any rectifier ON/RFA LED is red, slowly adjust its FLT potentiometer slightly clockwise until the ON/RFA LED turns green.
	Note: When the adjusted output voltage of a rectifier is lower than that of the other rectifiers, its ON/RFA LED is red because its output current drops below 0.1 A.
32	Check the ammeters of all rectifiers and balance the amperage supplied by all rectifiers.
	Note: Balanced load sharing among all rectifiers is difficult to achieve if one or more rectifiers have open sensing leads.

> ⚠ **CAUTION**
> **Risk of equipment damage**
> If the rectifier voltage is adjusted higher than −56.0 V dc, the powered equipment can be damaged. For example, a rectifier voltage of −58.0 V dc can damage that equipment.

on any rectifier with a higher current	slowly adjust its FLT potentiometer counterclockwise to decrease its ammeter value towards the average value of all ammeters.
on any rectifier with a lower current	slowly adjust its FLT potentiometer clockwise to increase its ammeter value towards the average value of all ammeters.

Step	Action
33	Repeat steps 31 and 32 until all rectifier ammeters display approximately the same current level and until all rectifier ON/RFA LEDs are green.
	The digital meter on the faceplate of the dc distribution shelf displays the value of float voltage from all rectifiers.
34	If this is an MBP site equipped with an external battery string, verify that the battery string does the following:
	• supplies uninterrupted power to the MBP cabinets when the commercial ac power source fails, according to the manufacturer's recommended procedures.
	• recharges from the rectifiers, according to the manufacturer's recommended procedures.
35	Check off this procedure on the System Setup Checklist.

—**end**—

Commissioning the system

Use the procedures in this chapter to commission the common equipment in the access bandwidth manager (ABM) shelf.

Procedures in commissioning the equipment

The following table lists the procedures in this chapter. These procedures guide you through commissioning the equipment, and need to be performed in order.

Procedure	Page
3-1 Detecting and removing existing OPC software	3-3
3-2 Installing software on a local OPC and NE from tape	3-6
3-3 Verifying the OPC serial number	3-9
3-4 Sending a load to a processor	3-10
3-5 Entering system-level data	3-12
3-6 Entering network element commissioning data	3-16
3-7 Downloading software to a network element	3-20
3-8 Setting the network element name	3-24
3-9 Transferring data from the primary to the backup OPC	3-26
3-10 Performing a manual NE database backup	3-28
3-11 Setting the time zone, date, or time	3-30
3-12 Setting the time zone at the network element	3-40

Requirements

The following requirements must be met before starting these procedures:

- Make sure the system is not in service.

- Have access to a VT100-compatible terminal connected to OPC port 1 (or port B). Refer to *OPC User Interface Description*, 323-3001-301, and *Data Administration Procedures*, 323-3001-304. Both are in *Operations, Administration, and Provisioning*, Volume 4A.

- Obtain a tape or tapes with the correct OPC software load and network element (NE) software loads.

- Know the slat or root passwords.

- Make sure the OPC is installed and the bay is powered up according to the procedures in Chapter 2.

- Have a copy or copies of your mapper planning worksheets from "Appendix A: Worksheets" in the *Mapper Layouts Planning Guide*, 323-3001-154, in the *Engineering, Configuration, and Ordering Guide*, Volume 1.

- Read the command conventions in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A. In some of the following steps, you enter UNIX commands at the opc> prompt. Enter the text as shown in bold in this procedure and press the **Return** key when you see the ↵ symbol.

Procedure 3-1
Detecting and removing existing OPC software

Use this procedure to detect if an operations controller (OPC) software load exists on an OPC. This procedure applies to any new or spare OPC that is currently not in use, and is valid only if you have a primary OPC with tape and no backup.

If OPC software exists but it is not the correct load, then you can use this procedure to remove the incorrect OPC software. The OPC database that has all of the commissioning data is not saved by this operation, therefore, this procedure should only be performed on a spare or stored OPC that requires an "initial" software load. Do not use this procedure as part of the process for upgrading the software in an in-service OPC.

When no software exists on the OPC, go to Procedure 3-2, "Installing software on a local OPC and NE from tape."

Do not perform this procedure if you are adding a network element to an existing span of control.

CAUTION
Enter UNIX commands carefully
If you enter a UNIX command incorrectly, it may be difficult to recover from the error. Be sure to read this procedure carefully, to distinguish between similar symbols, such as **!**, **|**, and **/**; or **-** and **=**. Commands shown in lower case must be entered in lower case. Contact Nortel Networks if support is required.

—continued—

Procedure 3-1 (continued)
Detecting and removing existing OPC software

Action

Step	Action

1 Log in to the OPC using the root user ID.

The TERM = vt100 prompt is displayed.

Press the **Return** key (↵) to select the VT100 terminal mode.

The opc> prompt is displayed.

2 Check whether the OPC has a software load on it. Enter:

opcui ↵

If the	Then the
OPC response shows that the command is not found	OPC software is NOT loaded. You are finished with this procedure. Go to Procedure 3-2 on page 3-6.
User Session Manager is displayed	OPC software is loaded. Go to step 3.

If the OPC software is loaded

3 Check the OPC software load. Tab to the OPC Status tool and select it by pressing **Ctrl_A** (or Keypad **0**).

4 Examine the contents of the SW Version field. The SW Version field identifies the software version currently running in this OPC.

If the OPC	Then
has the correct software	• note the completion of this procedure on the System Setup Checklist. • go to Procedure 3-3 on page 3-9.
does not have the correct software	go to step 8.

If the existing software is not the desired load

5 Log out of the OPC Status tool and display the User Session Manager by pressing **Ctrl_T 0**.

The User Session Manager is displayed.

6 Tab to the **Logout** button and select it.

A confirmation dialog is displayed.

—**continued**—

Procedure 3-1 (continued)
Detecting and removing existing OPC software

Step	Action
7	Select the **Logout** button.
	The opc> prompt is displayed.
	Note: It is essential to completely log out from the OPC user interface. Do not simply select a UNIX shell within the User Session Manager.
8	Carefully insert the tape with the current OPC software load into the OPC tape drive, as shown in Figure 3-1 on page 3-8.

> **CAUTION**
> **Risk of equipment damage**
> Forcing the tape into the tape drive can damage the drive and you may not be able to remove the tape. If you cannot insert the tape easily, it could be oriented the wrong way. Refer to Figure 3-1 on page 3-8 for the correct orientation of the tape.

Step	Action
9	Load the "remove OPC load" file, RMOPCLD, from the tape, and execute the removal, by entering:

cd /tmp ↵

The opc> prompt is displayed. Enter the following:

dd if=/dev/rdt/tape2 bs=20b | tar xf - ↵

You will get a return of records in and records out. The opc> prompt is displayed.

cd install ↵

The opc> prompt is displayed.

rmopcld ↵

A message informing you that you are about to wipe out the OPC load is displayed and prompts you for a confirmation.

y ↵

A message asking you to continue or abort the removal process is displayed.

c ↵

The script removes the existing software load. The OPC reboots.

Step	Action
10	Remove the tape from the OPC tape drive. Refer to Figure 3-1 on page 3-8 for the location of the tape eject button.
11	Check off this procedure on the System Setup Checklist.

—**end**—

Procedure 3-2
Installing software on a local OPC and NE from tape

Use this procedure to perform the initial transfer of operations controller (OPC) software and network element (NE) software from tape to a local OPC, before you commission a system and its NEs.

Do not use this procedure as part of the process for upgrading the software in an in-service OPC. This procedure applies to a new or spare OPC that is currently not in use, including modular (shelf) primary and backup OPCs.

Do not perform this procedure if you are adding a network element to an existing span of control.

Requirements

The following requirements must be met before starting this procedure:

- Remove existing software as outlined in Procedure 3-1, "Detecting and removing existing OPC software" on page 3-3.
- If you will use the Central User Administration (CUA) tool as part of the installation, see *System Administration Procedures*, 323-3001-302, in *Operations, Administration, and Provisioning*, Volume 4A, for directions to modify the CUA tool.

Action

Step	Action
1	Log in to the OPC using the root user ID. *The TERM = (vt100) prompt appears.* Press the **Return** key (↵) to select the VT100 terminal mode. *The opc> prompt appears.*

—continued—

Procedure 3-2 (continued)
Installing software on a local OPC and NE from tape

Step	Action

2   Carefully insert the tape with the new OPC software load into the OPC tape drive, as shown on Figure 3-1 on page 3-8.

> ⚠ **CAUTION**
> **Risk of equipment damage**
> If you force the tape into the tape drive, you can damage the drive and you may not be able to remove the tape. If you cannot easily insert the tape, it may be oriented the wrong way.
> Refer to Figure 3-1 on page 3-8 for the correct orientation of the tape.

> ⚠ **CAUTION**
> **Enter UNIX commands carefully**
> If you enter a UNIX command incorrectly, it can be difficult to recover from the error. Be sure to read this procedure carefully, to distinguish between similar symbols, such as **!**, **|**, and **/**; or **-** and **=**. Commands shown in lower case must be entered in lower case. Contact Nortel Networks if you need support.

3   To install the OPC software, enter the following:

cd /tmp ↵

The opc> prompt appears. Enter the following:

dd if=/dev/rdt/tape2 bs=20b | tar xf - ↵

You will get a return of records in and records out. The opc> prompt appears.

cd install ↵

The opc>prompt appears.

install_release -f ↵

This tool transfers the OPC software and NE software to the OPC.

4   Now that both the OPC and NE software are installed, remove the tape from the OPC tape drive. Refer to Figure 3-1 on page 3-8 for the location of the tape eject button.

5   Commission your OPC (see Procedure 3-5).

6   Enter the following command from the /tmp directory of the OPC:

setmbr ↵

7   Check off this procedure on the System Setup Checklist.

—continued—

Procedure 3-2 (continued)
Installing software on a local OPC and NE from tape

Figure 3-1
Inserting and ejecting the tape from the OPC (NT7E24BA)

PC-10864

Operations
controller
(OPC)

Tape eject
button

Slide
white tab
open to
protect
data
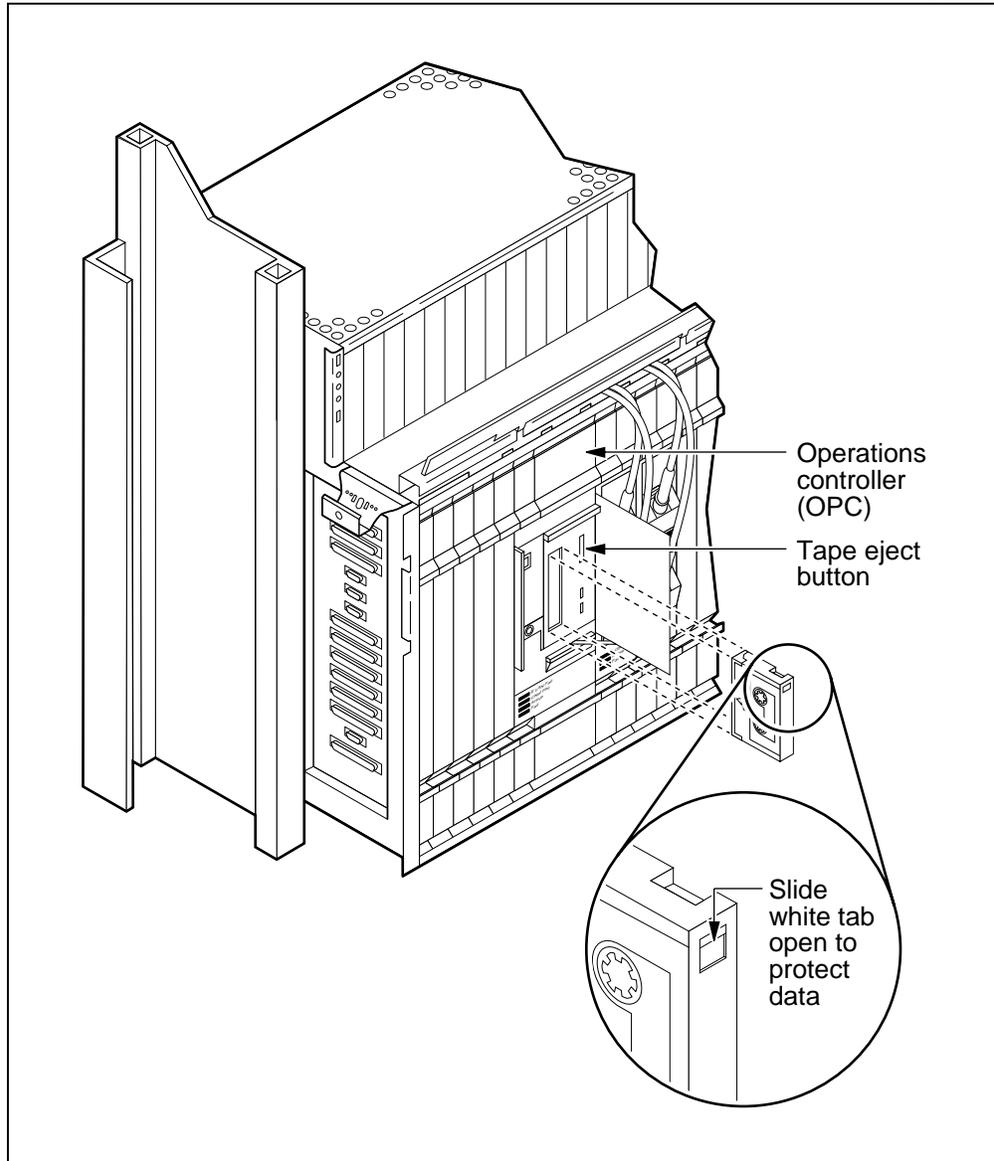
—**end**—

Procedure 3-3
Verifying the OPC serial number

Use this procedure to verify that the OPC serial number viewed online is the same as the serial number on the OPC itself.

Do not perform this procedure if you are adding a network element to an existing span of control.

Action

Step	Action
1	Log in to the OPC and open the Commissioning Manager tool.
	The Commissioning Manager main window is displayed.
2	Read the serial number of the OPC you are logged into, as displayed in the upper right corner of the Commissioning Manager main window.
3	Compare the OPC serial number viewed on-line with that obtained from the bar code label of the main printed circuit board of the OPC, as recorded in the Commissioning Data Record Form. These serial numbers must be identical.
	Note: Ignore the prefix "NNTM" on the OPC serial number label.
4	Close the tool by pressing **Esc)** or do the following:
	a. Display the Window menu by pressing **Ctrl_L W** (or Keypad **6**).
	The Window menu is displayed.
	b. Select the Exit command.
	The tool closes and the User Session Manager is displayed.
5	Check off this procedure on the System Setup Checklist.

—end—

Procedure 3-4
Sending a load to a processor

Use this procedure to manually send a software load to a processor. This procedure allows you to safely test a new load.

Note: This procedure only makes one attempt to transfer a new load to a processor. If this attempt fails, the operations controller (OPC) does not resend the new load that failed. Instead, it sends the default load to the processor.

Loading NE software

You can use the Reboot/Load Manager to send loads to the processors in the OPC span of control, either manually or automatically.

Typically, you use the Reboot/Load Manager tool to

•   send a software load to a processor

•   upgrade the software release or load, for processors only
    (To upgrade the OPC and all NEs in the system, see your Nortel Networks representative.)

For further information about the Reboot/Load Manager tool, see the description in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.

Software loads

The Reboot/Load Manager sends software loads to NEs in two ways:

•   manually, when you change the software release or load of a processor

•   automatically, when a processor or line card requests to be rebooted

Note: It is recommended that you download processors one at a time. Wait until one download is successful before you initiate another.

To find out which loads are currently installed on the processors in the OPC span of control, enter the **lomui query_loads** command at the OPC prompt.

Requirements and limitations

The Reboot/Load Manager downloads software for individual NEs, one at a time. Therefore, if you are downloading all processors in the OPC span of control, use the Network Upgrade Manager tool.

—continued—

Procedure 3-4 (continued)
Sending a load to a processor

If you are upgrading the software release (or loads) for the entire system (that is, OPCs and NEs), see your Nortel Networks representative for the appropriate change application procedure (CAP).

Handling and storing digital audio tapes

Keep digital audio tapes (DATs) away from moisture, extreme hot and cold temperatures, and magnetic fields and devices.

Electrostatic-sensitive devices can be damaged by electrostatic discharge. Always ground yourself before handling the tape.

Action

Step	Action
1	Log in to the OPC and open the Reboot/Load Manager tool.
	The Reboot/Load Manager main window appears.
2	From the Network Element (NE) list, move to the NE you want, then press **Ctrl_A** (or Keypad **0**).
	The NE is highlighted.
3	Display the list item menu by pressing **Ctrl _L** (or Keypad **Enter**).
	The list item menu appears.
4	In the list, move to the processor you want to load, then press **Ctrl_A** (or Keypad **0**).
	A confirmation dialog appears.
5	To send the load, tab to the OK button, then press **Ctrl_A** (or Keypad **0**).
	The dialog closes and the load is transferred to the processor. The download statistics appear on the Reboot/Load Manager main window.
6	To close the tool:
	a. Display the window menu by pressing **Ctrl_L W** (or Keypad **6**).
	The window menu appears.
	b. Select the Exit command by pressing **Space** (or Keypad **0**).
	The tool closes.
7	Check off this procedure on the System Setup Checklist.
	—end—

Procedure 3-5
Entering system-level data

Use this procedure to begin the commissioning of a network element (NE). This procedure should be repeated for every NE in the span of control. The order the NEs are commissioned is not critical.

Do not perform this procedure if you are adding a network element to an existing span of control.

Requirements

To perform this procedure, the following requirements must be met:

- Make sure the OPC software is loaded in the OPC being used for commissioning as specified in Procedure 3-2, "Installing software on a local OPC and NE from tape" on page 3-6.

- Obtain all system-level data, including the serial number of each OPC used in the commissioning process.

    Note: The serial number of an OPC is located at the bottom center of the motherboard, on the right side (looking at the faceplate). The serial number of the OPC you are logged into also is displayed in the upper right corner of the Commissioning Manager main window.

- Be familiar with the command conventions for the OPC interface you are using (CMT or graphical) as described in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning, Volume 4A*.

Procedure 3-5 (continued)
Entering system-level data

Action

Step	Action
1	Log in to the OPC being used for commissioning.
	The User Session Manager is displayed.
	For information on logging into the OPC, see *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.
2	Open the Commissioning Manager tool.
	For information on opening the Commissioning Manager tool, see *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.
	The Commissioning Manager main window is displayed.
3	Select the Commission new system button.
	The System Commissioning Data dialog appears and the cursor is placed in the Network name field.
	The following terms are used in the System Commissioning Data dialog:

> *Network*   refers to the broad collection of multi-vendor products that are used to service a given administrative region.
>
> *System*   refers to the cluster of Nortel Networks NEs that are controlled by a single OPC, also known as a *span of control*.

Note: The Network number and System ID fields are automatically filled with a default value of 1 and cannot be changed.

4	Optional step. To specify a network name, enter a unique name, up to 32 alphanumeric characters long (for example, "SouthwestRegion01").
5	Optional step. To specify a system name, tab to the System name field and enter a unique name, up to 32 alphanumeric characters long (for example, "CentralBankHeadquarters").
6	Tab to the OPC name field.

Note: The cursor skips over the System type field. This is because this field is autofilled with the name AccessNode and cannot be changed in this dialog.

—continued—

Procedure 3-5 (continued)
Entering system-level data

Step	Action
7	At the OPC name field, enter a node name for the primary/backup OPC pair. OPC node names must be unique within the system and have the following format:

OPC <xxxx>

> **where**

>> <xxxx>   integers from 0 to 9 or letters from A to Z.

(Example: OPC27JF)

Step	Action
8	Tab to the Primary OPC serial number field. The serial number of the OPC you are logged into appears in this field by default. The serial number of the OPC you are logged into is displayed in the upper right corner of the Commissioning Manager main window. However, if you need to, you can change the default serial number in this field for the primary OPC.

Note: The serial number of the modular OPC is located at the bottom center of the motherboard, on the right side (as you look at the faceplate).

OPC serial numbers have the following format:

A<n><hhhhhhh>

> **where**

>> <n>   is a one-digit integer between 0 and 9

> <hhhhhhh>   is a seven-digit hexadecimal number

(Example: A183e3345)

Note: If the serial number is not accepted, call Nortel Networks for technical assistance. For a list of the technical assistance telephone numbers, refer to the Technical Support Reference Card located in the front pocket of your NTP.

Step	Action
9	Optional step. To specify an alias for the primary OPC, tab to the Primary OPC alias field and enter a name up to 8 alphanumeric characters long. The default alias is the OPC name followed by P (for primary) or B (for backup).
10	If a backup OPC is present, fill in the Backup OPC serial number field and the Backup OPC alias field the same way as described in steps 8 and 9.
11	Record the data from the System Commissioning Data dialog on the Commissioning Data Record Form.

—continued—

Procedure 3-5 (continued)
Entering system-level data

Step	Action

12   To complete the entry of system-level commissioning data, tab to the OK button and select it by pressing **Alt+Return** (or Keypad **0**).

When you select the OK button and the information is entered correctly, the System Commissioning Data dialog is removed and the name of the system being commissioned is displayed on the first line of the main window. The arrow (=>) indicator in the main window moves to Commission new network element.

If	Then
any essential data is missing or entered incorrectly	• an error dialog explaining the nature of the problem is displayed. • the System Commissioning Data dialog remains displayed and fields with missing or erroneous data are marked with an "X."

13   Enter this command from the /tmp directory of the OPC:

   setmbr ↵

14   Check off this procedure on the System Setup Checklist.

—**end**—

Procedure 3-6
Entering network element commissioning data

Use this procedure to begin the commissioning of a network element (NE). This procedure should be performed prior to transferring the NE software to the OPC, and should be repeated for every NE in the span of control. The order in which the NEs are commissioned is not critical.

Do not perform this procedure if you are adding a network element to an existing span of control.

Requirements

The following requirements must be met before performing this procedure:

- Obtain a unique network element identifier number (NEID) for the new NE according to "Detecting and removing existing OPC software" on page 3-3.

- Know the shelf type and shelf functions for your system (ABM or TBM).

- Know the NE serial number. This serial number is located on the metal bracket holding the label plate. Refer to Figure 3-2 on page 3-19 for the location of the shelf serial number on the access bandwidth manager (ABM) shelf.

Action

Step	Action
1	Select the Commission new network element from the Commissioning Manager main window by pressing **Ctrl_A**. *The Network Element Commissioning Data dialog is displayed.*
2	The cursor should be at the start of the Network element number field (NEID). At this field, enter a number (1 to 32767) that is unique within this system. This number should be assigned according to the NE numbering plan for this system.
3	For the ABM shelf, record the NE number on the "NE:" label located on the label plate of the common equipment shelf. For the TBM shelf, record the NE number on a write-on label. Place the write-on label in the area marked "place NE label here" on the label plate of the common equipment shelf.

—continued—

Procedure 3-6 (continued)
Entering network element commissioning data

Step	Action

Selecting primary or backup OPC

4

If the NE	Then
has a backup OPC	• tab to the field with the three OPC radio buttons. • move the cursor to the Backup OPC button and select it by pressing **Ctrl_A** (or Keypad **0**). *A mark is displayed between the brackets beside Backup OPC. The button is disabled for the commissioning of subsequent NEs.*
has the primary OPC	• tab to the field with the three OPC radio buttons. • move the cursor to the Primary OPC button and select it by pressing **Ctrl_A** (or Keypad **0**). *A mark is displayed between the brackets beside Primary OPC and the button is disabled for the commissioning of subsequent NEs.*

5   Use the arrow keys to locate shelf type ABM or TBM.

6   Press either **Space** or zero (**0**) on the keypad to select the appropriate shelf type. The shelf type is displayed in the field.

7   Tab to the Shelf function field.

8   Press **Ctrl_L /** to select the appropriate shelf function. The shelf function is displayed in the field.

   Note: In single-ended systems, the shelf function of the OPC shelf should be set to RFT.

9   Use the arrow keys to locate the shelf function that your equipment needs.

10   Press the **Space** to select the appropriate shelf function. The selected shelf function is displayed in the field.

11   Tab to the Shelf function field.

12   Press **Ctrl_L /** to select the appropriate shelf function. The shelf function is displayed in the field.

13   Use the arrow keys to locate the shelf function that your equipment needs.

14   Press **Space** to select the appropriate shelf function. The selected shelf function is displayed in the field.

15   Record all commissioning data for this NE on the Commissioning Data Record Form located in Appendix B.

16   Enter the information for the transmission rate, shelf serial number, and the software release.

—**continued**—

Procedure 3-6 (continued)
Entering network element commissioning data

Step	Action

Completing the entry of NE commissioning data

17   To complete the entry of commissioning data for this NE, tab to the OK button and select it by pressing **Alt+Return** (or Keypad **0**).

When you select the OK button and the information is correctly entered, the NE is added to the Commissioned network elements list in the Commissioning Manager main window.

Note: If any essential data is missing or entered incorrectly, an error dialog explaining the problem is displayed. The Network Element Commissioning Data dialog remains displayed with an "X" next to empty data fields or fields with erroneous data.

18   Enter this command at the OPC prompt:

-lomui setNE_release -p <product> -r REL_<xxxx> -n <NE_ID> ↵

  where

  <product>   is the type of NE (access, OC3, OC12)

  <xxxx>   is the number of the current NE release

  <NE_ID>   is the identification number of the NE

19   Check off this procedure on the System Setup Checklist.

20   Repeat the entire procedure for each network element.

                              —continued—

Procedure 3-6 (continued)
Entering network element commissioning data

Figure 3-2
Shelf serial number label on the ABM shelf

PC-11472

Shelf serial
number label

An h hhhhhh
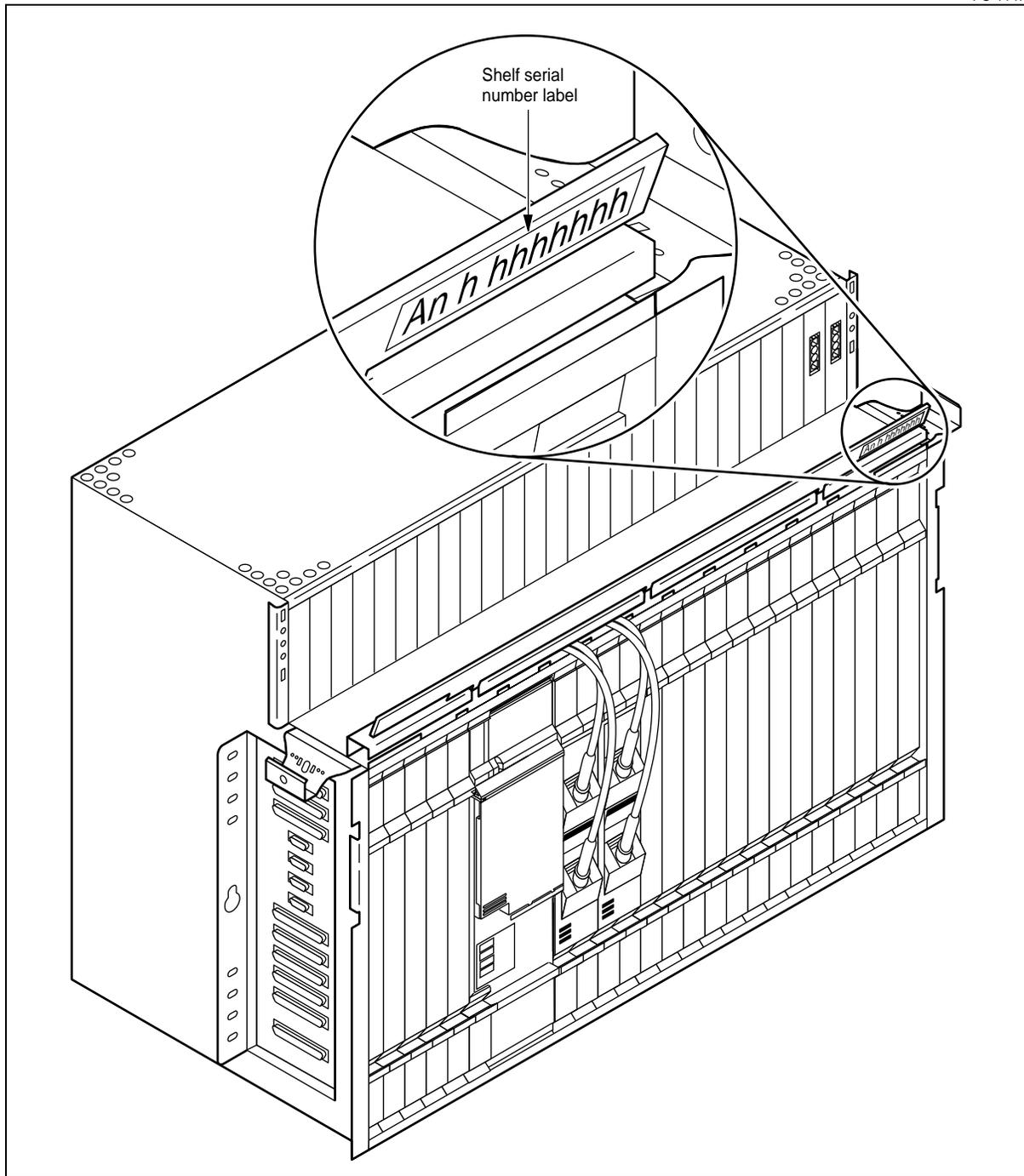
—**end**—

Procedure 3-7
Downloading software to a network element

Use this procedure to monitor the downloading of software from the commissioning operations controller (OPC) to a network element (NE) in a new system. Do not use this procedure to upgrade software on an in-service NE.

The software download automatically begins when all of the following are completed:

- The processors are installed in the shelf.

- The system and NE commissioning data are loaded on the OPC.

- The OPC is connected to the NE (using a control network (CNet) connection, SONET or fiber, or by installing the OPC in the shelf).

When software is downloading, the Reboot Load Manager tool can be used to monitor the download, but not control it.

Action

Step	Action
1	Connect a user terminal to the OPC being used for commissioning as specified in *OPC User Interface Description*, 323-3001-301 in *Operations, Administration, and Provisioning*, Volume 4A.

If your commissioning OPC is a	Then go to
modular OPC that is engaged and powered up	step 2
modular OPC that is NOT engaged and powered up	step 4

Step	Action
2	Log in to the OPC.
	For information on the OPC tool, refer to *Data Administration Procedures*, 323-3002-304, in *Operations, Administration, and Provisioning*, Volume 4A. For more information on the Reboot/Load Manager tool, refer to *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.
3	Open the Reboot/Load Manager tool. This tool allows you to monitor the progress of NE software download operations.
	The Reboot/Load Manager main window is displayed.

<div align="center">—continued—</div>

Procedure 3-7 (continued)
Downloading software to a network element

Step	Action

4   The OPC with system and NE commissioning data begins downloading software when the OPC is engaged or connected to the shelf and a Proc circuit pack is installed.

> **CAUTION**
> **Risk of equipment damage**
> The following steps involve the handling of circuit packs. Use an antistatic strap (or other static protection device) to protect against damage due to electrostatic discharge.

The download process depends on the OPC being used for commissioning.

If you are down-loading from a	Then
modular OPC (primary or spare) in the same shelf	Engage the modular OPC in its shelf backplane connector, if it is not already engaged.
	Log in to the OPC and open the Reboot/Load Manager tool (perform steps 2 and 3) if this has not already been done.
	Go to step 5.
modular OPC (primary) in an adjacent shelf	Connect a control network cable from the adjacent shelf with the commissioning OPC to the NE being commissioned.

5   Review the download progress using the OPC Reboot/Load Manager tool.

The download starts. The yellow initialization (Init) LED lights up on the maintenance interface card (MIC) while the processor card is loading software.

After several minutes, "In Progress" is displayed in the Reboot/Load Manager main window. "Completed" is displayed in the Download Status field when the download is complete. However, the processor needs a few more minutes to initialize. For the ABM, wait for the red LED on the processor to turn off before proceeding. For the TBM, ignore the LEDs until an Approve command is given in a later procedure.

—**continued**—

Procedure 3-7 (continued)
Downloading software to a network element

Step	Action

Note: When an NE is rebooted, the NE requests a database restore from the OPC.

If a database is	Then the
available	backup download is performed.
not available (for instance when an NE is being commissioned for the first time)	NE requests the database backup.
not able to complete the backup	NE begins to autoprovision with internal default values.

For an NE with a transport bandwidth manager (TBM) shelf, once autoprovisioning is complete, the NE can read but not write to the circuit packs and an alarm is raised indicating the need for approval. Approval is given by issuing the Approve command from any Network Element User Interface (NEUI) screen. Once the Approve command is issued, the NE writes to the circuit packs and a restart begins. At the end of the restart, the database confirms the data is correct.

6   Close the Reboot/Load Manager tool.

    a.   Display the Window menu by pressing **Ctrl_L W** (or Keypad **6**).

       The Window menu is displayed.

    b.   Select the Exit command by pressing **Space** (or Keypad **0**).

       The User Session Manager screen returns.

    Note: Steps 7 through 11 apply only to a TBM shelf.

7   Log in to the NEUI. If you do not know how to do this, refer to *Network Element User Interface Description*, 323-3001-300, in *Operations, Administration, and Provisioning*, Volume 4A.

8   Issue the Approve command from any NEUI screen by entering:

    approve ↵

    The system prompts you for confirmation.

9   Confirm the command:

    y ↵

    This forces a system restart. The system restarts with the new configuration data.

    Allow sufficient time (up to three minutes) for the NE initialization after the restart is completed.

<center>—**continued**—</center>

Procedure 3-7 (continued)
Downloading software to a network element

Step	Action
10	Verify that the Proc card is successfully rebooted.
	The "Database not restored. Type Q APPROVE at NE" alarm should be cleared.
11	Confirm that the Approve command is successful by issuing the command again.
	The request should be denied and the NEUI displays the following message:
	`Not applicable at this time.`
12	Check off this procedure on the System Setup Checklist.

—**end**—

Procedure 3-8
Setting the network element name

This procedure is used to set the name of the network element (NE) as defined by the user.

Requirements

Before starting this procedure, the following requirements must be met:

- Log in to the network element user interface (NEUI) and at the main menu level.

- Be familiar with the command conventions for the interface you are using, and procedures for connecting to an NE and for logging into the NEUI. A complete tour of the NEUI is available in *Network Element User Interface Description*, 323-3001-300, in *Operations, Administration, and Provisioning*, Volume 4A.

Action

Step	Action
1	Access the System Administration screen by entering:
	admin nep ↵
	The Network Element Profile screen is displayed.
2	Set the NE name by entering:
	nename <nename> ↵
	where
	<nename> is an ASCII string of up to 13 characters, with the first character being an alpha character.

—continued—

Procedure 3-8 (continued)
Setting the network element name

Step	Action

Note 1: Enter the NE name inside single quotes ('NE name'), otherwise all the text is converted to uppercase. Enter NE name with single quotes if you include spaces or special characters (**?, =**).

Note 2: If the NE name is to be used in conjunction with TL1 target identifier (TID) and system identifier (SID) , the TL1 TID/SID permissible character set must be followed. This character set includes uppercase or lowercase letters A to Z, numbers 0 to 9, and the special characters: dash, underscore, comma, and period. The special characters cannot be the first character in the name.

A screen appears as shown below when the procedure is completed.

3   Repeat the entire procedure for the ABM shelf.

4   Check off this procedure on the System Setup Checklist.

—**end**—

Procedure 3-9
Transferring data from the primary to the backup OPC

Use this procedure to transfer the commissioning data from the primary operations controller (OPC) to the backup OPC after the commissioning data is transferred from the backup OPC to the primary OPC.

This procedure must be performed from the primary OPC. It should be done any time commissioning data is changed on the primary OPC.

Requirements

Before starting this procedure, the following requirements must be met:

- Complete the commissioning of all network elements (NEs) and transfer the data to the primary OPC.

- Install both primary and backup OPCs in their slots.

- Be familiar with the command conventions for the OPC interface you are using (CMT or graphical) as described in *OPC User Interface Description*, 323-3001-301, and *Data Administration Procedures*, 323-3001-304. Both documents are in *Operations, Administration, and Provisioning*, Volume 4A.

Action

Step	Action
1	Log in to the primary OPC.

For information on the OPC, refer to *OPC User Interface Description,* 323-3001-301, and *Data Administration Procedures,* 323-3001-304. Both documents are in *Operations, Administration, and Provisioning,* Volume 4A.

The User Session Manager is displayed.

—continued—

Procedure 3-9 (continued)
Transferring data from the primary to the backup OPC

Step	Action
2	Open the Commissioning Manager tool.
	The Commissioning Manager main window is displayed.
3	Tab to the Transfer Data to Backup OPC button and select it by pressing **Ctrl_A** (or Keypad **0**).
	The confirmation dialog is displayed.
4	Tab to the OK button and select it by pressing **Ctrl_A** (or Keypad **0**).
	The confirmation dialog is removed and the commissioning data is transferred from the primary OPC to the backup OPC. This takes several minutes if you are communicating with the far end of the span. When the process is complete, a notification dialog is displayed.
5	Select the Done button by pressing **Ctrl_A** (or Keypad **0**).
6	Close the Commissioning Manager tool:
	a. Display the Window menu by pressing **Ctrl_L W** (or Keypad **6**).
	The Window menu is displayed.
	b. Select the Exit command by pressing **Space** (or Keypad **0**).
	You are returned to the User Session Manager.
7	Log out of the OPC.
	For information on the OPC, refer to *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.
8	Check off this procedure on the System Setup Checklist.

—**end**—

Procedure 3-10
Performing a manual NE database backup

Use this procedure to backup the NE database that includes all provisioning data. If there is a failure, the backup copy can be used to restore the database. Shelf (or NE) database backups are stored on the hard drive of the operations controller (OPC) module. Two copies of the database are stored: current and backup1. When you perform a backup, the oldest copy is deleted.

You should back up periodically to make sure the recent and relevant data is kept. In the event of a database failure, the backup copy can be used to restore the database. This minimizes the amount of lost data if there is a failure.

A backup can be done automatically by making it a scheduled event on the NE. For details refer to *System Administration Procedures*, 323-3001-302, in *Operations, Administration, and Provisioning*, Volume 4A.

Overview

When an NE is rebooted, the NE requests a database restore from the OPC.

If a database is	Then
available	the download is performed.
NOT available (for instance when an NE is being commissioned for the first time)	• the NE requests the database backup. • when the request fails, the NE begins to auto provision with internal default values.

Once autoprovisioning is complete for an NE with a TBM shelf, the NE can read but not write to the circuit packs and an alarm is raised indicating the need for approval.

When approval is given, the NE writes to the circuit packs and a restart begins. At the end of the restart, the database confirms that it has good data. If provisioning is correct, no hardware data changes and no traffic loss should occur.

—**continued**—

Procedure 3-10 (continued)
Performing a manual NE database backup

Requirements

Before starting this procedure, the following requirements must be met:

- Log in to FWPUI.

- Be familiar with the command conventions for the interface you are using (CMT or graphical) as described in *Network Element User Interface Description*, 323-3001-300, and *Data Administration Procedures*, 323-3001-304. Both documents are in *Operations, Administration, and Provisioning*, Volume 4A.

Action

Step	Action
1	From the Network Element Status screen, display the Shelf Equipment screen: **eq sh** ↵ *The Shelf Equipment screen appears.*
2	Back up the NE database: **backupdb** ↵ *The system prompts for confirmation.*
3	Confirm the back-up command: **y** ↵ *The backup process can take up to five minutes to complete depending on system use.*
4	Confirm the successful completion of the backup by checking the logs buffer: **logutil** ↵ **open FWDB** ↵ *The FiberWorld database (FWDB) logs (or NE logs) show the status of the database backup and the elapsed time of the backup. An FWDB300-series log indicates if there is a problem with the backup.*
5	Check off this procedure on the System Setup Checklist.

—end—

Procedure 3-11
Setting the time zone, date, or time

Use the following procedure to change the time zone, date, or time in an operations controller (OPC). The time zone codes are listed within the OPC Date tool, and the appropriate code is selected using this procedure. A table of valid time zones is also provided at the end of this procedure.

The OPC keeps track of local time and Greenwich Mean Time (GMT), and provides a system time-of-day clock for the network elements (NEs) it controls. NEs synchronize their clocks with the OPC every two hours.

The local time and date must be set during initial commissioning, and whenever the OPC clock battery has discharged. It should not be necessary to set the clock again unless the OPC is moved to a new time zone or replaced. However, the OPC local time may require infrequent adjustment. Changing the time or date of an operational OPC involves shutting it down. The shutdown procedure is automatically initiated within the procedure to change the time.

The time-of-day clocks on the primary and backup OPCs must be set as closely to the same time as possible in their respective time zones. In case of primary OPC failure, the backup OPC clock becomes the time-of-day clock source.

Clock battery drain occurs only when the OPC is powered down. The clock battery maintains the OPC time-of-day clock for at least two weeks, providing it was fully charged when the OPC was powered down.

Overview of setting time in an OPC span of control

The OPC keeps track of local time and Greenwich Mean Time. The active OPC provides a single time-of-day clock source for the network elements it controls. Network elements synchronize their clocks with the active OPC, every two hours.

Since local time on the NEs is derived from the OPC, local time is not defined at the network elements during commissioning. Instead, an offset time is defined in each network element. This offset time is the difference in time between a reference time zone (GMT) and the time zone where the NE is located. Offset times are specified in minutes. For steps on how to set the GMT offset in NEs, refer to the procedure for setting the offset from Greenwich Mean Time in *Commissioning and Testing*, Volume 3.

—continued—

Procedure 3-11 (continued)
Setting the time zone, date, or time

In the OPC, the offset time is specified by selecting a time zone code. Each time zone code is associated with an offset time and performs the same function as the offset time that is specified in NEs.

In addition, local time is specified on an OPC. From the time offsets specified in the NEs, and the local time and time zone specified on the active OPC, the correct time is derived on all NEs.

As an example of how time-of-day clock synchronization works, consider a network that has an NE in Japan and an NE in Los Angeles. The controlling OPC is in Chicago. After commissioning, the following information is specified and derived.

Network element	Time zone or offset time in hours (and equivalent)	Specified local time	Derived time
Chicago (OPC)	Central Standard Time (+6)	10:00	—
Japan (NE)	−9 (Japan Standard Time)	—	01:00
Los Angeles (NE)	+8 (Pacific Standard Time)	—	08:00

When both NEs request the GMT from the OPC, the OPC calculates it by adding its time zone offset (+6 hours) to its local time (10:00). So, the OPC would provide a GMT of 16:00 (on the current date) to the NEs.

Each NE subtracts its offset time from the GMT value received. For the NE in Los Angeles, this provides a derived local time of 08:00 on the same day. Since the NE in Japan has a negative offset time, it is added to GMT, producing a value of 25:00. Since this value is greater than 24, the date is incremented and the time is reduced by 24 hours, giving a time of 01:00 the following day.

The local date and time, and the time zone code for an OPC are initially set during commissioning. It should not be necessary to change the time zone unless the OPC is moved to a new time zone, or replaced. However, the OPC local time can require adjustment, if the clock drifts.

Unlike NEs, the OPC automatically adjusts for daylight saving time, at the proper time, according to the time zone code selected. Since different countries adjust for daylight saving time on different days, there are more time zone codes than time zones. It is important that you select the correct code to make sure the daylight saving time is initiated correctly by the OPC.

—continued—

Procedure 3-11 (continued)
Setting the time zone, date, or time

In the NEs, the offset time must be manually changed for daylight saving time.

If an OPC is powered down, its backup battery maintains the OPC time-of-day clock for at least two weeks, providing it was fully charged when the OPC was powered down.

When changing the time or date of an operational OPC, the OPC must be shut down. The shutdown procedure is automatically initiated within the procedure to change the time.

The time-of-day clocks on the primary and backup OPCs must be set as closely to the same time as possible.

CAUTION
Changing the OPC time can disguise the real time order of event logs and alarms
Many activities in the OPC, such as the generation of event logs, are time-stamped by the system. When you change the time, a gap or an overlap in time is introduced to time-stamped activities. It may be confusing to surveillance personnel to find that logs arriving in sequence have unusually spaced time stamps.

If you set the system time to a future value and then restore it to actual time, a log generated while the system was in future time will appear at the top of the list (in the Event Browser tool), and remain there. Any subsequent log generated in actual time will not displace the earlier log until actual time catches up.

Be sure that the time you specify is correct, since the time stamps created for events are not automatically adjusted when the system time is changed, and they cannot be changed manually.

Caution other administrative personnel about the consequences of the changes you make.

—continued—

Procedure 3-11 (continued)
Setting the time zone, date, or time

Requirements

Before starting this procedure, the following requirements must be met:

- Know the local time, date, and the time zone code for your time zone.
- Connect a VT100-compatible terminal to the OPC port 1 (or port B)
- Be familiar with the VT100-type character-mode terminal (CMT) user interface as described in *OPC User Interface Description*, 323-3001-301, and *Data Administration Procedures*, 323-3001-304. Both documents are in *Operations, Administration, and Provisioning*, Volume 4A.

Action

Step	Action

1	Log in to the OPC and open the OPC Date tool.
	For information on the OPC, see the procedures for logging in to the OPC and opening an OPC tool in *OPC User Interface Description*, 323-3001-301, and *Data Administration Procedures*, 323-3001-304, in *Operations, Administration, and Provisioning,* Volume 4A.
	The OPC Date tool is opened and the main window is displayed.
2	Decide whether you are changing the time by more than 30 minutes.

If you are changing the time by	Then go to
less than 30 minutes	step 3
more than 30 minutes	step 7

Adjust Time

3	Select the Adjust Time button by pressing **Ctrl_A** (or Keypad **0**).
	The time and date change dialog is displayed.

—**continued**—

Procedure 3-11 (continued)
Setting the time zone, date, or time

Step	Action

4   To change the date, enter a new value in the Date field in the form dd/mm/yyyy.

> **where**
>
> dd   is the day of the month (range 01 to 28, 29, 30, or 31, depending on the month)
>
> mm   is the month (range 01 to 12)
>
> yyyy   is the year (range 1976 to 2036)

The new date is displayed in the Date entry field.

Note 1: Make sure the old date is removed. Use the right arrow key to position the cursor after the old text and press the backspace key.

Note 2: When using the Adjust Time capability, you can only change the date to the day immediately preceding or following the current day, and only if the current time is within 30 minutes of the day change. Modifications to the date field at this point is required to support a 30-minute time advance near the end of the day.

5   To change the time, tab to the Time field and enter a new value in the form hh:mm.

> **where**
>
> hh   is the hour (range 00 to 23)
>
> mm   is the minute (range 00 to 59)

The new time is displayed in the Time entry field.

Note 1: When using the Adjust Time capability, you can only change the time to within 30 minutes of the current value.

Note 2: It is recommended that the current time of the active OPC clock be used as the source of the correct time when setting the standby OPC clock.

6   Tab to the Update button and select it by pressing **Ctrl_A** (or Keypad **0**).

The data you entered is validated. If incorrect, an error dialog is displayed telling you what to do. If correct, you are returned to the main window. The clock rate is slightly modified to begin a gradual adjustment.

If you select the Cancel button, the changes you make are not saved.

You are finished with this procedure. Go to step 15.

—continued—

Procedure 3-11 (continued)
Setting the time zone, date, or time

Step	Action

Reset Time

7   Select the Reset Time button from the OPC Date window.

A confirmation dialog is displayed, indicating the amount of time required for the shutdown and giving you a final chance to abort the shutdown.

8   Tab to the Proceed button and select it by pressing **Ctrl_A** (or Keypad **0**).

The OPC shutdown process starts. A console message is displayed to all users who are currently logged in to the OPC.

Note 1: The selection of the Proceed button commits the shutdown of the OPC, even if you decide later to abort the changes to the time and date. To stop the OPC shutdown procedure, select the Cancel button.

Note 2: The OPC clock is reset to the time you specified when the last dialog is confirmed in step 14 on page 3-36.

9   Select the OK button by pressing **Ctrl_A** (or Keypad **0**).

A shutdown progress message is displayed. As the shutdown progresses, the dots on the dialog are replaced with Xs.

The progress message indicates that the OPC is shutting down normally. Since the shutdown continues while the previous console message is displayed, the shutdown can complete before you select the OK button in this step. In this case, you do not see the progress message following.

This dialog is replaced by the following dialog when the shutdown is complete. The new dialog is displayed to all users who are currently logged in to the OPC.

10 Select the Done button by pressing **Ctrl_A** (or Keypad **0**).

The dialog is replaced by the Time and Date Change dialog.

11 To change the date, tab to the Date field and enter a new value in the form dd/mm/yyyy.

      where

        dd   is the day of the month (range 01 to 28, 29, 30, or 31 depending on the month).

        mm   is the month (range 01 to 12).

        yyyy is the year (range 1976 to 2036).

The new date is displayed in the Date entry field.

Note: Make sure old data is removed, by using the right arrow key to position the cursor ahead of old text and pressing the backspace key.

—**continued**—

Procedure 3-11 (continued)
Setting the time zone, date, or time

Step	Action
12	To change the time, tab to the Time field and enter a new value in the form hh:mm.

> **where**
>
> hh   is the hour (range 00 to 23).
>
> mm   is the minute (range 00 to 59).

The new time is displayed in the Time entry field.

Note: It is recommended that the current time on the active OPC clock be used when setting the standby OPC clock. The OPC clock is actually reset to the specified time when the last dialog is confirmed in step 15.

To change the time zone, tab to the Time Zone list, use the arrow keys to move the cursor to the time zone code desired and select it by pressing **Ctrl_A** (or Keypad **0**). Refer to the Time zones and GMT offsets shown in Table 3-1 on page 3-37.

The selected entry will be placed in the Time Zone field.

| **13** | Tab to the Update button and select it by pressing **Ctrl_A** (or Keypad **0**). |

A confirmation message is displayed, indicating that an error in selecting the new time and date would require a second OPC shutdown to correct.

Note: If you select the Cancel button, the changes you have made are not saved and you are returned to the time and date change dialog.

| **14** | Select the OK button by pressing **Ctrl_A** (or Keypad **0**). |

The OPC clock is now set to the time you specified.

The data you entered is validated. If incorrect, an error dialog is displayed that tells you what to do. If correct, the time and date information is saved and the OPC begins its reboot sequence. You can briefly see the User Session Manager screen.

The reboot process takes about 5 to 10 minutes. When it completes, the OPC login prompt (login:) is displayed.

The shutdown of the OPC terminates all user login sessions and you have to log in again, after the OPC returns to service.

| **15** | Check off this procedure on the System Setup Checklist. |
| **16** | Repeat the steps to set the time zone only, for the backup OPC. |

—**end**—

Table 3-1
Time zone codes and GMT offsets

Time zone	Country: region	Time zone code	GMT offset in minutes
Hawaiian Standard Time Hawaiian Daylight Time	United States: Hawaii	HST10	–600 –540*
Aleutian Standard Time Aleutian Daylight Time	United States: Alaska (parts)	AST10ADT	–600 –540*
Yukon Standard Time Yukon Daylight Time	United States: Alaska (parts)	YST9YDT	–540 –480*
Pacific Standard Time Pacific Daylight Time	Canada: British Columbia	PST8PDT#Canada	–480 –420*
Pacific Standard Time Pacific Daylight Time	United States: California, Idaho (parts), Nevada, Oregon (parts), Washington	PST8PDT	–480 –420*
Mountain Standard Time Mountain Daylight Time	Canada: Alberta, Saskatchewan (parts)	MST7MDT#Canada	–480 –360*
Mountain Standard Time Mountain Daylight Time	United States: Colorado, Idaho (parts), Kansas (parts), Montana, Nebraska (parts), New Mexico, North Dakota (parts), Oregon (parts), South Dakota (parts), Texas (parts), Utah, Wyoming	MST7MDT	–480 –360*
Mountain Standard Time Mountain Daylight Time	United States: Arizona	MST7	–420 –360*
Central Standard Time Central Daylight Time	Canada: Manitoba, Ontario (parts), Saskatchewan (parts)	CST6CDT#Canada	–360 –300*
Central Standard Time Central Daylight Time	United States: Alabama, Arkansas, Florida (parts), Illinois, Iowa, Kansas, Kentucky (parts), Louisiana, Michigan (parts), Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, Tennessee (parts), Texas, Wisconsin	CST6CDT	–360 –300*
Central Standard Time Central Daylight Time	United States: Indiana (most)	EST5CDT	–300 –240*
—continued—			

Table 3-1
Time zone codes and GMT offsets (continued)

Time zone	Country: region	Time zone code	GMT offset in minutes
Eastern Standard Time Eastern Daylight Time	Canada: Ontario (parts), Quebec (parts)	EST5EDT#Canada	−300 −240*
Eastern Standard Time Eastern Daylight Time	United States: Connecticut, Delaware, District of Columbia, Florida, Georgia, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee (parts), Vermont, Virginia, West Virginia	EST5EDT	−300 −240*
Atlantic Standard Time Atlantic Daylight Time	Canada: Newfoundland (parts), Nova Scotia, Prince Edward Island, Quebec (parts)	AST4ADT	−240 −180*
Newfoundland Standard Time Newfoundland Daylight Time	Canada: Newfoundland (parts)	NST3:30NDT	−210 −150*
Western European Time Western European Daylight Time	Great Britain, Ireland	WETOWETDST	0 60*
Portuguese Winter Time Portuguese Summer Time	Portugal	PWTOPST	0 60*
Middle European Time Middle European Daylight Time	Austria, Belgium, Bosnia-Herzegovina, Denmark, Croatia, Czech Republic, France, Germany, Hungary, Italy, Luxembourg, Poland, Slovakia, Slovenia, Spain, Sweden, Switzerland, Yugoslavia	MET-1METDST	60 120*
South Africa Standard Time South Africa Daylight Time	South Africa	SAST-2SADT	120 180*
Japan Standard Time	Japan	JST-9	540
Australian Western Standard Time	Australia: Western Australia	WST-8:00	480
—continued—			

Table 3-1
Time zone codes and GMT offsets (continued)

Time zone	Country: region	Time zone code	GMT offset in minutes
Australian Central Standard Time	Australia: Northern Territory	CST-9:30	570
Australian Eastern Standard Time	Australia: Queensland	EST-10	600
Australian Central Standard Time Australian Central Daylight Time	Australia: South Australia	CST-9:30CDT	570 630*
Australian Eastern Standard Time Australian Eastern Daylight Time	Australia: New South Wales, Victoria	EDT-10EDT	600 660*
Note: Offsets marked with an asterisk denote the network element offset that should be used when the Daylight Saving Time is observed in the corresponding region. Daylight Saving Time change is automatically updated by the software.			
—**end**—			

Procedure 3-12
Setting the time zone at the network element

Use this procedure to set the time zone at the network element (NE) for accurate timestamping of logs and alarms generated during testing.

Do not perform this procedure if you are adding a network element to an existing span of control.

Requirements

Before starting this procedure, make sure you are logged in to the network element user interface (NEUI). Refer to *Network Element User Interface Description*, 323-3001-300, in *Operations, Administration, and Provisioning*, Volume 4A.

Action

Step	Action
1	Display the Shelf Equipment screen by entering:

eq sh ↵

edit ↵

The Shelf Equipment screen with the Edit Shelf menu appears.

—continued—

Procedure 3-12 (continued)
Setting the time zone at the network element

Step	Action
2	Enter the time zone:

time zone <NE time zone> ↵

> **where**

> <NE time zone>   is one of the time zone codes in the following table

Time zone code	Time zone code	Time zone code	Time zone code
AST10	CST6CDT	WETOWETDST	MAT7
AST10ADT	EST5	PWTOPST	WST800
YST9	EST5CDT	MET1	KST9
YST9YDT	EST5EDT	MET1METDST	JST9
PST8	AST4	MET2	CST930
PST8PDT	AST4ADT	SAST2SADT	CST930CDT
MST7	NST33ONDT	EET3	EST10
MST7MDT	GMT	WAT4	EST10EDT
CST6	GMTOBST	MAT6	NZST12NSDT

Note: Refer to *Commissioning and Testing*, Volume 3, for an explanation on how to set the time zone on the OPC and for the definition of the time zone codes.

The following warning is displayed:
```
Warning: changing the time zone may affect the performance
monitoring statistics and the scheduler.
Please confirm ("Yes" or "No"):
```
yes ↵

The response is:
```
Time zone command successful.
```
quit ↵

The Equipment Shelf screen with the Shelf Equip menu is displayed.

3	Verify that the NE time is correct in the bottom left corner of the Network Element Status screen.
4	Check off this procedure on the System Setup Checklist.

—**end**—

Provisioning the equipment

Use the procedures in this chapter to provision equipment within a multihosting environment or using the Host Provisioning Manager tool.

Procedures in provisioning the equipment

The following table lists the procedures in this chapter. These procedures guide you through provisioning the equipment, and need to be performed in order.

Procedure	Page
4-1 Listing all hosts for an RFT	4-8
4-2 Adding a new host to an RFT	4-9
4-3 Making a host the primary alarm host	4-11
4-4 Provisioning default connections on single-ended systems	4-13
4-5 Setting the network synchronization	4-15
4-6 Provisioning DS1 facility assignments	4-16
4-7 Unassigning call reference values	4-24

Multihosting

The first two procedures in this chapter are required to support a multihosting environment. Multihosting means one host switches some of the switched lines from a remote fiber terminal (RFT), and another host switches other lines from the RFT. Each line has a fixed association with only one host, but the lines from the RFT are allotted to multiple hosts.

Host Provisioning Manager tool

The Host Provisioning Manager tool on the operations controller (OPC) user interface identifies the hosts to which an AccessNode system is connected.

> **CAUTION**
> **Risk of communication loss between the Subscriber Carrier Module-100 Access (SMA) and RFT**
> Ensure that Table OFCENG and RDTINV are correctly datafilled for each host switch in a multihosting application. Assign a unique NETWORK_ELEMENT_ID parameter value in Table OFCENG for each host switch. This value should be different from the AccessNode network element numbers. If datafill is incorrect, the OPC Provisioning Manager and Manage Facility Assignments dialog in the Connection Manager tool can display the same host name (common language location identifier or CLLI) for two or more switches.

Using the Host Provisioning Manager, you can select an RFT from the list of provisioned RFTs in the OPC span of control. After you select an RFT, the system displays the following:

- names of the hosts provisioned on the RFT

- interface group (IG) numbers

- integrated digital terminal (IDT) number

- interface types (GR-303 DMS or GR-303 MVI)

- the primary alarm recipient indicator

If the maximum number of hosts are not provisioned for the RFT, the Add button is enabled.

The system automatically assigns the IG number when you add the host. This number ranges from 1 to 5. The CLLI (or host name) and the IDT number identify the IG to the system.

GR-303 DMS is an interface to digital multiplex system (DMS) switches. GR-303 multivendor interface (MVI) is a generic interface to switches. You can provision multiple GR-303 DMS and GR-303 MVI switches.

The Host Provisioning Manager also allows you to determine which host connected to the RFT is the primary alarm recipient of the RFT's alarm notifications. Only a DMS host can be the primary host. Therefore, the first DMS host added is designated the default primary host.

When the lines of an RFT are associated with more than one switch, the system allows you to determine which DS1s are connected to each switch. See Procedure 4-6, "Provisioning DS1 facility assignments," on page 4-16 for details.

For a brief description of the Host Provisioning tool, see *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.

Specific provisioning tasks allow you to change the default values the system assigns during initial installation.

For connections to carry traffic, the appropriate tributary must also be provisioned at each network element (NE). These tributary facilities can be provisioned either before or after the connections are set up.

Table 4-1 shows the alarms generated for tributary facilities. The alarms that can be generated depend on the provisioning and connection status of the tributary.

Table 4-1
Tributary facility alarms

If the tributary facility is	And connections are	These alarms are generated
provisioned	not set up	STS unequipped alarms
provisioned	set up	if not yet carrying traffic, loss of signal (LOS) and alarm indication signal (AIS) alarms
not provisioned	set up	no alarms

Tributaries are composed of tributary facilities and tributary equipment (circuit packs).

Single-ended AccessNode
- You can provision nodal default connections for a CServer, and single-ended RFTs. (For CServers, the default connections are hairpin connections.)
- End-to-end connection provisioning is not supported for CServers or single-ended RFTs.

Default maps

Using the Manage Default/STS-1 Cross Connects dialog, you can provision:

- nodal default cross connects for terminal network elements (NEs) that are not in any configuration, for example, a CServer or single-ended RFT.

Default connections depend on the type of NE. Each tributary endpoint of a default connection corresponds to a particular STS-1 path termination and not a physical tributary. Therefore, these connections can be preprovisioned before inserting equipment.

The following NE types are supported:

- CServer in stand-alone configuration
- ABM RFTs (FCOT-less RFTs) in stand-alone configuration

Table 4-2 shows the default map for an access bandwidth manager (ABM) shelf in an RFT.

Table 4-2
Default map for an access bandwidth manager shelf in an RFT

Slot number	STS carrying	
	DS1s to/from a DS1/VT mapper in the slot	**DS1s to/from a transport interface card in the slot**
1	STS-1 #1 low	
2	STS-1 #1 high	
3		
1	STS-1 #3 low	
2	STS-1 #3 high	
3		
4	STS-1 #4 high	
5	STS-1 #5 low	
6	STS-1 #5 high	
7	STS-1 #6 low	
8	STS-1 #6 high	
11 and 14		STS-1 #1 (GR-303DMS/MVI tandem and TR-08)

Note 1: No default mapping exists for DS1s to and from a DS1/VT mapper in slot 3 because only the protection mapper can be installed in that slot.

Note 2: The DS1s in STS-1 #1 carry tandem traffic, GR-303 traffic, and TR-08 traffic. The assignment of the DS1s is flexible. All 28 DS1s in the STS can be tandem DS1s or GR-303 DS1s. STS-1 #1 is mapped to a pair of DS1/VT mappers in the FCOT.

Table 4-3 shows the default connections for CServers.

Table 4-3
CServer Default Connections

Endpoint 1	Endpoint 2
DS1 mappers G1 and G2 (slots 1 and 2)	TIC STS-1 #1 (slot 11)
DS1 mapper G4 (slot 4)	TIC STS-1 #2 (slot 11)
DS1 mapper G5, G6 (slots 5 and 6)	TIC STS-1 #3 (slot 11)

Single-ended NEs do not support STS-1 connection services. As a result, the following guidelines apply to the default maps:

- All DS1 tandem, TR-08 DS1, and GR-303 traffic must be on STS-1 #1 of the incoming tributary.

- DS1 transport traffic can only be on STS-1 #3, #4 (upper half only), #5 and #6.

Restrictions and limitations

While the Connection Manager is open, you cannot open the Configuration Manager. This ensures that configuration data does not change while connections are being set up. Similarly, you cannot open the Connection Manager while the Configuration Manager is open.

Editing the connection ID can be done in service. Editing the facility assignment of a VT connection terminating on a TIC port is also allowed, but affects service. Editing of other information is not allowed—you must delete and re-add the connection instead.

Connection data is synchronized between operations controllers (OPCs) in one direction only, from the primary OPC to its backup. Therefore, if you change connections on an active backup OPC, you must repeat these changes on the primary OPC when the primary becomes active again.

> **CAUTION**
> **Risk of traffic loss**
> Failure to repeat changes made on the backup OPC to the primary OPC results in loss of connection data and may eventually lead to loss of traffic.

For connections to carry traffic, the appropriate tributary facilities must also be installed and provisioned at each end of the connection. These tributary facilities can be provisioned either before or after the connections are set up.

See Table 4-1, "Tributary facility alarms," on page 4-3 for a summary of alarms and when they are generated.

Maximum IGs

A communication overhead (COH) channel has 31 available DS0s. Each operations maintenance channel (OMC) requires three to six DS0s. Each IG requires four DS0s. If four DS0s are not available, the operation to assign an IG aborts.

If you have no OMC links, you can assign up to five IGs (5 IGS x 4 DS0s = 20 DS0s). OMC links limit the number of assignable DS0s, and you must calculate how many IGs you can assign.

>   *Note:* Even with OMC links, you can still add five IGs from the Host Provisioning Manager; however, the Connection Manager's Manage Facility Assignment tool will be limited to the number of DS0s.

Requirements for procedures

Before performing these procedures, you must read the command conventions for the type of interface you are using, either character-mode terminal (CMT) or graphical, in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.

Procedure 4-1
Listing all hosts for an RFT

Use this procedure to list all host switches for a specific remote fiber terminal (RFT). Each RFT can have a maximum of five hosts.

Action

Step	Action
1	Log in to the operations controller (OPC) and open the Host Provisioning Manager tool. If you do not know how to do this, see the procedures in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.
	The main window of the Host Provisioning Manager tool appears.
2	To display the chooser menu, press **Ctrl_L /** (or Keypad **3**).
	The chooser menu appears showing the RFTs in the OPC span of control.
3	Use the arrow keys to move to the RFT you want to select, then press **Space** (or Keypad **0**).
	A list of hosts showing the hosts that have been provisioned on the selected RFT appears.

> ⚠ **CAUTION**
> **(GR-303 DMS hosts only)**
> **Risk of communication loss between the Subscriber Carrier Module-100 Access (SMA) and RFT**
> Ensure that each host name (common language locator identifier or CLLI) in the displayed list is unique. There can be duplicate host names, but different IDT names. If duplicate host names exist, ensure that the NETWORK_ELEMENT_ID parameter in Table RDTINV is unique for each host switch and different from fiber central office terminal (FCOT) (if applicable) and RFT numbers.

Step	Action
4	To close the tool, complete the instructions in the following table:

To	Press
display the window menu	**Ctrl_L W** (or Keypad **6**) *The window menu appears.*
exit	**Space** (or Keypad **0**) *The tool closes.*

—end—

Procedure 4-2
Adding a new host to an RFT

Use this procedure to add a new host switch or a new interface group (IG) to a specific RFT. Two kinds of host switches are supported: GR-303 MVI hosts and GR-303 DMS hosts. Each RFT can have a maximum of five hosts. After five hosts are added, the Add button is disabled.

After you add the host, you can assign DS1s to the host through the Manage Facility Assignments dialog in the Connection Manager tool.

DMS (CSC) host CLLI must be correct and match the DMS CLLI. MVI 303's CLLI is required but does not need to be validated.

Incorrect host for DMS (CSC) GR-303 system

You can incorrectly add a host, for example, by misspelling the common language location identifier (CLLI). An association to the host is established, but you cannot provision from this host. To recover, complete the following steps:

1   From the Host Provisioning Manager tool at the operations controller (OPC):

   a.   Delete the incorrect host.

   b.   Add the correct host.

2   From the DMS-100 host switch, the integrated digital terminal (IDT) must be busied (command **BSY**), off-lined (command **OFFL**), busied again, then returned to service (command **RTS**). Alternatively, both embedded operations channels on the IDT can be busied, then both returned to service.

Action

Step	Action
1	Log in to the OPC and open the Host Provisioning Manager tool. If you do not know how to do this, see the procedures in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.
	The main window of the Host Provisioning Manager tool appears.
2	To display the chooser menu, press **Ctrl_L /** (or Keypad **3**).
	The chooser menu appears showing the RFTs that are in the OPC span of control.

—**continued**—

Procedure 4-2 (continued)
Adding a new host to an RFT

Step	Action
3	Use the arrow keys to move to the RFT you want to add a host to, then press **Space** (or Keypad **0**).
	A list of hosts showing the hosts that have been provisioned on the selected RFT appears.
	Note: The Add button is disabled after five hosts have been added.
4	Tab to the Add button.
	The Add new host dialog appears.
5	In the Host Name field, enter the host CLLI (up to a 16-character alphanumeric string) of the host you want to add, then enter the value of the IDT that will be used for the new interface in the IDT field.
	Note: The Host Provisioning Manager does not verify the accuracy of the host name or the IDT.
	For DMS, the Hostname (alphanumeric) and IDT (numeric) fields are information only. For MVI, the two fields require data entry.
	If you make an incorrect entry while provisioning a GR-303 DMS interface, you cannot establish an association between the intended DMS host and the AccessNode, even though the physical connections are in place.
6	Tab to the button (GR-303 DMS or GR-303 MV**I**) that applies to the type of host interface you are adding, then press **Ctrl_A** (or Keypad **0**).
	The selected interface type is marked. This type will appear in the Interface column of the Provisioned Hosts list.
7	Tab to the OK button, then press **Ctrl_A** (or Keypad **0**).
	The new Host CLLI appears in the provisioned hosts list.
8	To close the tool, complete the instructions in the following table:

To	Press
display the window menu	**Ctrl_L W** (or Keypad **6**) *The window menu appears.*
exit	**Space** (or Keypad **0**) *The tool closes.*

—**end**—

Procedure 4-3
Making a host the primary alarm host

Use this procedure to change the primary alarm host in a multihosting configuration. The first DMS host to be provisioned is by default the primary host and receives all alarms generated by the RFT.

Note: A GR-303 MVI host cannot be the primary host.

You can use this procedure at any time to change the default setting and make a secondary host the primary host.

Only one host can be the primary alarm host at one time, and there must always be one host that is primary for alarm reception. When a host is made primary for alarms, the host that had been primary then becomes a secondary alarm host.

Action

Step	Action
1	Log in to the operations controller (OPC) and open the Host Provisioning Manager tool. If you do not know how to do this, see the procedures in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A. *The main window of the Host Provisioning Manager tool appears.*
2	To display the chooser menu, press **Ctrl_L /** (or Keypad **3**). *The chooser menu appears showing the RFTs in the OPC span of control.*
3	Use the arrow keys to move to the RFT you want, then press **Space** (or Keypad **0**). *The list of hosts shows the hosts that have been provisioned on the selected RFT. In addition, it indicates which host is the primary alarm RFT.*
4	Move to the host that you want to make the primary alarm host, then press **Ctrl_A** (or Keypad **0**).
5	To display the list item menu, press **Ctrl_L** (or Keypad **Enter**). *The list item menu for the list appears.*
6	Move to the Make Primary command, then press **Space** (or Keypad **0**). *A confirmation dialog appears for you to confirm the selected Host as the primary alarm host.*

—continued—

Procedure 4-3 (continued)
Making a host the primary alarm host

Step	Action
7	Tab to the OK button, then press **Ctrl_A** (or Keypad **0**) to make the selected host the primary alarm host. (If you do not want to make the selected host the primary alarm host, select the Cancel button.)
	The selected host in the Provisioned Hosts list becomes the primary alarm host.
8	To close the tool, complete the instructions in the following table:

To	Press
display the window menu	**Ctrl_L W** (or Keypad **6**) *The window menu appears.*
exit	**Space** (or Keypad **0**) *The tool closes.*

—end—

Procedure 4-4
Provisioning default connections on single-ended systems

Use this procedure to provision nodal default cross connections for terminal NEs that are not in any configuration, such as CServers or single-ended RFTs.

Action

Step	Action
1	Open the Commissioning Manager and Connection Manager tools with read/write privileges. If you do not know how to do this, see the procedures in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.
	The Connection Manager main window appears.
2	To display the Options menu, press **Ctrl_L T**, then press **Shift +**.
	The View Options menu appears.
3	Move to the Manage Default Cross Connects command, then press **Space** (or Keypad **0**).
	The Manage Default Cross Connects dialog appears.
4	In the Network Element field, press **Ctrl_L /** (or Keypad **3**) to display the chooser menu.
	The chooser menu appears, listing the available NEs.
5	Use the down arrow key to move to the NE you want (on the TBM shelf), then press **Space** (or Keypad **0**).
	The NE appears in the Network Element field. The Shelf Function and Transmission Rate fields are automatically filled in for the selected NE. The Provision End-to End Default Connections button is activated.
	Note: The Provision End-to-End Default Connections button changes to a Convert Nodal Default Connections button if you did not follow the requirements of this procedure and provisioned nodal default connections before putting the FCOT and RFT into a point-to-point configuration. For this situation, select the Convert Nodal Default Connections button to convert the existing nodal connections for the network elements into end-to-end connections. After you select the Yes command indicating you want to proceed, the converted connections appear in the Connection Manager main window.

—**continued**—

Procedure 4-4 (continued)
Provisioning default connections on single-ended systems

Step	Action
6	Tab to the Provision End-to-End Default Connections button, then press **Ctrl_A** (or Keypad **0**).
	A confirmation dialog appears.
7	Tab to the Yes button, then press **Ctrl_A** (or Keypad **0**).
	After you provision the default connections, a dialog appears.
8	Tab to the OK button, then press **Ctrl_A** (or Keypad **0**).
	The Manage Default Cross Connects dialog appears listing the default connections.
9	Tab to the Done button, then press **Ctrl_A** (or Keypad **0**).
	The Connection Manager main window appears.
10	To close the Connection Manager tool, press **Esc)**, or do the following:

To	Press
display the window menu	**Ctrl_L W** (or Keypad **6**)
	The window menu appears.
exit	**Space** (or Keypad **0**)
	The User Session Manager appears.

Step	Action
11	To select the Exit command, press **Space** (or Keypad **0**).
	A confirmation dialog appears.
	Note: This dialog appears only if a backup OPC exists. If a backup OPC does not exist, the Configuration Manager main window appears with the new configuration listed in the configuration list.
12	To transfer the new configuration data to the backup OPC, tab to the Yes button, then press **Ctrl_A** (or Keypad **0**). If you do not want to transfer the configuration data to the backup OPC, select the No button.
	The warning dialog appears, prompting you to confirm your request.

—**end**—

Procedure 4-5
Setting the network synchronization

Timing of AccessNode systems can be achieved in different ways, as described in *Configuration and Equipment Description*, 323-3001-100, in *Description*, Volume 2A. An ESI may be required at a particular NE, depending on the shelf function, the transport optics, and the application.

Action

Step	Action
1	Log into the Network Element User Interface (NEUI).
	The Network Element Status screen is displayed.
2	From the Edit Shelf Equipment screen, select the 'txc' clock source:
	Note: For the TBM shelf, enter:
	eq sh; edit; clocksrc esi↵
	y ↵
	Note: For the ABM shelf, enter:
	eq sh; edit; clocksrc triblinetimed↵
	y ↵
	The Clock Source field displays the following:
	`TribLineTimed`
3	If the new clock source is ESI, display the ESI Equipment screen for the active ESI unit by entering:
	equipmnt esi <circuit pack> ↵
	where
	<circuit pack> active ESI unit: **g1** or **g2**

—end—

Procedure 4-6
Provisioning DS1 facility assignments

Use this procedure to add, view, and change the facility assignments of DS1s connected to transport interface card (TIC) port 1 of a remote fiber terminal (RFT) in DS1-fed AccessNode systems. The TIC port 1 terminates up to 28 DS1 facilities.

Use the Manage Facility Assignments dialog in the Connection Manager tool to select a network element (NE) in DS1-fed systems. For the selected NE or NE pair, a list of existing facility assignments appears. You can change or unassign these assignments, or add new assignments. (To change DS13 facility assignments, see *Provisioning and Operations Procedures*, 323-3001-310, in *Operations, Administration, and Provisioning*, Volume 4B.)

> **CAUTION**
> **Risk of equipment damage**
> Before unassigning the last two DS1 facilities to a switch, deprovision all subscriber lines to the switch. Do not unassign a DS1 facility while it is still in service. If the link terminates at the DMS-100 SuperNode, the link must first be removed from Subscriber Carrier Module-100 Access (SMA) table RDTINV.

Each DS1 facility assignment includes the following information:

- the facility endpoints or virtual tributary number within AccessNode

- the type of external termination (TR-08, GR-303 DMS/MVI, DS1 tandem, virtual line concentrating module (VLCM).

  — TR-08 and GR-303 are Bellcore standards describing generic interfaces to switches.

  — GR-303 MVI is the Nortel Networks feature on AccessNode that supports the GR-303 (and any GR-303 compliant LDS) multivendor interface to other vendors' switches (for example, Lucent 5ESS and Siemen's EWSD).

  — GR-303 DMS is the Nortel Networks feature on AccessNode that supports the GR-303 standard functionality *plus enhancements* on DMS-100 SuperNode switches.

  — DS1 tandem services are non-switched and non-locally switched connections to the Special Services Digital Network (SSDN).

—continued—

Procedure 4-6 (continued)
Provisioning DS1 facility assignments

— VLCM is a link that interfaces the AccessNode to a DMS-10 switch. The AccessNode emulates a remote line concentrating module (RLCM). For a translation table that shows how AccessNode lines translate to lines on the DMS-10NA switch, see *Line Card Provisioning Procedures*, 323-3001-315, *Operations, Administration, and Provisioning*, Volume 4B.

- a unique link name (not required for DS1 tandem), that includes both the switch common language location identifier (CLLI) and integrated digital terminal (IDT) number, or the GR-303 interface group and link number, or the TR-08 system number and link number

Requirements

Before starting this procedure, you must do the following:

- Make sure the physical connections from the SMA to network element DS1 ports match the datafill of the facility assignment. For example, if the datafill maps G1 port 1 to SMA x link 10 and G2 port 1 to SMA x link 11, make sure the connections are in place. If the datafill and the connections do not match, there are no alarms and the DS1 facility appears to be in service (IS), but there will be maintenance failure and no dial tone on lines provisioned over the connections. See step 11 on page 4-19 for more information.

- Provision a host for GR-303 DS1s if you desire a GR-303 facility assignment.

Action

Step	Action
1	Log in to the OPC and open the Connection Manager tool.
	If you do not know how to do this, see *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.
	The Connection Manager main window appears.
2	To display the Options menu, press **Ctrl_L T**, then press **Shift +**.
	The Options menu appears.
3	To select the Manage facility assignments command, press **Space** (or Keypad **0**).
	The Manage Facility Assignments dialog appears.

<div align="center">

—continued—

</div>

Procedure 4-6 (continued)
Provisioning DS1 facility assignments

Step	Action
4	In the End NE A field, press **Ctrl_L /** (or Keypad **3**) to display the chooser menu.
	The chooser menu appears, listing the available NEs.
5	Use the down arrow key to move to the NE you want, then press **Space** (or Keypad **0**).
	The NE appears in the End NE A field.
6	Select a single-ended system.
	The same RFT automatically appears in the End NE Z field.
7	Move to the DS1 for which you want to change the assignment, then press **Ctrl_A** (or Keypad **0**).
8	To display the List item menu, press **Ctrl_L** (or Keypad **Enter**).
	The List item menu for the selected facility appears.
9	Change the assignment for the facility.

If you want to change the facility assignment to	Then go to
tandem service	step 10
GR-303 DMS or GR-303 MVI service	step 11
TR-08 service	step 12
VLCM service	step 14
unassigned	step 17

10 To change the facility assignment to tandem service:

a. Move to the Assign as Tandem command, then press **Space** (or Keypad **0**).

A confirmation dialog appears informing you that the selected DS1 will be changed to Tandem.

b. Tab to the OK button, then press **Ctrl_A** (or Keypad **0**).

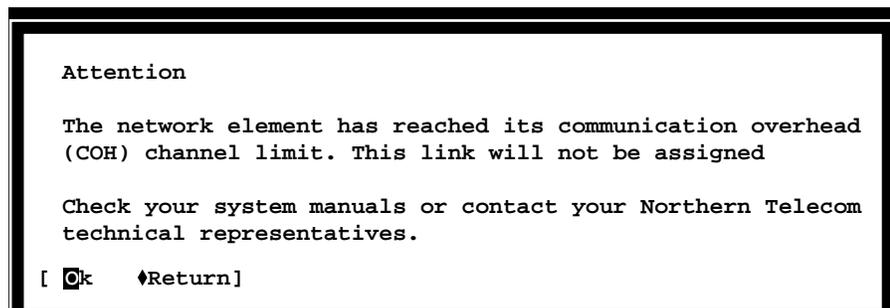*The DS1 in the Facilities list on the main window changes to Tandem.*

If you want to	Then go to
change another assignment	step 5
exit from the Manage Facility Assignments dialog	step 18

—**continued**—

Procedure 4-6 (continued)
Provisioning DS1 facility assignments

Step	Action

11   To change the DS1 assignment to GR-303 DMS or GR-303 MVI service:

   a. Move to one of the Assign as GR-303 commands, then press **Space** (or
   Keypad **0**).

   The GR-303 facilities dialog appears.

   b. Tab to the IG Number field, then press **Ctrl_L /** (or Keypad **3**) to display
   the chooser menu.

   The chooser menu appears.

   Note: The host must be defined using the OPC Host Provisioning Manager
   tool before the host name appears in the list.

   c. Move to the IG number you want, then press **Space** (or Keypad **0**).

   The host name appears in the Host Name field, the IDT number appears
   in the IDT number field, and a link number appears in the RDTLink
   Number field.

   The host name and IDT number identify the IG to the system.

   The RDTLink Number assigned to the DS1 port must match the RDTLink
   number assigned to the port (SMA port for a DMS) to which it is physically
   connected. Table RDTINV on the Host contains the RDTLink Number to
   the port pairings. This number is the next available logical line number for
   the Host.

   d. Tab to the OK button, then press **Ctrl_A** (or Keypad **0).**

   A warning screen appears.

   e. Press **Ctrl_A** (or Keypad **0**) on the OK button again**.**

   The OPC requests that the network element create the links.

   If the following message appears, the network element cannot assign
   more links because the limit of 31 DS0 links have been assigned.

SC-10189

```
 Attention

 The network element has reached its communication overhead
 (COH) channel limit. This link will not be assigned

 Check your system manuals or contact your Northern Telecom
 technical representatives.

[ ▪Ok    ♦Return]
```

—continued—

Procedure 4-6 (continued)
Provisioning DS1 facility assignments

Step	Action

f. A network element must have two links assigned to it before it can communicate with the switch. Links one and two are used for messaging and traffic. Links three and higher are used only for traffic.

After you assign the first two links, press **Ctrl_T 0** to login to the network element on which you just assigned the links.

The Main Session Manager command menu appears.

g. Use the down arrow to move to NE Login Mgr.

The Network Element login Manager appears.

h. Select the network element you assigned the links for, then enter **fa comm; ports eoc↵**.

The Facility Comm EOC screen appears.

i. Look on the screen to see if the first two links were created.

If the links	Then
were created	go to step 11j.
were not created	contact your Nortel Networks technical representative.

j. Return to the Connection Manager.

If you want to	Then go to
change another assignment	step 5
exit from the Manage Facility Assignments dialog	step 18

12 To change the DS1 assignment to TR-08 service:

a. Move to the Assign as TR-08 command, then press **Space** (or Keypad **0**).

The TR-08 facilities dialog appears.

b. Tab to the System Number field, then press **Ctrl_L /** (or Keypad **3**) to display the chooser menu.

c. Move to the system number you want, then press **Space** (or Keypad **0**).

The Link Id is filled in with a suggested letter.

If you	Then go to
want to change the suggested Link Id	step 12d.
do not want to change the Link Id	step 12c.

—**continued**—

Procedure 4-6 (continued)
Provisioning DS1 facility assignments

Step	Action

d. Tab to the Link Id field, then press **Ctrl_L /** (or Keypad **3**) to display the chooser menu.

The chooser menu appears.

Note: Only TR-08 links (A, B, C, or D) that have not yet been selected are displayed.

e. A network element must have two DS1 links assigned to it before it can communicate with the switch. Links one and two are used for messaging and traffic. Links three and higher are used only for traffic.

After you assign the first two DS1 links, press **Ctrl_T 0** to login to the network element on which you just assigned the DS1 links.

The Main Session Manager command menu appears.

f. Use the down arrow to move to NE Login Mgr.

The Network Element login Manager appears.

g. Select the network element you assigned the DS1 links for, then enter **fa comm; ports eoc↵**.

The Facility Comm EOC screen appears.

h. Look on the screen to see if the first two DS1 links were created.

If the links	Then
were created	go to step 13a.
were not created	Contact your Nortel Networks technical representative.

13 To close the Connection Manager tool, press **Esc)**, or do the following:

a. Return to the Connection Manager.

If you want to	Then go to
change another assignment	step 5
exit the Manage Facility Assignments dialog	step 18

b. Move to the Link Id number you want, then press **Space** (or Keypad **0**).

The A-link is allowed only on TIC VT1.5s 1, 5, 9, 13, 17, 21, and 25.

The first link provisioned in a system must be the A-link, which carries the derived data link (DDL). Subsequent links can be B, C, or D.

c. Select the OK button if you want to initiate the assignment of the TR-08 service for the selected DS1.

The assignment of the DS1 in the Facilities list in the main window is changed to the TR-08 system number (1 to 7) and link A, B, C, or D.

—**continued**—

Procedure 4-6 (continued)
Provisioning DS1 facility assignments

Step	Action

Note: To use TR-08 systems 8 to 21, you must use the Nodal Connection Manager tool (see *Nodal Connection Manager Quick Reference Guide*).

14   To change the DS1 assignment to VLCM service:

    a.   Use the arrow keys to move to the Assign as VLCM command, then press **Space** (or Keypad **0**).

    The Assign as VLCM dialog appears.

    b.   In the System Number field, press **Ctrl_L** (or Keypad **3**) to display the chooser menu.

    c.   Use the arrow keys to move to system number 1, then press **Space** (or Keypad **0**).

    Note: You must select system number **1** to **2**.

    d.   Tab to the Switch Port Number field, then press **Ctrl_L** (or Keypad **3**) to display the chooser menu.

    The chooser menu appears.

    e.   Use the arrow keys to move to the switch port you want, then press **Space** (or Keypad **0**).

    The switch port number appears in the Switch Port Number field.

Note: Ports 0 and 3 are reserved as signaling links. One of these ports must be provisioned if you want to perform line/loop testing. When you provision port 0 or 3, a dialog appears. The dialog allows you to assign a remote maintenance module (RMM) channel to the signalling link so you can perform line/loop testing.

15   Tab to the OK button, then press **Ctrl_A** (or Keypad **0**).

The DS1 in the facilities list on the main window changes to VLCM.

If you want to	Then go to
change another assignment	step 5
exit from the Manage Facility Assignments dialog	step 18

16   Tab to the OK button, then press **Ctrl_A** (or Keypad **0**).

The DS1 in the facilities list on the main window changes to Data Direct

If you want to	Then go to
change another assignment	step 5
exit from the tool	step 18

—continued—

Procedure 4-6 (continued)
Provisioning DS1 facility assignments

Step	Action
17	To remove the facility assignment:

a. Move to the Unassign command, then press **Space** (or Keypad **0**).

A confirmation dialog appears informing you that the selected DS1 will have its current assignment removed.

b. Tab to the OK button, then press **Ctrl_A** (or Keypad **0**).

The assignment in the Facilities list in the main window is removed (changed) to Unassigned.

> **CAUTION**
> **Unexpected busy tone**
> Removing a facility assignment at the AccessNode without removing the corresponding link at the switch can produce a busy tone when your subscriber dials an idle circuit.

If you want to	Then go to
change another assignment	step 5
exit from the tool	step 18

18 To close the Manage Facility Assignments dialog, tab to the Done button, then press **Ctrl_A** (or Keypad **0**).

The Connection Manager main window appears.

19 To close the Connection Manager tool, press **Esc)**, or do the following:

To	Press
display the window menu	**Ctrl_L W** (or Keypad **6**) *The window menu appears.*
exit	**Space** (or Keypad **0**)

If a backup OPC	Then
does not exist	*The User Session Manager appears.*
does exist	*A confirmation dialog appears prompting you to transfer any connection changes to the backup OPC.* Tab to the Yes button, then press **Ctrl_A** (or Keypad **0**). *The User Session Manager appears.*

—end—

Procedure 4-7
Unassigning call reference values

Use this procedure to unassign call reference values (CRVs) for MVI switches. This procedure is necessary if you plan to use OPS/INE to assign CRVs rather than using the default settings.

For more information on the MVIPROV CI tool, see *Line Card Provisioning Procedures*, 323-3001-315, in *Operations, Administration, and Provisioning*, Volume 4B.

Requirements

A GR-303 MVI host switch has been added to the remote fiber terminal (RFT) data using the OPC Host Provisioning Manager tool.

Action

Step	Action
1	Log in to the network element user interface.
	The Network Element Status screen appears.
2	Type the following:
	quit all ↵
3	Start the MVIPROV CI tool by entering:
	mviprov ↵
	The MVIPROV prompt appears.

Unassigning call reference and IG values

Step	Action
4	Unassign the call reference values by entering:
	nilcrv <edit method> ↵

where <edit method>		
is:	**slot <shelftype> <shelf #> <slot #> <circuit #>**	
	where:	
	<shelftype>	**CDS**, **ANX**, or **UE**
	<shelf #>	**1** to **7** for CDS, **1** to **28** for ANX, **1** to **7** for UE
	<slot #>	**1** to **96** for CDS, **1** to **48** for ANX, **1** to **16** for UE
	<circuit #>	**1** to **24** for UE, not applicable to CDS or ANX
—continued—		

—continued—

Procedure 4-7 (continued)
Unassigning call reference values

Step   Action

where <edit method>	
or:	**range <shelftype> <start shelf #> <start slot #> <start circuit #> <end shelf #> <end slot #> <end circuit #>** where: <shelftype> **CDS**, **ANX**, or **UE** <start shelf #> **1** to **7** for CDS, **1** to **28** for ANX, **1** to **7** for UE <end shelf #> <start slot #> **1** to **96** for CDS, **1** to **48** for ANX, **1** to **16** for <end slot #> UE <start circuit #> **1** to **24** for UE, not applicable to CDS or ANX <end circuit #> ***Note:*** The "start" number must be less than or equal to the corresponding "end" number.
or:	**CRV <CRV #> <IG #>** where: <CRV #> **1** to **2048** <IG #> **1** to **5**
or:	**CRV_range <start CRV #> <end CRV #> <IG #>** where: <start CRV #> **1** to **2048** <end CRV #> <IG #> **1** to **5** ***Note:*** The "start" number must be less than or equal to the corresponding "end" number.

The edit method and IG appear. Confirmation is requested.

5   Confirm or cancel the command by entering:

y ↵ or **n** ↵

If confirmed, the command is executed.

—**continued**—

Procedure 4-7 (continued)
Unassigning call reference values

Step	Action

Listing unassigned call reference and IG values

6   List the call reference values by entering:

querynil ↵

The list of unassigned CRVs appears. You can advance to the next screen of information by pressing Return.

Listing the MVIPROV CI commands

7   View the list of MVIPROV CI commands by entering:

help ↵

The list of MVIPROV CI commands appears.

8   Return to the network element user interface by entering:

fwp ↵

—end—

Testing the equipment

This chapter describes the steps required to enable testing of AccessNode IDLC lines from the DMS-100 MAP position using the Integrated Remote Test Unit (IRTU) located at the AccessNode.

Procedures in testing the equipment

The following table lists the procedures in this chapter. These procedures guide you through testing the equipment.

Procedure	Page
5-1 Datafilling the RDTINV table	5-4
5-2 Datafilling the LNINV table	5-6

Description

The IRTU is an integrated test head for Line/Loop testing of all AccessNode narrow and wide band services.

Map IRTU provides access from the switch to the remote metallic test equipment residing in the AccessNode. Map IRTU replaces the multi-line test unit (MTU) and test bypass pair (TBP) in the DMS-100, or an external remote test unit (ERTU) at the AccessNode.

The IRTU can emulate the MTU and digital remote test unit (DRTU). The DRTU is one type of ERTU. By eliminating the TBP and MTU, the IRTU removes distance limitations and electrical deviations created by the TBP and the need for a metallic path and its associated hardware.

Testing

The IRTU has two analog test heads, remote test unit 1 (RTU 1) and remote test unit 2 (RTU 2). Before you can begin testing, you must gain access to the line under test through the metallic test access unit (MTAU) and the metallic test access path termination (MTAPT).

A permanent correlation exists between the RTU and the test access point (TAP). RTU 1 is connected to TAP 1 and RTU 2 is connected to TAP 2.

The IRTU provides an interface to internal and external testing systems. This chapter describes only the internal test system (for example, the DMS-100 MAP terminal). The IRTU provides MTU emulation to perform line maintenance tests initiated from the MAP terminal.

Figure 5-1 shows an example of an internal test system.

Figure 5-1
Internal IRTU Interface
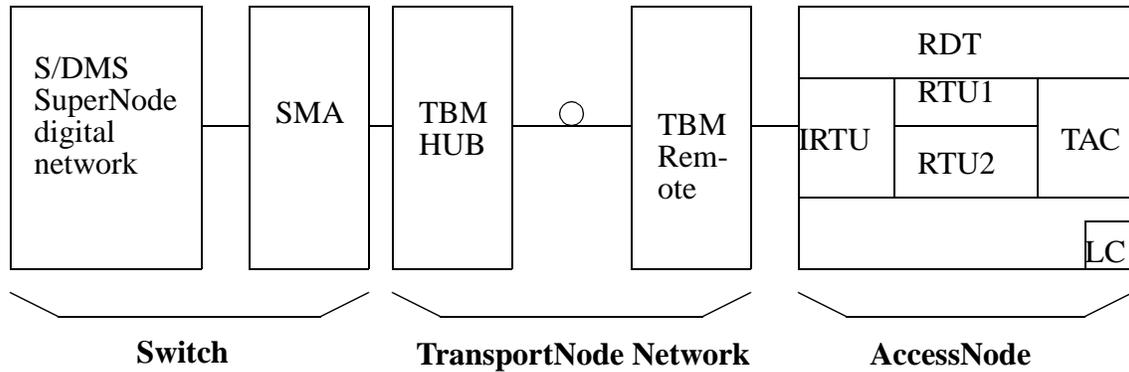
For a more complete description of the various internal and external testing configurations, refer to NTP 297-8521-550, *SCM-100 Access Maintenance Manual* section on "Trouble isolation and correction" under Integrated Remote Test Unit. If you are using SMA2, refer to NTP 297-8321-550, *Expanded Subscriber Carrier Module-100 Access Maintenance Manual*.

Control and talk/monitor paths

An ERTU device requires control and talk or monitor paths which are provided using line cards. The control path is used to send commands to the test head. The talk or monitor path is used to monitor or talk to the line under test. For the IRTU, this functionality is provided by the IRTU line cards (ILC) residing in the AccessNode. The ILC talk path is required for MAP display-based MONLTA and TALKLTA connections.

Table RDTINV

ILC Provisioning and RDTINV Table Control for IRTU provide table changes for the addition of the IRTU line card and virtual IRTU line card for the AccessNode. The fields affected by this feature are in field MTSTACPT. Completion of field MTSTACPT and installation of the IRTU card activates IRTU access.

Table LNINV

To provision the Integrated Line Card (ILC), use **RDTILC** as the value for field CARDCODE. The following is a list of new card types for field CARDINFO:

- **ILC1C** - ILC control path for test head 1
- **ILC1T** - ILC talk path for test head 1
- **ILC2C** - ILC control path for test head 2
- **ILC2T** - ILC talk path for test head 2

ILCs provide origination and termination points for maintenance functions. Because ILCs represent a maintenance function and no service capability, SERVORD will only allow a directory number and one flat rate (1FR) service for all IRTU line card creations.

Because the ILC is a virtual concept, no line card is associated with the IRTU line at the AccessNode. However, an empty copper distribution shelf slot must be reserved for each ILC. Provisioning an ILC on an occupied slot at the AccessNode will result in a mismatch condition at the AccessNode.

Procedure 5-1
Datafilling the RDTINV table

Use this procedure to datafill the RDTINV table in the DMS switch.

Requirements

The following requirements must be met:

- DMS-100 Running BCS37 or later
- RDTINV options are provisioned
- a valid equipment configuration datafilled on the switch side
- AccessNode System running AN08 software or later
- TAC card and IRTU card present and In-Service at the AccessNode RFT
- provisioned Integrated Line Card (ILC) on AccessNode for Monitor commands

Action

Step	Action
1	Assign test heads 1 and 2 (to be used with the IRTU) from the MAP position by datafilling the test head fields shown in Table 5-1 below.

Table 5-1
RDTINV Fields for MAP IRTU Testing

Field	Test Head 1	Test Head 2
TSTUTTYP	IRTU	IRTU
RTUNUM	RTU1	RTU2
TSTHDUSER	MAPIF	MAPIF
ALTUSE	N	N
TSTACCPA	TAP1	TAP2
SCSDUSED	N	N

Note: The IRTU-related fields are the same for both SMA and SMA2.
Figure 5-2 on page 5-5 shows table RDTINV datafilled for use with the IRTU.

—continued—

Procedure 5-1 (continued)
Datafilling the RDTINV table

Step	Action

Figure 5-2
Table RDTINV datafilled for the IRTU

```
>table rdtinv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: RDTINV
>pos n115 1 0
N115  01 0   29     SMA   6 115                    $
             $                    $
  RFT 1  7 1 96                Y
              (IRTU RTU1 MAPIF N TAP1 N ) (IRTU RTU2 MAPIF N TAP2 N )$
                                  ( 1 13) ( 2 15)$
   N        STDLN            S
                                      $
(NETWORK_ID 1) (SYSTEM_ID 1) (NETWORKELEMENT_ID 115)
(EQUIPMENT_ID 1) $
```

Note: For a more detailed description of the fields in table RDTINV, refer to the following NTP sections for SMA and SMA2, respectively:

- 297-8001-350, *North American DMS-100 Translation Guide,* Volume 19

- 297-8321-8152, *Extended Peripheral Module Translations Reference,* Volume 2

—end—

Procedure 5-2
Datafilling the LNINV table

Use this procedure to datafill the LNINV table. Table LNINV must be datafilled for the Integrated Line Card (ILC), which is the *virtual* line card that emulates control, talk, and monitor path functionality.

For a more detailed description of the datafill for Table LNINV, refer to NTP 297-8321-8152, *Extended Peripheral Module Translations Reference*, Volume 2.

Requirements

The following requirements must be met:

- DMS-100 running BCS37 or later
- RDTINV options provisioned
- a valid equipment configuration datafilled on the switch side
- AccessNode System running AN08 software or later
- TAC card and IRTU card present and In-Service at the AccessNode RFT
- provisioned Integrated Line Card (ILC) on AccessNode for Monitor commands

Action

Step	Action
1	Provision the control and talk paths for test heads 1 and 2 by entering: **table lninv**

—continued—

Procedure 5-2 (continued)
Datafilling the LNINV table

Step	Action

2   Enter the following information:

add n115 1 0 <shelf> <slot> <rdtilc> stdln working n nl n <card> y y

where

<shelf>   AccessNode shelf #

<slot>   AccessNode (line card?) slot #

<rdtilc>   value to be entered for CARDCODE field

<card>   card type for field CARDINFO

- **ilc1c** = ILC control path for test head 1
- **ilc1t** = ILC talk path for test head 1
- **ilc2c** = ILC control path for test head 2
- **ilc2t** = ILC test path for test head 2

3   Repeat step 2 until each control path, talk path, and card type for test heads
1 and 2 have been entered, as shown in Figure 5-3 below.

Figure 5-3
Table LNINV datafilled for the ILC

```
>table lninv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: LNINV
>pos n115 1 0 1 93
N115  01 0 0 01 93   RDTILC  STDLN    HASU  N NL  N        ILC1C
>list 4
        LEN    CARDCODE PADGRP  STATUS GND BNV MNO        CARDINFO
-------------------------------------------------------------------------------------------------------
N115  01 0 0 01 93   RDTILC   STDLN      HASU   N    NL    N        ILC1C
N115  01 0 0 01 94   RDTILC   STDLN      HASU   N    NL    N        ILC1T
N115  01 0 0 01 95   RDTILC   STDLN      HASU   N    NL    N        ILC2C
N115  01 0 0 01 96   RDTILC   STDLN      HASU   N    NL    N        ILC2T
```

—continued—

Procedure 5-2 (continued)
Datafilling the LNINV table

Step	Action
4	Use SERVORD to assign a DN to the ILCs.

> **servord**
> **new $ 5201593 1fr n115 1 0 1 93 dgt $ yy**
> **new $ 5201594 1fr n115 1 0 1 94 dgt $ yy**
> **new $ 5201595 1fr n115 1 0 1 95 dgt $ yy**
> **new $ 5201596 1fr n115 1 0 1 96 dgt $ yy**

The STATUS field in Table LNINV will change from HASU to WORKING.

<div align="center">—end—</div>

Setting OSS interfaces

This chapter shows you how to set operations support system (OSS) interfaces at a network element (NE).

Do not perform these procedures if adding an NE to an existing span of control.

Procedures in setting OSS interfaces

The following table lists the procedures in this chapter. These procedures guide you through setting OSS interfaces, and need to be performed in order.

Procedure	Page
6-1 Setting the TIDS for a network element	6-2
6-2 Defining and enabling an X.25 configuration	6-5
6-3 Configuring a LAN port	6-11

Procedure 6-1
Setting the TIDS for a network element

Use this procedure to assign or modify the target identifiers (TIDs) for surveillance and provisioning interfaces.

A TID defines a TL1 target identifier and fully supports Bellcore's format for naming network elements. The TID can be up to 20 characters. The following characters are allowed:

A–Z	hyphen (-)	period (.)
0–9	underscore (_)	

No spaces or other characters are allowed.

> *Note 1:* Although the maximum size of each TID field is 20 characters, different operations systems (OS) support different TID sizes. You must therefore define the TID to support the OS that will be establishing connections to your system.

> *Note 2:* This procedure uses the tidmap command. To display help for tidmap, enter:

tidmap↵

Requirements

Before you start this procedure, read the following information about upgrading from previous releases:

• If the previous release did not support 20-character TIDs, the network element names are converted to TIDs. If a network element name was not defined or it contains unsupported characters, the network element ID becomes the default TID.

> *Note:* The automatic TID assignment happens only when you run NMA or OPS. If you look at an operations controller (OPC) where neither NMA or OPS has been run, the TIDs are not defined even though the network element names and IDs are defined.

• If the previous release supported TIDs, the TIDs are preserved.

—continued—

Procedure 6-1 (continued)
Setting the TIDS for a network element

Before you start this procedure, you must meet the following requirements:

- Obtain the network element ID of the network element for which you are assigning the TID.

- Obtain the new TID name.

- Have a user ID and password that access the OPC at the root or admin level.

- Read the command conventions for the CMT or graphical interface. See *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.

Action

Step	Action
1	Log in to the OPC at the root or admin level.
	If you are logging in as an admin user, you must open the UNIX shell tool (in the OPC Admin section) when the User Session Manager dialog appears.
2	To display the current network element ID, network element name, and TID for each network element in the OPC span of control, enter:
	tidmap↵
	A table similar to the following appears:

SC-10125

```
opc> tidmap                     NE Name        NE ID
===============                 ==========     =======
88                                             88
5HDT                            HDT5           5
HDT06                           NE06           6
opc>  ▉
```

Note: Entries appear under TID or NE Name only if the TID or network element name has been defined and you have run NMA or OPS.

—continued—

Procedure 6-1 (continued)
Setting the TIDS for a network element

Step	Action
3	To add or change a TID, enter:
	tidmap -a <network element ID> <TID>↵

where

<network element ID>	current value of the network element ID
<TID>	new value for the TID

4	To verify the changes, enter:
	tidmap↵
5	Exit the UNIX shell by entering:
	exit↵

—end—

Procedure 6-2
Defining and enabling an X.25 configuration

Requirements

The following requirements must be met before performing this procedure:

- Obtain the root or admin user ID and password.

- Obtain the values of the basic parameters that define the X.25 service which is provided by your carrier; these parameters are described in "Appendix C: X.25 interface worksheet" beginning on page 9-1.

- Fill out the X.25 interface worksheet in Appendix C.

Action

Step	Action

1   Log in to the OPC.

If you do not know how to do this, see the procedures in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.

If you are logging in as	Then
root	*The UNIX prompt, opc>, appears.* Enter the following command: **config_port**
admin	*The User Session Manager appears.* Move to the Port Configuration tool, then press **Ctrl_A** (or Keypad **0**).

The Port Configuration main menu appears.

PC-22029

```
Port Configuration Main Menu

1   Query Port Configuration
2   Configure a Service
3   Unconfigure a Service
4   View Config_port file
9   Exit

Enter the number for your selection:█
```

—continued—

Procedure 6-2 (continued)
Defining and enabling an X.25 configuration

Step	Action

2   To display OPC port configuration, enter:

1 ↵

The port configurations appear. If ports 2 and 3 are available, these ports are listed.

3   Record the port configurations, then press **Enter** to return to the main menu.

Configuring a service and X.25

4   Configure a service by entering:

2 ↵

The Configure a service menu appears.

1	Terminal
2	Printer
3	X.25
4	X.3 PAD
5	PPL
8	Return to Main menu
9	Exit

5   Configure X.25 by entering:

3 ↵

The Configure X.25 menu appears.

1	View X.25 parameters
2	Enter X.25 parameters
3	Enable X.25
8	Return to Configure menu
9	Exit

6   View X.25 parameters by entering:

1 ↵

X.25 configuration parameters appear.

—**continued**—

Procedure 6-2 (continued)
Defining and enabling an X.25 configuration

Step	Action

7   Compare the X.25 parameters values on your X.25 interface worksheet with the values on the screen, then press **Return** to return to the configure X.25 menu.

If the values are	Then go to
different	step 8
the same	step 23

8   Enter X.25 parameters by entering:

2 ↵

The following messages and prompts appear. If an X.25 configuration file already exists, you are prompted to confirm the creation of a new one. If necessary, confirm by entering **Y** ↵*.*

```
The X.25 configuration file (/etc/x25init_scc0) already
exists.
Do you want to create a new configuration file? (Yes/No):
yes
moving /etc/x25init_scc0 to /etc/x25init_scc0.bak
/etc/x25init: release_id is "hpx10ac,07/26/93,00:01"
Fri Sep 08:11:59 EDT#Canada 1993
```

To properly configure X.25 you *must* know the following information:

• X.121 Address

• X.25 Programmatic Access Name

• Circuit Table Definition

```
Do you wish to begin configuring X.25 parameter values?
[y/n]:
```
—continued—

Procedure 6-2 (continued)
Defining and enabling an X.25 configuration

Step	Action

Defining parameter values

9 To begin defining parameter values, enter:

y ↵

The following menu appears:

1	Global parameters
2	Level 2 parameters
3	Level 3 parameters
4	IP parameters
5	Display all parameters
6	Exit configuration program and create file
7	Abort configuration program; file will not be created.

10 To select global parameters, enter:

1 ↵

The global parameters appear. Default values are in square brackets following the parameter name. A menu containing two entries appears.

11 To modify global parameters, enter:

1 ↵

Each of the global parameters appears in turn. You can enter a value, or accept the default value by pressing **Return***.*

12 Respond to the prompts as required. To change the default value, enter a new value, then press **Return**. To accept the default value, press **Return**. For parameters that do not have a default, you must specify a value.

After you respond to all displayed parameters, the current values of all global parameters appear, and a menu containing two entries appears.

13 To return to the menu shown in step 9, enter:

2 ↵

14 To select level 2 parameters, enter:

2↵

The level 2 parameters appear. Default values are in square brackets following the parameter name. A menu containing two entries appears.

—**continued**—

Procedure 6-2 (continued)
Defining and enabling an X.25 configuration

Step	Action
15	To modify level 2 parameters, enter:

1 ↵

Each of the level 2 parameters appears in turn. You can enter a value, or press **Return** *to accept the default value.*

16 Respond to the prompts as required. To change the default value, enter a new value, then press **Return**. To accept the default value, press **Return**. For parameters that do not have a default, you must specify a value.

After you respond to all displayed parameters, the current values of all level 2 parameters are displayed, and a menu containing two entries appears.

17 To return to the menu shown in step 9, enter:

2 ↵

18 To select level 3 parameters, enter:

3 ↵

The level 3 parameters appear. Default values are in square brackets following the parameter name. A menu containing two entries appears.

19 To modify level 3 parameters, enter:

1 ↵

Each of the level 3 parameters appears in turn. You can enter a value, or press **Return** *to accept the default value.*

20 Respond to the prompts as required. To change the default value, enter a new value, then press **Return**. To accept the default value, press **Return**. For parameters that do not have a default, you must specify a value.

After you respond to all displayed parameters, the current values of all level 3 parameters are displayed, and a menu containing two entries appears.

21 To return to the menu shown in step 9, enter:

2 ↵

Creating the configuration file

22 To create the configuration file, enter:

6 ↵

The configuration file is created, the program terminates, and the Configure X.25 menu appears.

23 Enable X.25 by entering:

3 ↵

If your hardware configuration supports multiple OPC ports, a message prompting you to select a port appears.

```
Port Number (B, 1, 2, 3):
```

—**continued**—

Procedure 6-2 (continued)
Defining and enabling an X.25 configuration

Step	Action

24 Select a port that is not already configured to enable X.25 on by entering:

> **<port #>**

where

<port #> **B, 1, 2,** or **3**

A confirmation message appears.

```
X.25 operation is being configured on port x.
Do you wish to continue? (Yes/No):
```

25 Confirm by entering:

> **y ↵**

The following message appears:

```
X.25 configuration successful on port x.
Insert the appropriate X.25 cable on port x.
```

The Configure X.25 menu appears after a short period.

Configuring other services or exiting

26 You have defined X.25 parameters and enabled X.25. You can exit or continue defining other services.

If you want to	Then
configure another service (X.3 PAD, PPL (electronic software delivery), terminal, or printer)	Enter: **8 ↵** *The Configure a service menu appears.* Repeat this procedure for that device.
exit	Enter: **9 ↵** *The program ends and the UNIX prompt, opc>, appears.*

—end—

Procedure 6-3
Configuring a LAN port

For the OPC to recognize and support communications with a Nortel Network Manager or an X terminal using the Ethernet port on the OPC faceplate, the OPC Ethernet port must be initialized. Use this procedure to initialize the OPC Ethernet port so that it can communicate with a Network Manager or an X terminal.

Note: The Nortel Network Manager is a software package designed to run on a workstation. For more information on the Network Manager, see *Network Manager User Guide*, 323-4001-050.

Requirements

To complete this procedure, the following requirements must be met:

- Make sure the OPC module is installed and started. Consult the workstation hardware documentation to determine the applicable cabling option.

- Obtain the root password to access the OPC. This should be the OPC you want to initialize.

- Obtain the following identifiers for initializing the OPC to be initialized:

  — the OPC node name (for example: OPCM001P)

  — the OPC Internet Protocol (IP) address (for example: 47.32.130.222)

  — the OPC IP netmask (for example: 255.255.255.0)

- Read the command conventions in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning,* Volume 4A.

  Note: Up to eight characters are allowed for the SYSTEM_NAME variable in the /etc/rc file. X terminal installation fails if this limit is exceeded.

—continued—

Procedure 6-3 (continued)
Configuring a LAN port

Action

Step	Action

1   Log in to the OPC by entering the root user ID and password at the login prompt on a character-mode terminal (CMT).

The UNIX shell opc> prompt is displayed.

Obtaining the OPC IP address

2   Enter the following to change the UNIX directory:

cd /etc

The UNIX shell opc> prompt is displayed.

3   Enter the following to find the internet address and official hostname of the OPC. The IP address and host name is used in later steps; therefore you may want to write down this information.

cat hosts

The following is displayed

```
# The form for each entry is:
# <internet address>    <official hostname>    <aliases>
#
# For example:
# 192.1.2.34     hpfcrm     loghost
#
# See the hosts(4) manual page for more information.
# Note:The entries cannot be preceded by a space.
#     The format described in this file is the correct format.
#     The original Berkeley manual page contains an error in
#     the format description.
#
# 127.1.1.1.     local host     loopback
# 47.32.130.222  batpp222
```

Note: The internet address and official hostname of the OPC appear on the last line of the above example.

—continued—

Procedure 6-3 (continued)
Configuring a LAN port

Step	Action

Starting the Ethernet administration script

4   Start the Ethernet administration script by entering:

/iws/lan/ether_admin ↵

The Ethernet port command list is displayed:

```
1. Initialize and enable the Ethernet port
2. Ethernet port control (enable/disable)
3. X terminals configuration
4. Help
5. Quit
Select one of the above commands [1-5]:
```

5   The Ethernet port must be initialized before it can be enabled or disabled. Select the Ethernet port initialization command by entering:

1 ↵

A message describing the port initialization requirements is displayed, followed by a node name prompt:

```
Enter the nodename:
```

Enter the node name assigned to the OPC.

The node name can be up to a maximum of eight alphanumeric characters. An example of node name is "OPCM001P".

Refer to *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning,* Volume 4A, for information on obtaining the node name assigned to the OPC.

6   Press the **Return** key (↵).

The nodename is checked. If the node name is not in the correct format an error message is displayed, followed by another node name prompt. If the node name prompt reappears, go to step 5.

Once you enter an acceptable node name, an IP address prompt is displayed:

```
Enter the IP address:
```

7   Enter the unique IP address number assigned to the OPC as found in step 3.

The IP address consists of four numbers, each separated by a period. Each number must be greater than or equal to 0, and less than or equal to 255. The IP address in the example is in step 3 on page 6-12 and has the following:"

```
47.32.130.222
```

8   Press the **Return** key (↵).

—continued—

Procedure 6-3 (continued)
Configuring a LAN port

Step	Action

The IP address is checked. If the IP address is not in the correct format, or it is reserved, or already assigned to another OPC, an error message is displayed, followed by another IP address prompt. If the IP address prompt reappears, go to step 7.

Once you enter an acceptable IP address, the netmask prompt is displayed:

```
Enter the netmask [default 255.255.255.0]:
```

9   Enter the netmask number assigned to the OPC.

The default netmask value is 255.255.255.0. You can accept this value by pressing the Return key. If desired, you can enter a new netmask number using the same criteria as the IP address.

10   Press the **Return** key (↵).

The netmask is checked. If the netmask is not in the correct format, an error message is displayed followed by another netmask prompt. If the netmask prompt reappears, go to step 9.

Once you enter an acceptable netmask number, a summary of the Ethernet port initialization values appears, followed by a request to continue with the initialization process:

```
Initializing Ethernet to:
      name: 'OPCM001P'
   address: '47.32.130.222'
   netmask: '255.255.255.0'
Do you wish to continue? [yes;no]:
```

11   Check the initialization values in the summary and verify that they are correct.

If you want to	Then go to
continue the Ethernet port initialization	step 12
discontinue the Ethernet port initialization	step 15

12   Continue the Ethernet port initialization process by entering:

yes ↵

The Ethernet port command list is displayed.

```
1. Initialize and enable the Ethernet port
2. Ethernet port control (enable/disable)
3. X terminals configuration
4. Help
5. Quit
Select one of the above commands [1-5]:
```

—continued—

Procedure 6-3 (continued)
Configuring a LAN port

Step	Action
13	Complete the Ethernet port initialization process by entering: **1** ↵ *The Ethernet port is now initialized.*
14	Reboot the OPC. If you do not know how to do this, refer to *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning,* Volume 4A. *The OPC is now ready to communicate with the Network Manager or X terminal.*
15	Discontinue the Ethernet port initialization process by entering: **no** ↵ *The Ethernet port command list appears.* If you want to reexecute the Ethernet port initialization process, go to step 3.
16	Quit the Ethernet administration script by entering: **5** ↵ *The UNIX shell opc> prompt is displayed.*

<div align="center">—**end**—</div>

Appendix A:
System setup checklist

This appendix has the master copy of the System Setup Checklist. The System Setup Checklist lists the procedures that must be performed and the order in which these procedures should be performed for your configuration.

The System Setup Checklist is three pages long. Each page is on a right-hand page, suitable for photocopying. Complete one copy of page 7-3 and one copy of page 7-5 and 7-7 for each network element (NE) in the system. Insert your measured values as indicated in the form.

You can also use the System Setup Checklist to record the completion of each procedure. If a procedure cannot be successfully completed, list details of any problems you encountered on a separate sheet of paper and attach it to the System Setup Checklist.

SONET Products

System Setup Checklist   Page 1 of 3

System name: _____

System configuration: _____

OPC span of control system name: _____

OPC name: _____

OPC serial number   _____

Customer: _____

Project: _____

COEO/Customer #:   _____

Fiber World Product Release   _____

Tested by: _____

Date: _____

System Setup Checklist (continued)	Page 2 of 3
NE name: _____	
NE location: _____	NEID: _____ _____
NE shelf function: _____ (FCOT, RFT)	Shelf serial number:
NE shelf type: _____ (ABM, TBM)	_____ _____

Procedure and items tested	**Results**
Procedure 2-1 Inspecting the network element	pass _____
Procedure 2-2 Verifying power at the BIP (ABM shelf) (if applicable) battery1/return1 (RFT) battery2/return2 (RFT) battery3/return3 (RFT) battery4/return4 (RFT)	(required: −42 to −56 V dc) _____ V dc _____ V dc _____ V dc _____ V dc
Procedure 2-3 Verifying circuit packs in the ABM shelf	pass _____
Procedure 2-4 Equipping the ABM and CDS shelves with circuit packs	pass _____
Procedure 2-5 Powering up the common equipment (ABM shelf)	pass _____
Procedure 3-1 Detecting and removing existing OPC software	pass _____
Procedure 3-2 Installing software on a local OPC and NE from tape	pass _____
Procedure 3-3 Verifying the OPC serial number	pass _____
Procedure 3-4 Sending a load to a processor	pass _____
Procedure 3-5 Entering system-level data	pass _____
Procedure 3-6 Entering network element commissioning data	pass _____
Note: Attach a copy of your system's configurations from the *Mapper Layouts Planning Guide*, 323-3001-154, in the *Engineering, Configuration, and Ordering Guide*, Volume 1.	
—continued—	

System Setup Checklist (continued)	Page 3 of 3
Procedure and items tested	**Results**
Procedure 3-7 Downloading software to a network element	pass _____
Procedure 3-8 Setting the network element name	pass _____
Procedure 3-9 Transferring data from the primary to the backup OPC	pass _____
Procedure 3-10 Performing a manual NE database backup	pass _____
Procedure 3-11 Setting the time zone, date, or time	pass _____
Procedure 3-12 Setting the time zone at the network element	pass _____
Procedure 4-1 Listing all hosts for an RFT	pass _____
Procedure 4-2 Adding a new host to an RFT	pass _____
Procedure 4-3 Making a host the primary alarm host	pass _____
Procedure 4-4 Provisioning default connections on single-ended systems	pass _____
Procedure 4-5 Setting the network synchronization	pass _____
Procedure 4-6 Provisioning DS1 facility assignments	pass _____
Procedure 4-7 Unassigning call reference values	pass _____
Procedure 5-1 Datafilling the RDTINV table	pass _____
Procedure 5-2 Datafilling the LNINV table	pass _____
—end—	

Appendix B:
Commissioning data record form

This appendix has a blank copy of the Commissioning Data Record Form, suitable for photocopying. Use a copy of this form to keep a permanent record of all commissioning data.

Note: Photocopy these blank forms and keep them for future use.

Commissioning Data Record Form				Page 1 of 2	
System-level commissioning data					
Network name:				Primary OPC	Backup OPC
System name:		Serial #			
System type:		Alias			
OPC name:		Time zone			
Remote OPC commissioning data					
	Primary OPC		Backup OPC		
OPC Name	Serial #	Alias	Serial #	Alias	
Network element commissioning data					
NE #	Shelf type Shelf function	Transm. rate	Shelf serial # Software rel.	NE name NE location	Time zone

—continued—

Commissioning Data Record Form (continued)					Page 2 of 2
NE #	Shelf type Shelf function	Transm. rate	Shelf serial # Software rel.	NE name NE location	Time zone

Appendix C:
X.25 interface worksheet

The X.25 Interface Worksheet displays the X.25 configuration parameters that you can specify. If the default value is appropriate for your installation, you do not have to change it. Do not change default values for

- parameters with the value N/A in the column "Typical OPC value" (these are not used by the OPC port)

- the following parameters: Device name, Programmatic Access Name, and Network Type

The following table lists the X.25 configuration parameters that can be specified. Make sure your network provider supports the values listed in the Typical OPC value column. If not, see "Selected X.25 parameter descriptions" on page 9-3, and select an alternative value. Record the selected value in the table. When performing Procedure 6-2, "Defining and enabling an X.25 configuration" on page 6-5, use the values you have identified.

Table 9-1
X.25 configuration parameters

Parameter	Default value	Typical OPC value	Your value
Global parameters			
X.121 Address	none		
X.121 Packet Address	none	same as X.121 address	
Device Name	/dev/x25_0	/dev/x25_0	
Programmatic Access Name	scc0	scc0	
Level 2 parameters			
Level 2 Window	7	7	
Retransmission timer (T1 ms)	3000	3000	
Idle time (T3 ms)	60000	60000	
—continued—			

Table 9-1
X.25 configuration parameters (continued)

Parameter	Default value	Typical OPC value	Your value
Idle probe timer (T4 ms)	0	0	
Retransmission count (N2)	20	10	
Frame size in octets (N1)	149	263	
IP parameters			
IP address	none	N/A	
IP subnet mask	none	N/A	
Idle timer	600	N/A	
Hold timer	300	N/A	
MTU size	2048	N/A	
Level 3 parameters			
Network type	DTE_84	DTE_84	
Flow control	off	on	
Throughput class	off	on	
Fast select	disabled	disabled	
Reverse charging	disabled	disabled	
PVC packet size in (octets)	128	N/A	
PVC packet size out (octets)	128	N/A	
PVC window size in	2	N/A	
PVC window size out	2	N/A	
PVC throughput class in	11	N/A	
PVC throughput class out	11	N/A	
Default packet size in (octets)	128	128	
Default packet size out (octets)	128	128	
Default window size in	2	2	
Default window size out	2	2	
Default throughput class in	11	10	
Default throughput class out	11	10	
Negotiation packet size in (octets)	128	256	
—continued—			

Table 9-1
X.25 configuration parameters (continued)

Parameter	Default value	Typical OPC value	Your value
Negotiation packet size out (octets)	128	256	
Negotiation window size in	2	2	
Negotiation window size out	2	2	
Negotiation throughput class in	11	10	
Negotiation throughput class out	11	10	
Maximum number of circuits	0	8	
Number of permanent virtual circuit (PVC)	0	0	
Number of switched virtual circuit (SVC)	0	8	
Number of inbound SVC	0	0	
Starting LCI for SVC	not applicable	1	
Number of outbound SVC	0	0	
—end—			

Selected X.25 parameter descriptions

The following descriptions indicate the range of alternative values that selected parameters can accept. These values are useful when your network provider cannot provide the exact service defined by the parameter values listed in Table 9-1 on page 9-1. Select a value as close to the recommended value as possible, unless otherwise noted. This information is not intended to define the function of the parameter. Parameters that are not described below must be specified as shown in the "Typical OPC value" column of the table.

X.121 address

The value for X.121 address is assigned by the network provider. It is a maximum of 14 decimal digits, and can contain no other characters.

Level 2 window

This parameter takes a value within the range of 1 to 7. Use the largest value supported by the network provider, within this range.

Retransmission timer (T1)

This parameter can have a value between 1 000 and 12 000 ms.

Idle timer (T3)

The value of the Idle timer should be greater than the product of the Retransmission timer and the Retransmission count (T1 x N2). It must be less than 13 000 000. A value of 0 disables the timer; otherwise, the minimum value is 1 000 ms.

Idle probe timer (T4)

This parameter can have a value between 0 and the value set for timer T3. A value of 0 disables the timer.

Note: If the timer is disabled, make sure the data circuit is providing a "keep alive signal"; otherwise, the OPC will drop the connection after a specified time interval (approximately 60 seconds).

Retransmission count (N2)

Retransmission count can have a value in the range 0 to 255.

Frame size

Generally, the Frame size takes a value equal to the largest level 3 packet size plus 7. If fast select is disabled and the largest packet size is 128 octets, you can use a value of 149. If fast select is enabled or the maximum packet size is 256 octets, you must use the value 263.

Packet size

Packet size can be 128 or 256. However, you must specify 128 when flow control is off.

Window size

Window size must be in the range 1 to 7. Use the value of 2 only if flow control is on.

Throughput class

Throughput describes the maximum amount of data that can be sent through the network.

The throughput class parameter value must be in the range 3 to 13, and is based on the following table:

Throughput class	Baud rate
13	64000
12	48000
11	19200
10	9600
9	4800
8	2400
7	1200
6	600
5	300
4	150
3	75

Note 1: It is recommended that you set the throughput class at a baud rate equal to the modem setting.

Note 2: For Ports 1 or 3, the maximum baud rate is 9600 (or throughput class of 10); for port 2, the maximum baud rate is 48 000 (or throughput class of 12).

Sample X.25 configuration file

The following page contains the contents of a sample X.25 configuration file named X25INIT_TEMPLATE, which is located in the /etc directory. This file contains X.25 configuration parameters that are typical for the OPC port.

```
#
# X.25 Initialization File
#
#
# Global Parameters
#
x.121                       123456789000
device                      /dev/x25_0
name                        scc0
#
# Level 2 Parameters
#
t1                          3000
t3                          60000
framesize                   263
n2                          10
l2window                    7
#
# Level 3 Parameters
#
networktype                 DTE_84
#
# Circuit Table Definition
#
# LCI                       TYPE        HOW MANY
lci 1                       svc         8
max_circuits                8
#
# Flow Control, Throughput Class, Fast Select and Reverse Charge Settings
#
flowcontrol                 on
thruputclass                on
fast_select_accept          disabled
reverse_charge              disabled
def_inpacketsize            128
def_outpacketsize           128
def_inwindow                2
def_outwindow               2
def_inthruputclass          10
def_outthruputclass         10
neg_inpacketsize            256
neg_outpacketsize           256
neg_inwindow                2
neg_outwindow               2
neg_inthruputclass          10
neg_outthruputclass         10
```

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