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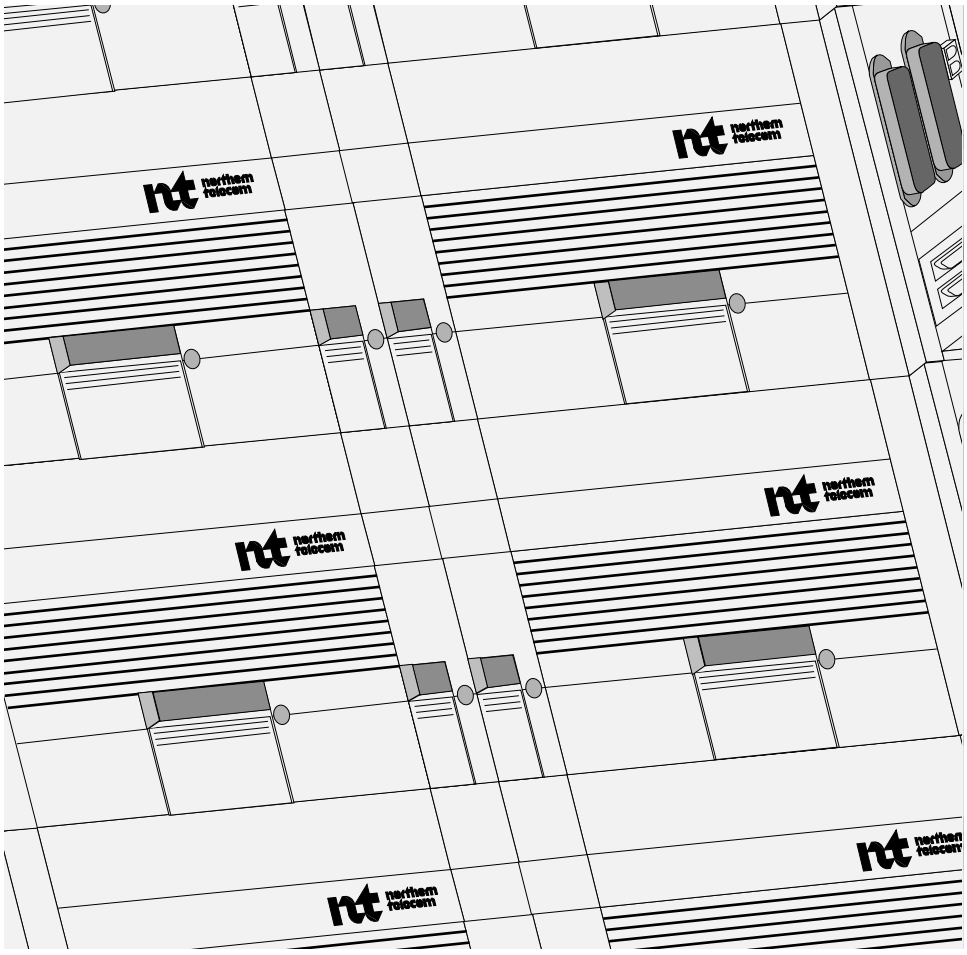
SONET Products

AccessNode

Recovery Procedures

Issue 1.0 February 1999



NORTEL NETWORKS™

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About this document

This document has procedures for manual and automatic recovery of the AccessNode.

Audience

This document is for technicians of telephone operating companies or Nortel Networks, to use when recovering a system from power failure or reload restart.

How to use this document

Use the task list at the beginning of each chapter to point you to the correct procedure and page number. Following the task lists, you need only perform the procedures specific to your recovery.

The information in this document can be performed in any order.

References in this document

This document has references to the following documents.

Commissioning and Testing, Volume 3

Operations, Administration, and Provisioning, Volume 4A

- *OPC User Interface Description,* 323-3001-301
- *Data Administration Procedures,* 323-3001-304

Maintenance, Volume 5C

- *Module Replacement Procedures,* 323-3001-547

Automatic and manual recovery actions

This chapter describes the events that occur when an AccessNode network element automatically recovers from a power failure or from a reload restart.

In addition, this chapter describes two recovery scenarios that require manual intervention after automatic recovery fails to restore a DS1-fed AccessNode (DFA) network element that uses an operations maintenance channel (OMC) link as a software download channel.

Chapter contents

The table below lists the topics in this chapter.

Topic	See
Dead-system recovery	page 1-2
Reload-restart recovery	page 1-2
Flowcharts for automatic and manual recovery	page 1-3

Dead-system recovery

If a network element, in a point-to-point or single-ended AccessNode configuration, fails due to a power outage, recovery is fully automatic when power is restored to the network element. No manual intervention is required.

If a DFA network element with CNet connections to the operations controller (OPC), fails due to a power outage, recovery is fully automatic when power is restored. No manual intervention is required.

If a DFA network element that uses an OMC software download channel, fails due to a power outage, recovery is fully automatic when power is restored unless the MIC non-volatile store (NVS) is failed or corrupted. If the NVS is failed or corrupted, you must recover the network element using a portable OPC.

> ***Note:*** During system recovery, when both processors require a reboot, the red LED on the inactive processor may light and stay lit until the processor has completed loading. In this circumstance, the LED remains lit until both processors have obtained their software loads. The red LED does not indicate a faulty circuit pack under these conditions.

The flowcharts on the following pages illustrate the various stages of the automatic recovery process during a power failure, or during a warm, cold, or reload restart.

Reload-restart recovery

If a network element in a point-to-point or single-ended AccessNode configuration undergoes a reload restart, recovery is fully automatic. No manual intervention is required.

If a DFA network element with CNet connections to the OPC, undergoes a reload restart, recovery is fully automatic. No manual intervention is required.

If a DFA network element that uses an OMC software download channel, undergoes a reload restart, recovery is fully automatic unless the MIC non-volatile store is failed or corrupted and a common equipment circuit pack in the download path is removed during the reload.

For DFA, the common equipment cards in the download path are the DS1/VT mapper, timing and cross-connect card (TXC), transport interface card (TIC), and access interface card (AIC). If the NVS is failed or corrupted and a card in the download path is removed, you must recover the network element using a portable OPC.

The flowcharts on the following pages illustrate the various stages of the automatic recovery process during a power failure or during a reload restart.

Flowcharts for automatic and manual recovery

The flowcharts in this chapter provide a high-level outline of the steps involved in an automatic and manual recovery. The flowcharts shown in the list below can be found on pages 1-4 to 1-6 of this chapter:

- Figure 1-1 – Summary of a dead-system recovery for a DFA remote fiber terminal (RFT) using an OMC software download channel
- Figure 1-2 – Summary of a dead-system recovery sequence for a point-to-point and single-ended AccessNode
- Figure 1-3 – Summary of a reload-restart recovery for a DFA RFT using an OMC software download channel

Figure 1-1
Summary of dead-system recovery for a DFA RFT using an OMC software download channel

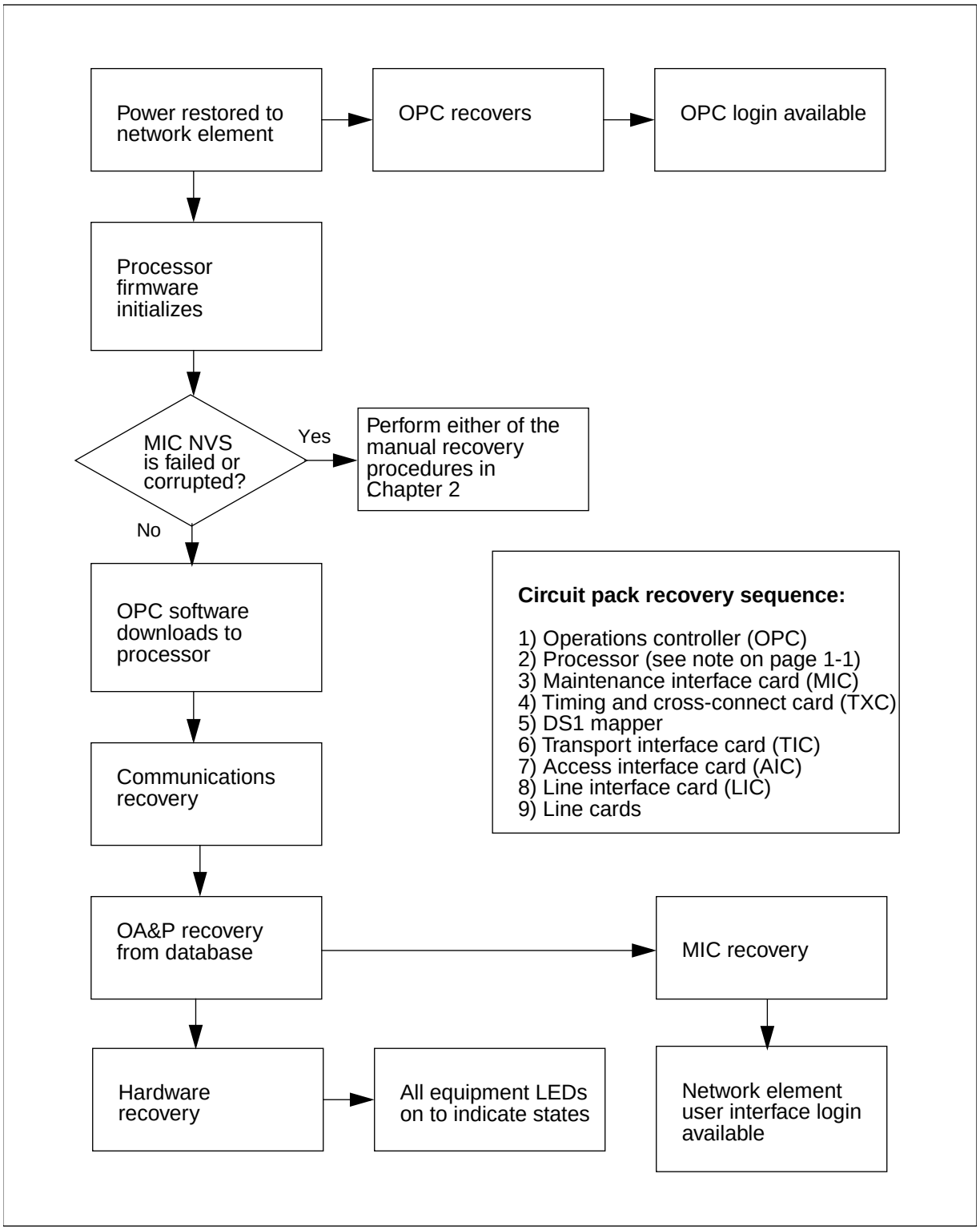


Figure 1-2
Summary of dead-system recovery for point-to-point, single-ended, and ring AccessNode

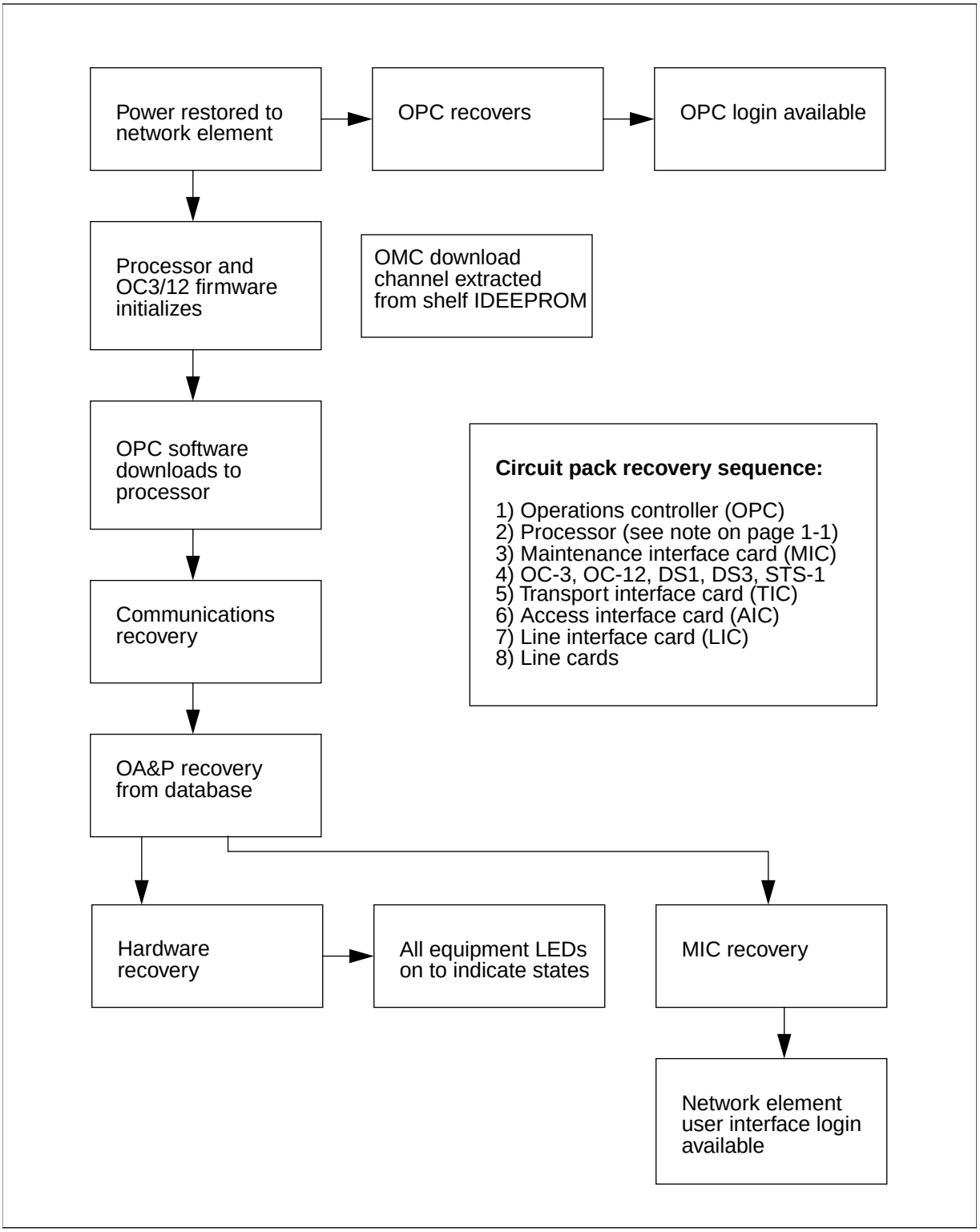
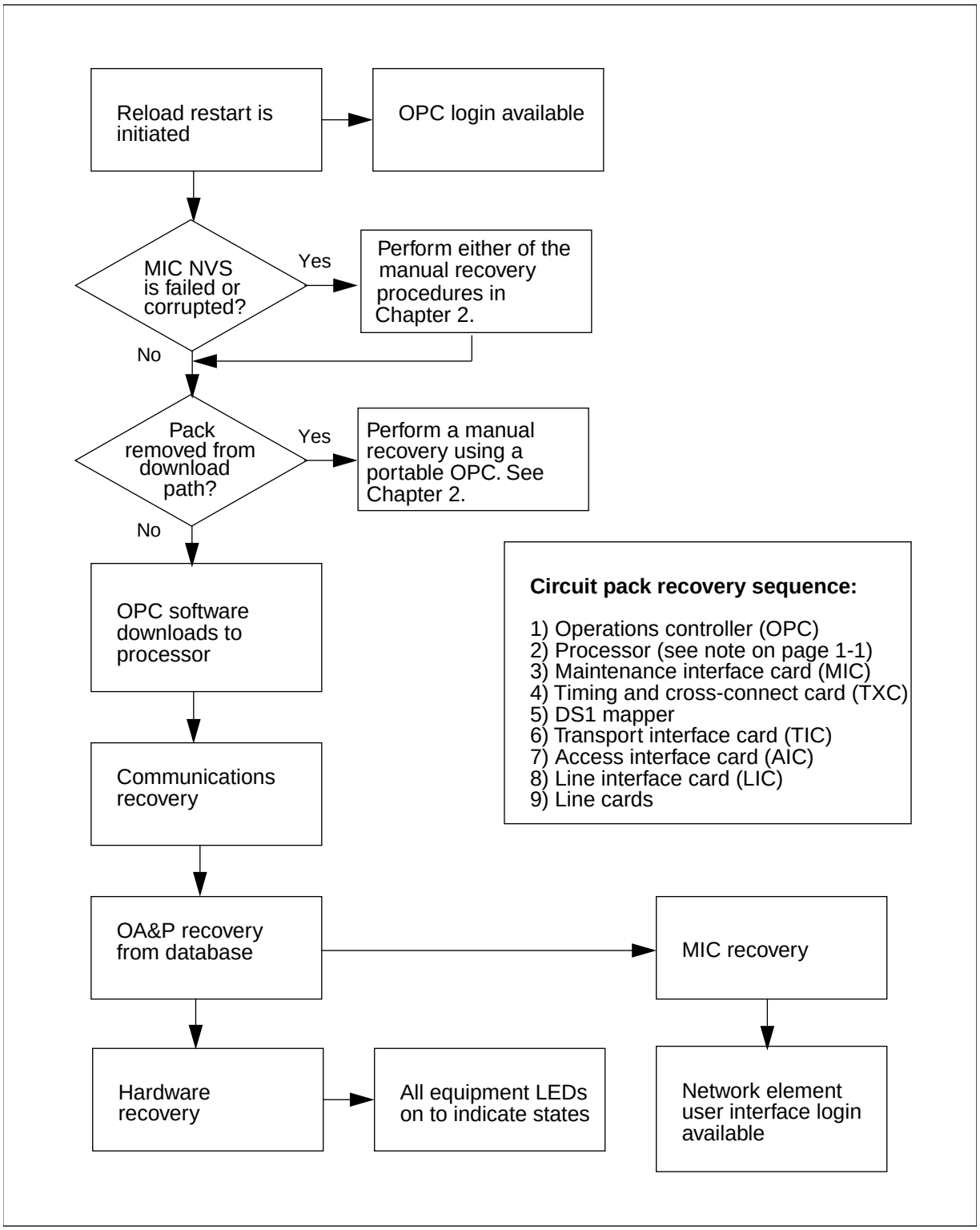


Figure 1-3
Summary of reload-restart recovery for a DFA RFT using an OMC software download channel



Recovering a DFA network element

This chapter contains a procedure which must be used to recover a DS1-fed AccessNode (DFA) network element that has failed to recover automatically during a dead-system recovery or during a reload restart.

The procedure contained in this chapter should only be used to recover a DFA remote fiber terminal (RFT) that uses an operations maintenance channel (OMC) to download software from the operations controller (OPC). Manual intervention is required to recover the operations maintenance channel of a DFA RFT in the following situations:

- MIC non-volatile store (NVS) is failed or corrupted and power to the common equipment shelf is lost
- MIC NVS is failed or corrupted and one or more of the common equipment circuit packs in the software download path is removed or failed (DS1/VT mapper, TXC, TIC, or AIC)

Chapter contents

The following table lists the procedure that you must use to recover the OMC software download channel of a DFA RFT.

If you cannot successfully complete this procedure, contact your next level of support.

Task	Page
System recovery using a portable OPC	2-2

Procedure 2-1
System recovery using a portable OPC

Use this procedure to recover a DFA RFT that utilizes an OMC link to download software from the OPC.

Requirements

Determine the portable OPC serial number. The serial number is on the barcode on the back of the portable OPC, or the bottom right center of the processor mother board.

A portable OPC and CNet cable and VT100/OPC port cable to log into the system line-up and test (SLAT) OPC.

A craftsperson must be available at the central office (where the primary OPC is located), at the remote site (where the problem is located), and at the backup OPC site (to disconnect the backup OPC).

Action

Step	Action
1	If the system already has a backup OPC, disconnect the backup OPC as follows: **a.** Log in to the backup OPC either locally through the OPC port or by means of a remote login. **b.** Shutdown the backup OPC (Halt) and pull it out from the backplane connections. **c.** Record the serial number of the backup OPC. ***Note:*** For details, see the procedure for shutting down the OPC in *Data Administration Procedures*, 323-3001-304, in *Operations, Administration, and Provisioning*, Volume 4A.
2	On the primary OPC, use the Commissioning Manager tool to edit the system data to remove the backup OPC from the system data.
3	At the central office, use a CNet cable to connect a portable OPC to the CNet port of the primary OPC shelf. ***Note:*** For details, see the procedure for connecting a portable OPC to a network element in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.

—continued—

Procedure 2-1 (continued)
System recovery using a portable OPC

Step	Action
4	Verify that the portable OPC is running the same software load as the primary OPC. ***Note:*** For details on checking the software load, see the procedure for deleting or removing existing OPC software in *Commissioning and Testing*, Volume 3. For details on installing software, see the procedure for installing software on a local OPC in *Commissioning and Testing*, Volume 3.
5	Commission the portable OPC as the backup OPC. For details see the procedure for commissioning remote OPCs in *Commissioning and Testing*, Volume 3.
6	Using the Commissioning Manager tool on the primary OPC, edit the system data to indicate the portable OPC as the backup OPC by placing the portable OPC serial number in the field for the back OPC.
7	Transfer OPC data from the primary to the portable OPC. For details, see the procedure for transferring data from the primary to the portable OPC in *Commissioning and Testing*, Volume 3. ***Note:*** This operation transfers the OPC database as well as the network element databases.
8	Using the install_release tool on the primary OPC, transfer the NE loads to the portable backup OPC. For details on using this tool, see *Commissioning and Testing*, Volume 3.
9	Disconnect the portable backup OPC from the primary OPC and shut it down for transport purposes. ***Note:*** For details, see the procedure for shutting down an OPC in *Data Administration Procedures*, 323-3001-304, in *Operations, Administration, and Provisioning*, Volume 4A.
10	Transport the portable backup OPC to the DFA RFT you wish to recover.

—continued—

Procedure 2-1 (continued)
System recovery using a portable OPC

Step	Action
11	Connect the portable OPC to the CNet port of the faulty DFA RFT and log in to the portable OPC through port B. ***Note 1:*** Once connected to the RFT, the portable OPC detects that communications to the primary OPC are down and the state of the portable OPC changes from inactive to active. The portable OPC state is seen using the OPC Status tool. For details, see *OPC User Interface Description*, 323-3001-301, in *Operations, Administration and Provisioning*, Volume 4A. ***Note 2:*** System recovery proceeds automatically. Once OMC link to the primary OPC is re-established, the state of the portable OPC will change from active to inactive. This is indication that the system has properly recovered.
12	Replace the failed maintenance interface card (MIC) as outlined in *Module Replacement Procedures*, 323-3001-547, in *Maintenance*, Volume 5C.
13	Disconnect the portable OPC from the NE, once the network element database has been retrieved from the portable OPC and the portable OPC has become inactive (as indicated by the OPC Status tool.)
14	Verify that the system is recovered by logging in to the DFA RFT and ensuring that all alarms are cleared.
15	Shut down the portable OPC. ***Note:*** For details, see the procedure for shutting down the OPC in *Data Administration Procedures*, 323-3001-304, in *Operations, Administration, and Provisioning*, Volume 4A.
16	Using the Commissioning Manager tool, at the primary OPC, edit the system data to remove the backup OPC from the system data.
17	If the backup OPC was disconnected in step 1, reconnect it by fully inserting it in to the shelf. Wait for it to reboot (approximately 2 minutes).
18	Using the Commissioning Manager tool on the primary OPC, edit the system data to indicate the correct backup OPC.

—end—

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