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Nortel Networks

# OPTera Metro 3500 Multiservice Platform

## System Reconfiguration

Standard Release 12.0 Issue 1 November 2003

***What's inside...***

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# About this document

This document describes how to

- replace the network processor with an ILAN circuit pack
- replace the ILAN circuit pack with a network processor
- replace a DS3x3 mapper with a DS3x12 / DS3x12e mapper
- replace an EC-1x3 circuit pack with an EC-1x12 circuit pack
- replace an OC-3 optical interface with an OC-3x4 optical interface
- add an ADM network element to a linear network
- add a new terminal network element to a linear network
- add a network element to a UPSR
- add a network element to a BLSR
- remove an ADM network element from a linear network
- remove a terminal network element from a linear network
- remove a network element from a UPSR
- remove a network element from a BLSR
- upgrade a fiber span from an OC-3 to an OC-12 line rate
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- convert VT Assigned BLSR connections to Full VT BLSR connections
- convert Full VT BLSR connections to VT Assigned BLSR connections
- move a synchronization boundary
- add an OMX to an in-service DWDM network
- convert an OC-48 UPSR span to an OC-48 UPSR span over DWDM
- add an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM
- remove an OPTera Metro 3500 network element from an OC-48 UPSR over DWDM

- convert an OC-48 linear point-to-point network to an OC-48 linear point-to-point network over DWDM
- convert an OC-48 BLSR span to an OC-48 BLSR span over DWDM
- add an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM
- remove an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM

## Supported software

This document supports the software releases for Nortel Networks OPTera Metro 3500 Multiservice Platform Release 12.0.

## Supported hardware

This document supports the OPTera Metro 3500 shelf.

## Hardware naming conventions

The following naming conventions are used throughout this document to identify the OPTera Metro 3500 hardware:

- The extended shelf processor (SPx) is referred to as the shelf processor.
- The extended network processor (NPx) is referred to as the network processor.

## Audience

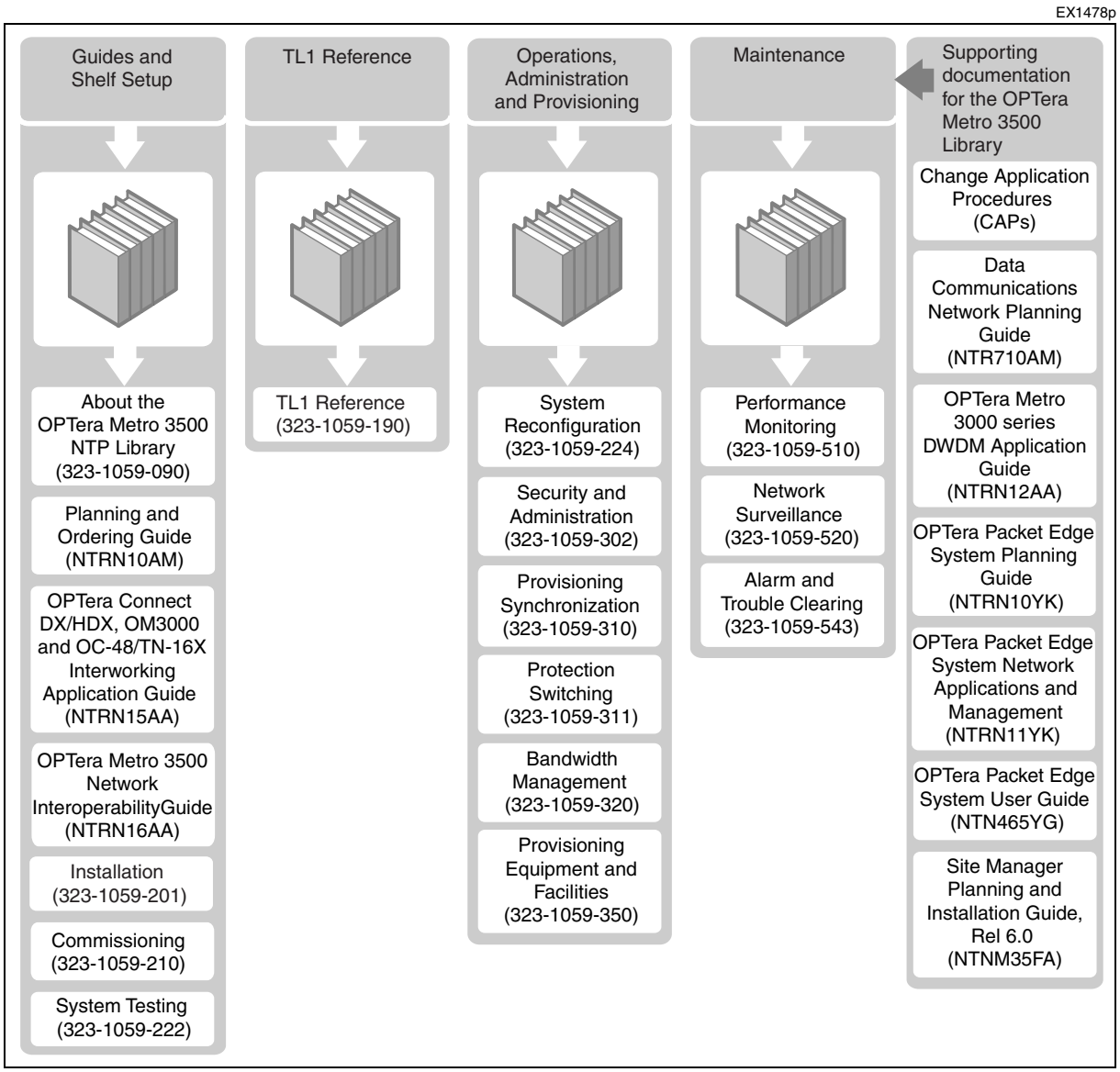
The following members of your company are the intended audience of this Nortel Networks technical publication (NTP):

- planners
- provisioners
- network administrators
- transmission standards engineers

## Standards

The Telecommunications Industry Association (TIA) and the Electronics Industries Alliance (EIA) accepted RS-232 as a standard in 1997 and renumbered this standard as TIA/EIA-232. In this document, RS-232 is used to reflect current labels on the hardware and in the software for the OPTera Metro 3500 Multiservice Platform.

# OPTera Metro 3500 library



## Technical support and information

For technical support and information from Nortel Networks, refer to the following table.

| **Technical Assistance Service** | |
|---|---|
| **For service-affecting problems:**<br>For 24-hour emergency recovery or software upgrade support, that is, for:<br>• restoration of service for equipment that has been carrying traffic and is out of service<br>• issues that prevent traffic protection switching<br>• issues that prevent completion of software upgrades | **North America:**<br>1-800-4NORTEL (1-800-466-7835)<br><br>**International:**<br>001-919-992-8300 |
| **For non-service-affecting problems:**<br>For 24-hour support on issues requiring immediate support or for 14-hour support (8 a.m. to 10 p.m. EST) on upgrade notification and non-urgent issues. | **North America:**<br>1-800-4NORTEL (1-800-466-7835)<br>***Note:*** You require an express routing code (ERC). To determine the ERC, see our corporate Web site at www.nortelnetworks.com. Click on the Express Routing Codes link.<br>**International:**<br>Varies according to country. For a list of telephone numbers, see our corporate Web site at www.nortelnetworks.com. Click on the Contact Us link. |
| **Global software upgrade support:** | **North America:**<br>1-800-4NORTEL (1-800-466-7835)<br>**International:**<br>Varies according to country. For a list of telephone numbers, see our corporate Web site at www.nortelnetworks.com. Click on the Contact Us link. |

# Nodal reconfigurations

## Procedures for nodal reconfigurations

Replacing the network processor with an ILAN circuit pack on page 1-3

Replacing the ILAN circuit pack with a network processor on page 1-6

Replacing a DS3x3 mapper with a DS3x12 / DS3x12e mapper on page 1-8

Replacing an EC-1x3 circuit pack with an EC-1x12 circuit pack on page 1-11

Replacing an OC-3 optical interface with an OC-3x4 optical interface on page 1-14

## Safety requirements

**CAUTION**
**Loss of functionality**
When you replace a circuit pack, the circuit pack can take up to 5 minutes to auto-upgrade. If you remove the circuit pack before the auto-upgrade process is complete, the circuit pack does not function properly.

**CAUTION**
**Risk of circuit pack damage**
Avoid touching any components on the printed circuit board. Electrostatic discharge can damage electrostatic-sensitive devices. Always ground yourself before handling any circuit pack.

**CAUTION**
**Risk of circuit pack damage**
Do not force a circuit pack all the way to the back of a slot if it resists insertion.

**CAUTION**
**Risk of service interruption**
Electrostatic discharge can corrupt traffic. Severe discharges can cause temporary service interruptions.

**CAUTION**
**Risk of service interruption**
If you use radio communication devices like cellular telephones, service interruptions can occur. For example, a North American cellular telephone of approximately 1 W must not be used within 30 cm of a system with an open service access front cover.

# Procedure 1-1
# Replacing the network processor with an ILAN circuit pack

Use this procedure to replace the network processor with an intershelf local area network (ILAN) circuit pack.

Use the ILAN circuit pack to provide data communications to the shelf processor (SPx) so that you can monitor the network elements that are not connected through the optics under the same span of control without a network processor. A network processor can allow surveillance of up to 16 network elements. This means that one network processor must be used for the surveillance of every 16 network elements regardless of the number of ILAN circuit packs.

> ***Note:*** The ILAN circuit pack does not provide any of the networking features, for example, span of control, surveillance, or topology, that are available on the network processor. The ILAN does not terminate the X.25 port or the central office local area network (COLAN) port.

## Requirements

To perform this procedure, you must

- fulfill general requirements for reconfiguration procedures, see General requirements for reconfiguration procedures on page 2-253.
- obtain an ILAN circuit pack
- observe all safety requirements described in Safety requirements on page 1-2
- ensure the network processor to be replaced only provides data communications to the shelf
- ensure the COLAN port of the NPx to be removed is out of service

| Step | Action |
|---|---|
| 1 | Ensure you are logged in to the network element containing the network processor that will be replaced. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 2 | Retrieve all conditions and alarms, and record the current state of the system. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| 3 | Log in to the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1. |

—continued—

Procedure 1-1 (continued)
**Replacing the network processor with an ILAN circuit pack**

| Step | Action |
|---|---|
| **4** | Select the network processor from the navigation tree.<br>***Note:*** Ensure that the only purpose of the network processor to be replaced is to provide data communications to the shelf through ILAN ports. |
| **5** | Select NP Facility in the Configurations menu to retrieve the state of the network processor facilities. |
| **6** | **If** / **Then**<br>the X25 or COLAN facility is IS — you cannot complete the procedure. Contact your next level of support or your Nortel Networks support group.<br>the ILAN1 and ILAN2 facilities are OOS or null — go to step 8<br>the ILAN1 or ILAN2 facilities are IS — go to step 7 |
| **7** | Delete the network processor facilities (ILAN1, ILAN2, or both) that are in service.<br>**a.** Select the facility in the NP Facility list.<br>**b.** Click Delete. Click Yes in the confirmation dialog box.<br>***Note:*** You cannot delete the ILANSP and ILANNP facilities. |
| **8** | Log in to the network element colocated with the network processor to be replaced. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **9** | Delete the network processor.<br>**a.** Select the network element that contains the network processor from the navigation tree.<br>**b.** Select Equipment & Facility Provisioning from the Configuration menu.<br>**c.** Select NP from the Equipment drop down list.<br>**d.** Click Delete. Click Yes in the warning dialog box. |
| **10** | Ensure you are ESD protected to protect the shelf from static damage. |
| **11** | Ensure the COLAN and X.25 cables are removed from the LOAM. |
| **12** | Remove the network processor and replace it with an ILAN circuit pack. See 323-1059-543, Replacing the network processor on page 3-10.<br>***Note:*** Place the network processor in a static protection envelope. |
| **13** | Connect the required cross-over Ethernet cable to the ILAN ports of the LOAM. |

**—continued—**

Procedure 1-1 (continued)
**Replacing the network processor with an ILAN circuit pack**

| Step | Action |
|---|---|
| **14** | If you are not using one of the ILAN ports, disable alarms on this port. See 323-1059-543, Disabling alarm points on page 2-28. |
| **15** | If you are not using an Ethernet cable on your system, disable the alarm. See 323-1059-543, Disabling alarm points on page 2-28.<br>***Note:*** Unless ILAN port1 and port2 are both connected for the new ILAN circuit pack, one or two minor ILAN facility failure alarms are raised. |

**CAUTION**
**Risk of unidentified problem conditions**
Disabling an alarm point prevents alarm notification in the event of a fault.

| | |
|---|---|
| **16** | Retrieve all conditions and alarms and record the current state of the system. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |

**—end—**

# Procedure 1-2
# Replacing the ILAN circuit pack with a network processor

## Requirements

To perform this procedure, you must

- fulfill general requirements for reconfiguration procedures, see General requirements for reconfiguration procedures on page 2-253
- obtain a network processor
- observe all safety requirements described in Safety requirements on page 1-2

| Step | Action |
|---|---|
| 1 | Ensure you are logged in to the network element where the ILAN circuit pack will be replaced. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 2 | Retrieve all conditions and alarms and record the current state of the system. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| 3 | Delete the ILAN circuit pack.<br>**a.** Select the network element that contains the ILAN circuit pack from the navigation tree.<br>**b.** Select Equipment & Facility Provisioning in the Configuration menu.<br>**c.** Select ILAN from the Equipment drop down list.<br>**d.** Click Delete. Click Yes in the warning dialog box. |
| 4 | Ensure you are ESD protected to protect the shelf from static damage. |
| 5 | Remove the ILAN circuit pack and replace it with a network processor. See 323-1059-543, Replacing the network processor on page 3-10.<br>***Note:*** Place the ILAN circuit pack in a static protection envelope. |

**—continued—**

Procedure 1-2 (continued)
**Replacing the ILAN circuit pack with a network processor**

| Step | Action |
|---|---|
| **6** | Connect the required cross-over Ethernet cables to the ILAN ports on the LOAM. |
| **7** | Log in to the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1.<br><br>***Note:*** If required, you can provision the remaining network processor facilities, for example, COLAN and X25. See 323-1059-520, Procedures for network processor facilities on page 3-1. |
| **8** | Provision the ILAN port used in step 6.<br><br>**a.** Select the network processor in the Navigation tree.<br><br>**b.** In the Configuration menu, select NP Facility.<br><br>**c.** Click Add.<br><br>**d.** In the Add NP Facility dialog box, select either ILAN1 or ILAN2 from the Facility type list.<br><br>**e.** Click OK. |
| **9** | Retrieve all conditions and alarms and record the current state of the system. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br><br>***Note:*** The system should be alarm free when you finish the procedure. |

**—end—**

# Procedure 1-3
# Replacing a DS3x3 mapper with a DS3x12 / DS3x12e mapper

Use this procedure to replace a protected pair of DS3x3 mappers with a protected pair of DS3x12 or DS3x12e mappers. A maximum of four pairs (working and protection) of DS3x12/DS3x12e mappers are supported on the OPTera Metro 3500 Multiservice Platform shelf from slot 3 through slot 10.

***Note 1:*** Circuit packs are keyed to fit into specific slots.

***Note 2:*** When you switch (forced or manual switch) from an active circuit pack, there will be a traffic hit of 50 ms or less.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure.
- fulfill specific requirements for this procedure.
  See Specific requirements (Replacing a DS3x3 mapper with a DS3x12 / DS3x12e mapper) on page 1-20.
- observe all safety requirements described in Safety requirements on page 1-2.

| Step | Action |
|---|---|
| 1 | Retrieve all conditions and alarms, and record the current state of the system. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| 2 | Ensure the DS3 Line Build Out facility attribute is set for the required cable length. See 323-1059-350, Editing DS1, DS3, EC-1, 2x100BT-P2P or GE/FC SFP facility signal attributes on page 2-28. |
| 3 | Perform step 4 to step 17 first on the protection (even slot) DS3x3 mapper, then on the working (odd slot) DS3x3 mapper. |
| 4 | Operate a forced switch on the DS3x3 mapper to be replaced. See 323-1059-311, Operating a forced switch on a tributary circuit pack on page 1-18.<br>***Note:*** The Force Switch Complete minor alarm is raised at the near end. |

**—continued—**

Procedure 1-3 (continued)
**Replacing a DS3x3 mapper with a DS3x12 / DS3x12e mapper**

| Step | Action |
|---|---|
| **5** | Remove the inactive DS3x3 mapper and replace it with a DS3x12 or DS3x12e mapper. See 323-1059-543, Replacing the DS3x3, DS3x12, DS3x12e, or DS3VTx12 mapper on page 3-30.<br>***Note 1:*** Ensure the Circuit Pack Missing alarm is cleared.<br>***Note 2:*** Place the DS3x3 mapper in a static protection envelope.<br>***Note 3:*** If the upgrade fails, the Upgrade Fail alarm is raised. Contact your next level of support or your Nortel Networks support group.<br>***Note 4:*** The Force Switch Complete minor alarm temporarily clears during the circuit pack upgrade. |
| **6** | Select Shelf Level View from the Configuration menu to verify that the new mapper is recognized by the shelf processor.<br>***Note:*** A question mark (?) at the bottom of the circuit pack graphic indicates the circuit pack is not recognized. |
| **7** | Click Refresh. |
| **8** | If the new mapper is not recognized, ensure the circuit pack is properly seated in the shelf. |
| **9** | Select Active Alarms from the Faults drop-down menu to retrieve alarms. Clear any alarms raised against the mapper, not including the Force Switch Complete alarm. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **10** | **If** the FPGA Upgrade Not Committed alarm — **Then**<br>is raised against the new mapper — step 11<br>is not raised against the new mapper — step 16 |
| **11** | From the Faults menu, select Restart. |
| **12** | Select the new circuit pack in the Card list. |
| **13** | Select Cold in the Restart type list. |
| **14** | Click OK. |
| **15** | Click Yes in the Confirmation dialog box.<br>***Note:*** The restart takes about 3 minutes. |
| **16** | Release the forced switch on the replaced mapper. See 323-1059-311, Releasing a protection switch on a tributary circuit pack on page 1-21.<br>***Note:*** The Force Switch Complete minor alarm is cleared at the near end. |

**—continued—**

Procedure 1-3 (continued)
**Replacing a DS3x3 mapper with a DS3x12 / DS3x12e mapper**

| Step | Action |
|---|---|

**17** **If** you have just finished replacing **Then**

| | |
|---|---|
| the protection (even slot) DS3x3 mapper with a DS3x12/DS3x12e mapper | perform step 4 to step 17 on the working (odd slot) DS3x3 mapper |
| the working (odd slot) DS3x3 mapper with a DS3x12/DS3x12e mapper | go to step 18 |

**18** Select Active Alarms from the Faults drop-down menu to retrieve alarms. Clear all alarms raised against the mapper. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.

**—end—**

# Procedure 1-4
# Replacing an EC-1x3 circuit pack with an EC-1x12 circuit pack

Use this procedure to replace a protected pair of EC-1x3 circuit packs with a protected pair of EC-1x12 circuit packs. A maximum of four pairs (working and protection) of EC-1x12 circuit packs are supported on the OPTera Metro 3500 Multiservice Platform shelf from slot 3 through slot 10.

***Note 1:*** Circuit packs are keyed to fit into specific slots.

***Note 2:*** When you switch (forced or manual switch) from an active circuit pack, there will be a traffic hit of 50 ms or less.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure.
- fulfill specific requirements for this procedure.
  See Specific requirements (Replacing an EC-1x3 circuit pack with an EC-1x12 circuit pack) on page 1-20.
- observe all safety requirements described in Safety requirements on page 1-2.

| Step | Action |
|---|---|
| 1 | Retrieve all conditions and alarms, and record the current state of the system. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| 2 | Perform step 3 to step 16 first on the provisioned protection (even slot) EC-1x3 circuit pack, then on the provisioned working (odd slot) EC-1x3 circuit pack. |
| 3 | Operate a forced switch on the EC-1x3 circuit pack to be replaced. See 323-1059-311, Operating a forced switch on a tributary circuit pack on page 1-18.<br>***Note:*** The Force Switch Complete minor alarm is raised at the near end. |

**—continued—**

Procedure 1-4 (continued)
**Replacing an EC-1x3 circuit pack with an EC-1x12 circuit pack**

| Step | Action |
|---|---|
| **4** | Remove the inactive EC-1x3 circuit pack and replace it with an EC-1x12 circuit pack. See 323-1059-543, Replacing the EC-1x3 or EC-1x12 circuit pack on page 3-32.<br>***Note 1:*** Place the circuit pack in a static protection envelope.<br>***Note 2:*** Ensure the automatic upgrade of the EC-1x12 is successful and that the Circuit Pack Missing alarm is cleared.<br>***Note 3:*** If the upgrade fails, the Upgrade Fail alarm is raised. Contact your next level of support or your Nortel Networks support group.<br>***Note 4:*** The Force Switch Complete minor alarm temporarily clears during the circuit pack upgrade. |
| **5** | Select Shelf Level View from the configuration menu to verify that the new EC-1x12 circuit pack is recognized by the shelf processor.<br>***Note:*** A question mark (?) at the bottom of the circuit pack graphic indicates the circuit pack is not recognized. |
| **6** | Click Refresh. |
| **7** | If the new EC-1x12 circuit pack is not recognized, ensure the circuit pack is properly seated in the shelf. |
| **8** | Select Active Alarms from the Faults drop-down menu to retrieve alarms. Clear any alarms raised against the EC-1x12 circuit pack not including the Force Switch Complete alarm. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **9** | **If** the FPGA Upgrade Not Committed alarm — **Then**<br>is raised against the new circuit pack — step 10<br>is not raised against the new circuit pack — step 15 |
| **10** | From the Faults menu, select Restart. |
| **11** | Select the new circuit pack in the Card list. |
| **12** | Select Cold in the Restart type list. |
| **13** | Click OK. |
| **14** | Click Yes in the Confirmation dialog box.<br>***Note:*** The restart takes about 3 minutes. |
| **15** | Release the forced switch on the replaced EC-1x12 circuit pack. See 323-1059-311, Releasing a protection switch on a tributary circuit pack on page 1-21.<br>***Note:*** The Force Switch Complete minor alarm is cleared at the near end. |

**—continued—**

Procedure 1-4 (continued)
**Replacing an EC-1x3 circuit pack with an EC-1x12 circuit pack**

| Step | Action | |
|---|---|---|
| **16** | **If** you have just finished replacing | **Then** |
| | the protection (even slot) EC-1x3 circuit pack with an EC-1x12 circuit pack | perform step 3 to step 16 on the working (odd slot) EC-1x3 circuit pack |
| | the working (odd slot) EC-1x3 circuit pack with an EC-1x12 circuit pack | go to step 17 |
| **17** | Select Active Alarms from the Faults drop-down menu to retrieve alarms. Clear all alarms raised against the mapper. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. | |
| | **—end—** | |

# Procedure 1-5
# Replacing an OC-3 optical interface with an OC-3x4 optical interface

Use this procedure to replace a protected pair of OC-3 optical interfaces with a protected pair of OC-3x4 optical interfaces. A maximum of four pairs (working and protection) of OC-3x4 optical interfaces are supported on the OPTera Metro 3500 Multiservice Platform shelf from slot 3 through slot 10.

***Note 1:*** Circuit packs are keyed to fit into specific slots.

***Note 2:*** When you switch traffic (either forced or manually) from an active circuit pack or path, there is a traffic hit of 50 ms or less.

## Requirements

To perform this procedure, you must

- fulfill general requirements for reconfiguration procedures. See General requirements for reconfiguration procedures on page 2-253.
- ensure you have all the required documentation referenced in this procedure
- fulfill specific requirements for this procedure. See Specific requirements (Replacing an OC-3 optical interface with an OC-3x4 optical interface) on page 1-20.
- observe all safety requirements described in Safety requirements on page 1-2.

| Step | Action |
|---|---|
| 1 | Retrieve all conditions and alarms, and record the current state of the system. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| 2 | Ensure that the OC-3 link budget meets the OC-3x4 link budget specifications.<br>***Note:*** If the specifications are not met, OC-3 link performance can degrade. Do not continue with this procedure. |
| 3 | Perform step 7 to step 26 first on the protection (even slot) OC-3 optical interface, then on the working (odd slot) OC-3 optical interface. |

**—continued—**

Procedure 1-5 (continued)
**Replacing an OC-3 optical interface with an OC-3x4 optical interface**

| Step | Action |
|---|---|
| **4** | Initialize performance monitoring data for the protection OC-3 optical interface.<br>**a.** Select Facility PM counts in the Performance menu.<br>**b.** Select OC-3 in the Type list.<br>**c.** Select the facility for the protection OC-3 interface in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring. Wait a few seconds, then click Stop Monitoring.<br>**g.** Select one of the PM statistical rows, then click Clear Counts.<br>**h.** Click Restart both.<br>**i.** Select the 15 min and Day Period check boxes.<br>**j.** Select ALL in the Monitor Type list.<br>**k.** Select the facility for the protection OC-3 interface in the Facility list.<br>**l.** Click OK.<br>**m.** Click OK in the confirmation dialog box. |
| **5** | Wait 15 minutes before proceeding with the next step. |
| **6** | Retrieve performance monitoring data for the protection OC-3 optical interface.<br>**a.** Select Faciclity PM counts in the Performance menu<br>**b.** Select OC-3 in the Type list.<br>**c.** Select the facility for the protection OC-3 interface in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring.<br>**g.** Verify that no performance monitoring data exists for the protection OC-3 optical interface. If non-zero performance monitoring data exists for the protection OC-3 optical interface, contact your next level of support or your Nortel Networks support group.<br>**h.** Click Stop Monitoring. |

**7**

| **If** the OC-3 circuit pack is | **Then** go to |
|---|---|
| UPSR protected (a switch mate is required at the end point) | step 8 |
| 1+1 protected | step 10 |

**—continued—**

Procedure 1-5 (continued)
**Replacing an OC-3 optical interface with an OC-3x4 optical interface**

| Step | Action |
|---|---|
| **8** | For UPSR protected OC-3 interfaces, put the OC-3 facility out-of-service (OOS) to switch all paths to the mate slot. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25.<br><br>***Note:*** Force VT1.5/STS-1/STS3c Path Switch Complete alarms are raised if the path was active on this circuit pack. |
| **9** | Go to step 12. |
| **10** | For 1+1 protected OC-3 interfaces, operate a manual equipment switch on the OC-3 interface to be replaced. See 323-1059-311, Operating a manual switch on a tributary circuit pack on page 1-16. |
| **11** | For 1+1 protected OC-3 interfaces, operate a forced equipment switch on the OC-3 optical interface to be replaced. See 323-1059-311, Operating a forced switch on a tributary circuit pack on page 1-18.<br><br>***Note:*** The Force Switch Complete minor alarm is raised at the near end. |
| **12** | Disconnect the Tx and Rx fibers from the OC-3 optical interface. |
| **13** | Remove the inactive OC-3 optical interface and replace it with an OC-3x4 optical interface. See 323-1059-543, Replacing an optical interface circuit pack in a UPSR on page 3-38 or Replacing an optical interface circuit pack in a linear system on page 3-34.<br><br>***Note 1:*** Ensure the Circuit Pack Missing alarm clears after the OC-3 optical interface is replaced.<br><br>***Note 2:*** Store the OC-3 circuit pack in a static protection envelope.<br><br>***Note 3:*** The Upgrade Fail alarm raises if the upgrade fails. Contact your next level of support or your Nortel Networks support group.<br><br>***Note 4:*** If the Force Switch Complete minor alarm is raised, the alarm will temporarily clear during the circuit pack upgrade. |
| **14** | Select Shelf Level View in the Configuration menu to verify that the new optical interface is recognized by the shelf processor.<br><br>***Note:*** A question mark (?) at the bottom of the circuit pack graphic indicates the circuit pack is not recognized. |
| **15** | Click Refresh. |
| **16** | If the new optical interface is not recognized, ensure the circuit pack is properly seated in the shelf. |

**—continued—**

Procedure 1-5 (continued)
**Replacing an OC-3 optical interface with an OC-3x4 optical interface**

| Step | Action |
|---|---|
| **17** | Connect the Tx and Rx fibers from the OC-3 optical interface. Check the Rx power at each end of the OC-3 link using a power meter. Adjust the power to a value between the Rx overload and Rx sensitivity specifications before connecting the Rx fibers to the OC-3 circuit pack Rx ports. See the Technical specifications section of the *Planning and Ordering Guide* (NTRN10AM) for the Rx overload and sensitivity values. |

**DANGER**
**Risk of personal injury**
When inserted in a shelf slot, the optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber

**CAUTION**
**Risk of inaccurate test results**
When handling the equipment, the following precautions must always be observed.

**Clean optical connections**
To ensure accurate results, clean the optical connectors and verify the optical meter calibration. Ensure positive mating of fibers in optical connectors.

**Optical fibers**
Do not mix transmit and receive fiber cables.

**Equipment handling**
Wear an antistatic strap.

| | |
|---|---|
| **18** | Select Active Alarms in the Faults menu to retrieve alarms. Clear any alarms raised against the interface (except the Force Switch Complete alarm for a 1+1 protection scheme). See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |

**—continued—**

Procedure 1-5 (continued)
**Replacing an OC-3 optical interface with an OC-3x4 optical interface**

| Step | Action |
|---|---|
| **19** | Initialize performance monitoring data for the new OC-3x4 optical interface from the Site Manager session connected to the new node.<br>**a.** Select Facility PM counts in the Performance menu<br>**b.** Select OC-3 in the Type list.<br>**c.** Select the port 1 facility for the new OC-3x4 interface in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring. Wait a few seconds, then click Stop Monitoring.<br>**g.** Select one of the PM statistical rows and click Clear Counts.<br>**h.** Select Restart both.<br>**i.** Select the 15 min and Day Period check boxes.<br>**j.** Select the ALL option from the Monitor Type list.<br>**k.** Select the port 1 facility for the new OC-3x4 interface in the Facility list.<br>**l.** Click OK.<br>**m.** Click OK in the confirmation dialog box. |
| **20** | Wait 15 minutes before proceeding with the next step |
| **21** | Retrieve performance monitoring data for the new OC-3x4 optical interface.<br>**a.** Select Facility PM counts in the Performance menu<br>**b.** Select OC-3 in the Type list.<br>**c.** Select the port 1 facility for the protection OC-3x4 interface in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring.<br>**g.** Verify that no performance monitoring data exists for the protection OC-3x4 optical interface. If non-zero performance monitoring data exists for the protection OC-3x4 optical interface, contact your next level of support or your Nortel Networks support group.<br>**h.** Click Stop Monitoring. |

**—continued—**

Procedure 1-5 (continued)
**Replacing an OC-3 optical interface with an OC-3x4 optical interface**

| Step | Action |
|---|---|

**22** **If** the OC-3 circuit pack is — **Then** go to

| | |
|---|---|
| UPSR protected (a switch mate is required at the end point) | step 23 |
| 1+1 protected | step 25 |

**23** Put the port 1 facility of the OC-3x4 interface back to the IS state. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26.

**24** Go to step 26.

**25** Release the forced switch on the replaced circuit pack. See 323-1059-311, Releasing a protection switch on a tributary circuit pack on page 1-21.

***Note:*** The Force Switch Complete minor alarm is cleared at the near end.

**26** **If** you have just finished replacing — **Then**

| | |
|---|---|
| the even slot OC-3 optical interface with an OC-3x4 optical interface | perform step 7 to step 26 on the working (odd slot) OC-3 interface |
| the odd slot OC-3 optical interface with an OC-3x4 optical interface | go to step 27 |

**27** Select Active Alarms in the Faults menu to retrieve alarms. Ensure no alarms are raised against the new OC-3x4 optical interfaces. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.

**—end—**

## Specific requirements (Replacing a DS3x3 mapper with a DS3x12 / DS3x12e mapper)

You must

- have protected DS3x3 equipment
- obtain two replacement DS3x12 circuit packs for the OPTera Metro 3500 Multiservice Platform shelf
- ensure you are ESD protected to protect the shelf from static damage
- ensure you are logged in to the network element. See 323-1059-302, Procedures for interface login and logout on page 2-1

## Specific requirements (Replacing an EC-1x3 circuit pack with an EC-1x12 circuit pack)

You must

- have protected EC-1x3 equipment
- obtain two replacement EC-1x12 circuit packs for the OPTera Metro 3500 Multiservice Platform shelf
- ensure you are ESD protected to protect the shelf from static damage
- ensure you are logged in to the network element. See 323-1059-302, Procedures for interface login and logout on page 2-1

## Specific requirements (Replacing an OC-3 optical interface with an OC-3x4 optical interface)

You must

- have protected OC-3 equipment (UPSR or 1+1)
- obtain two replacement OC-3x4 circuit packs
- ensure your optical link budget can be met with the OC-3x4 optical specifications. See the technical specifications for the OC-3 (IC and LR) and OC-3x4 optical interfaces in the *Planning and Ordering Guide* (NTRN10AM).
- ensure you are ESD protected to protect the shelf from static damage
- ensure you are logged in to the network element. See 323-1059-302, Procedures for interface login and logout on page 2-1

# Network reconfigurations

## Procedures for network reconfigurations

Adding an ADM network element to a linear network on page 2-2

Adding a new terminal network element to a linear network on page 2-53

Adding a network element to a UPSR on page 2-74

Adding a network element to a BLSR on page 2-84

Removing an ADM network element from a linear network on page 2-97

Removing a terminal network element from a linear network on page 2-141

Removing a network element from a UPSR on page 2-150

Removing a network element from a BLSR on page 2-158

Upgrading a fiber span from an OC-3 to an OC-12 line rate on page 2-169

Upgrading a fiber span from an OC-12 to an OC-48 line rate on page 2-176

Converting a 1+1 linear point-to-point configuration to a 2-node UPSR on page 2-185

Converting a 2-node UPSR to a 1+1 linear point-to-point configuration on page 2-190

Converting VT Assigned BLSR connections to Full VT BLSR connections on page 2-196

Converting Full VT BLSR connections to VT Assigned BLSR connections on page 2-206

Moving a synchronization boundary on page 2-216

# Procedure 2-1
# Adding an ADM network element to a linear network

Use this procedure to add a new add/drop multiplexer (ADM) network element to a linear configuration consisting of two or more network elements. The new network element is added to a span between:

- a terminal network element and an ADM network element, or
- two ADM network elements, or
- two terminal network elements (in a two-node point-to-point configuration)

***Note 1:*** This procedure applies only if the adjacent network elements to the network element being added are OPTera Metro 3500 network elements. If one of the adjacent network elements is not an OPTera Metro 3500 network element, contact your next level of support or your Nortel Networks support group.

***Note 2:*** The new network element to be added to the configuration must have the same line rate as the rest of the linear ADM chain.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

Fiber connections and traffic assignments along the existing span of control must be rerouted to pass through the new linear ADM network element. This can be accomplished with no more than three 50 ms traffic hits by effectively using the protection line. First, odd slots carry traffic while even slot fibers are rerouted; then, even slots carry traffic while odd slot fibers are rerouted. After, switch traffic from the even slot to the odd slot.

See *Bandwidth Management*, 323-1059-320 and *Provisioning Equipment and Facilities*, 323-1059-350, for information on provisioning new services along the two newly created spans.

See *Network Surveillance*, 323-1059-520, for information on provisioning the association of the new node into an existing network processor (NPx) span of control. Ensure you do system testing before you proceed with the procedures in this chapter. See *System Testing*, 323-1059-222.

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure.
- fulfill general requirements for reconfiguration procedures. See General requirements for reconfiguration procedures on page 2-253.
- fulfill specific requirements for this procedure. See Specific requirements (Adding an ADM network element to a linear network) on page 2-253.
- ensure you have the required tools. See Tools required (Adding an ADM network element to a linear network) on page 2-259.
- ensure you have the required materials. See Materials required (Adding an ADM network element to a linear network) on page 2-263.
- observe all safety requirements described in Safety requirements on page 1-2.
- obtain a user identifier (UID) and a password identifier (PID) with a level 3 or higher user privilege code (UPC).

| Step | Action |
|---|---|
| 1 | Ensure you are logged into all of the network elements in the linear chain. See 323-1059-302, Procedures for interface login and logout on page 2-1. |

***Recording information required for the reconfiguration***

***Note:*** An example of a linear configuration is shown in Network diagram (Adding a linear ADM node) on page 2-46 to help you fill out the appropriate tables throughout this section.

**2** Record the TID and AIDs of the following network elements in Recorded information (Adding an ADM network element to a linear network) on page 2-47:

- new network element
- left adjacent network element
- right adjacent network element

***Note:*** You should make copies of Recorded information (Adding an ADM network element to a linear network) on page 2-47 to record the required information.

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **3** | Retrieve the protection switch modes of the existing span X. Record them in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**a.** Select one of the NEs connected to span X from the Site Manager navigation tree.<br>**b.** Select Provisioning from the Protection menu.<br>**c.** Select OC-3, OC-12 or OC-48 equipment type. |
| **4** | Determine the protection switch modes of span A and span B. Record them in Recorded information (Adding an ADM network element to a linear network) on page 2-47. |
| **5** | Determine the timing mode, timing references, framing format, and line code of the new ADM node and record them in Recorded information (Adding an ADM network element to a linear network) on page 2-47. |
| **6** | Retrieve section trace parameters on the left and right adjacent network elements. Record the necessary selected values of the output list in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**a.** Select the left adjacent node from the Site Manager navigation tree<br>**b.** Select Equipment and Facility Provisioning from the Configuration menu.<br>**c.** Select the Working (W1/Z1) optical interface connected to span X.<br>**d.** Select the Section Trace button to retrieve the section trace information for the working optical interface.<br>**e.** Disable the section trace feature by selecting Alarms off from the Fail Mode drop down menu<br>**f.** Click on the OK button to close the Section Trace window.<br>**g.** Select the Protection (W2/Z2) optical interface connected to span X.<br>**h.** Select the Section Trace button to retrieve the section trace information for the protection optical interface.<br>**i.** Disable the section trace feature by selecting Alarms off from the Fail Mode drop down menu<br>**j.** Click on the OK button to close the Section Trace window.<br>**k.** Repeat the above steps for the right adjacent node. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **7** | Retrieve the cross-connects along span X. Record all the cross-connects retrieved in Pass-through ADM connections (Adding an ADM network element to a linear network) on page 2-49. You should make copies of Pass-through ADM connections (Adding an ADM network element to a linear network) on page 2-49 to record the cross-connect information.<br>**a.** Select the left adjacent node from the Site Manager navigation tree<br>**b.** Select Nodal Cross-Connects from the Configuration menu.<br>**c.** Select the Yes button to retrieve the Cross-Connects if they have not been already retrieved.<br>**d.** Select the From column to sort cross-connects by fromAID. Find and write down all cross-connects in the shelf that use the W1 OC-3/OC-12/ OC-48 optics. |

***Provisioning the new network element***

| | |
|---|---|
| **8** | Log into the new network element. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **9** | Retrieve the protection scheme of the optical circuit packs attached to your linear chain on the new network element.<br>**a.** Select Status in the Protection menu.<br>**b.** Under Protection summary, select the optical rate of your linear chain.<br>**c.** Determine the protection scheme for the required optical interface under OCn equipment protection details. |
| **10** | **If** the protection scheme of the new network element … **Then** go to<br>is not 1+1 → step 11<br>is 1+1 → step 13 |
| **11** | Provision the X1/X2 optical pair in linear mode.<br>**a.** Select Provisioning in the Protection menu.<br>**b.** Select the line rate of your linear chain in the Equipment type list.<br>**c.** Select the X1 optical interface.<br>**d.** Click Edit.<br>**e.** In the Edit OCn Protection Provisioning dialog box, select 1+1 linear in the Scheme area.<br>**f.** Select Bidirectional in the Switch mode area.<br>**g.** Click OK.<br>**h.** In the confirmation dialog box, click Yes. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **12** | Provision the Y1/Y2 optical pair in linear mode.<br>**a.** Select Provisioning in the Protection menu.<br>**b.** Select the line rate of your linear chain in the Equipment type list.<br>**c.** Select the Y1 optical interface.<br>**d.** Click Edit.<br>**e.** In the Edit OCn Protection Provisioning dialog box, select 1+1 linear in the Scheme area.<br>**f.** Select Bidirectional in the Switch mode area.<br>**g.** Click OK.<br>**h.** In the confirmation dialog box, click Yes. |
| **13** | Provision the timing mode of the new network element.<br>**a.** Select Synchronization in the Configuration menu.<br>**b.** Click Edit.<br>**c.** In the Timing mode area, select the radio button that corresponds to the timing mode recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**d.** Click OK.<br>**e.** Click Yes in the confirmation dialog box. |
| **14** | **If** the timing mode recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47 is — **Then** go to:<br>not Internal Timing — step 15<br>Internal Timing — step 20 |
| **15** | Provision the timing references of the new network element.<br>**a.** Select Synchronization in the Configuration menu.<br>**b.** Click Edit.<br>**c.** Select the primary and secondary timing references under Timing Reference.<br>**d.** Click OK.<br>**e.** Click Yes in the confirmation dialog box.<br>***Note:*** The Loss of primary timing reference and loss of secondary timing reference major alarms are raised at the new linear ADM node if the system timing is line-timed or if the BITSIN timing references are not connected if the system timing is Externally timed. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action | |
|---|---|---|
| **16** | **If** the timing mode recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47 is | **Then** go to |
| | Line Timing | step 19 |
| | External Timing | step 17 |

**17** Provision the quality level of the timing references of the new network element.

**a.** Select Synchronization in the Configuration menu.

**b.** Click Edit.

**c.** Select BITS in A in the Type box.

**d.** Set the Signal format, Line code and Frame format for BITS in A recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.

**e.** Click OK.

**f.** Click Yes in the confirmation dialog box.

**18** Provision the framing format of BITS in B primary reference.

**a.** Select Synchronization from the Configuration menu.

**b.** Click Edit.

**c.** Select BITS in B in the Type box.

**d.** Set the Signal format, Line code, and Frame format for BITS in B recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.

**e.** Click OK.

**f.** Click Yes in the confirmation dialog box.

**19** Provision the quality level of the primary and secondary reference source.

**a.** Select Synchronization from the Configuration menu.

**b.** Click Edit.

**c.** Select Source quality in the Type box.

**d.** Select the quality level of the primary reference source recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.

**e.** Click Apply, then click Yes in the confirmation dialog box.

**f.** Select the quality level of the secondary reference source recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.

**g.** Click OK, then click Yes in the confirmation dialog box.

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **20** | Provision the first pass-through connection not ticked off in column A of Pass-through ADM connections (Adding an ADM network element to a linear network) on page 2-49. |
| **21** | **If** the cross-connects you have are / **Then**<br>1WAY — step 22<br>2WAY — step 23 |
| **22** | Provision the pass-through cross-connects as 1WAY cross-connects.<br>**a.** Select Nodal Cross-Connects in the Configuration menu.<br>**b.** Click Yes if the connection retrieve nodal cross connect confirmation dialog box opens.<br>**c.** Click Add.<br>**d.** In the Add Cross-Connect dialog box, enter the connection ID in the Connection ID box.<br>**e.** Select the required rate in the Rate box.<br>**f.** Select 1WAY in the Type box.<br>**g.** Under From:<br>— select the X1 equipment in the Equipment box<br>— select the X1 facility in the Facility box<br>***Note:*** Equipment and facility must match the channel for the connection to provision.<br>**h.** Under To:<br>— select the Y1 equipment in the Equipment box<br>— select the Y1 facility in the Facility box<br>***Note:*** Equipment and facility must match the channel for the connection to provision.<br>**i.** Click OK.<br>**j.** Go to step 24. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **23** | Provision the pass-through cross-connects as 2WAY cross-connects.<br>**a.** Select Nodal Cross-Connect in the Configuration menu.<br>**b.** Click Yes if the connection retrieve nodal cross connect confirmation dialog box opens.<br>**c.** Click Add.<br>**d.** In the Add Cross-Connect dialog box, enter the connection ID in the Connection ID box.<br>**e.** Select the required rate in the Rate box.<br>**f.** Select 2WAY in the Type box.<br>**g.** Under From:<br>— select the X1 equipment in the Equipment box<br>— select the X1 facility in the Facility box<br>***Note:*** Equipment and facility must match the channel for the connection to provision.<br>**h.** Under To:<br>— select the Y1 equipment in the Equipment box<br>— select the Y1 facility in the Facility box<br>***Note:*** Equipment and facility must match the channel for the connection to provision.<br>**i.** Click OK. |
| **24** | Repeat step 20 for each pass-through connection recorded in Pass-through ADM connections (Adding an ADM network element to a linear network) on page 2-49. As you complete each pass-through connection, tick off and record the time at which this step was executed in column **A** in Pass-through ADM connections (Adding an ADM network element to a linear network) on page 2-49. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **25** | Check the active alarms at the new network element.<br>**a.** Select Active alarms from the Fault menu to access the active alarm view.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.<br>The following alarms are expected:<br>• OC-3 Rx Loss of Signal on all OC-3 equipment used for the linear ADM, OC-12 Rx Loss of Signal on all OC-12 equipment used for the linear ADM or OC-48 Rx Loss of Signal on all OC-48 equipment used for the linear ADM<br>• Loss of Shelf Pri. Timing Ref. (if the timing mode recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47 is line-timed)<br>• Loss of Shelf Sec. Timing Ref. (if the timing mode recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47 is line-timed)<br>• PLL Not Locked to Timing Ref.<br>• Timing Generation Entry to Freerun<br>***Note:*** If any additional unexpected alarms are active, contact your next level of support or your Nortel Networks support group. |

***Adding the new network element to the existing linear configuration***

**26**

| **If** you wish to connect using | **Then** go to |
|---|---|
| a network connection | step 27 |
| an RS-232 direct connection | step 28 |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **27** | Begin a new Site Manager session and connect to the network processor through a network connection.<br>**a.** Using a Network connection, after Site Manager has started, select the Connect using Site Manager radio button<br>**b.** Select the Network Connection Type<br>**c.** Select the OPTera Metro 3000/OC48Lite Gateway Node Type<br>**d.** Enter the IP address of the Network processor in the Host Name/Address field<br>**e.** Enter 10001 (default) in the Port field<br>**f.** Select 15 second timeout<br>**g.** From the Login window<br>Login NE: GatewayNE<br>NE Type: OPTera Metro 3000/OC48 Lite<br>User ID: level 3 or higher User ID<br>Password: password assigned for the level 3 or higher user ID<br>**h.** Click on the Connect button<br>This will log you into the selected NP<br>**i.** Go to step 29. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **28** | Begin a new Site Manager session and connect to the network processor through an RS-232 direct connection.<br>**a.** Using an RS-232 connection, connect to one of the network elements and set the communications parameters as follows:<br>— Connection type = Direct Cable<br>— Gateway Node Type = OPTera Metro 3000/OC48 Lite<br>— Port = com port used on the PC<br>— Timeout = 30 seconds<br>**b.** Click on the Advanced button and set the following parameters:<br>— Bit rate = 9600<br>— Data bits = 8<br>— Stop bits = 1<br>— Parity = None<br>— Handshake= None<br>**c.** Click OK.<br>**d.** From the Login window, set the following parameters:<br>— Login NE: GatewayNE<br>— NE Type: OPTera Metro 3000/OC48 Lite<br>— User ID: level 3 or higher User ID<br>— Password: password assigned for the level 3 or higher user ID<br>**e.** Click Connect.<br>**f.** Select Login from the File menu<br>**g.** Click Find in the Login NE information field<br>**h.** Select the TID of the NP' you want to log into.<br>**i.** From the Login window, set the following parameters:<br>— User ID: level 3 or higher User ID<br>— Password: password assigned for the level 3 or higher user ID<br>**j.** Click Connect. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **29** | Log in to the left adjacent network element.<br>**a.** In the Navigation Tree, select the left adjacent network element.<br>**b.** Right click on the left adjacent network element to see the Login menu.<br>**c.** In the Login menu, select Login As or Autologin.<br>**d.** If you selected Login As, type the user ID and password in the Login dialog box, then click Login.<br>***Note:*** Ensure the user account you use to log in to the network element has the required user privilege code (UPC) to perform your task. |
| **30** | Log in to the right adjacent network element.<br>**a.** In the Navigation Tree, select the left adjacent network element.<br>**b.** Right click on the left adjacent network element to see the Login menu.<br>**c.** In the Login menu, select Login As or Autologin.<br>**d.** If you selected Login As, type the user ID and password in the Login dialog box, then click Login.<br>***Note:*** Ensure the user account you use to log in to the network element has the required user privilege code (UPC) to perform your task. |
| **31** | At the left adjacent network element, verify that no alarms are active.<br>**a.** Select Active Alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note:*** If alarms are active, contact your next level of support or your Nortel Networks support group. |
| **32** | At the right adjacent network element, verify that no alarms are active.<br>**a.** Select Active Alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note:*** If alarms are active, contact your next level of support or your Nortel Networks support group. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **33** | **If** the protection switch mode of span X is recorded as **Then**<br>bidirectional in Recorded information (Adding an ADM network element to a linear network) on page 2-47 — go to step 36<br>otherwise — go to step 34 |
| **34** | At the left adjacent network element, change the switch mode to bidirectional.<br>**a.** Select Provisioning in the Protection menu.<br>**b.** Select the W1 or W2 optical interface from the Equipment Type box, as required.<br>**c.** Select the working or protection facility OCn-slot#/OC-n-slot#-port# in the list and click Edit.<br>***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.<br>**d.** In the Switch mode area, click Bidirectional.<br>**e.** Click OK.<br>***Note:*** The Protection Mode Mismatch minor alarm is raised at the left and right adjacent nodes. |
| **35** | At the right adjacent node, change the switch mode to bidirectional.<br>**a.** Select Provisioning in the Protection menu.<br>**b.** Select the Z1 or Z2 optical interface from the Equipment Type box, as required.<br>**c.** Select the working or protection facility OCn-slot#/OC-n-slot#-port# in the list and click Edit.<br>***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.<br>**d.** In the Switch mode area, click Bidirectional.<br>**e.** Click OK.<br>***Note:*** The Protection Mode Mismatch minor alarms raised in step 34 clear. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **36** | Switch traffic from the working line onto the protection line at the left adjacent node for the span to which the node will be added.<br>**a.** Select Status in the Protection menu<br>**b.** Select the line rate of your linear chain under Protection Summary.<br>**c.** Select the W1 optical interface under OCn equipment protection details.<br>**d.** Click Operate.<br>**e.** In the Operate Protection Switch dialog box, click Manual Switch.<br>**f.** Click Operate.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note:*** A traffic hit of less than 50ms occurs. |
| **37** | At the left adjacent node, verify that no alarms are active.<br>**a.** Select Active Alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note:*** If alarms are active, contact your next level of support or your Nortel Networks support group. |
| **38** | At the right adjacent node, verify that no alarms are active.<br>**a.** Select Active Alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note:*** If alarms are active, contact your next level of support or your Nortel Networks support group. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **39** | At the right adjacent node, force traffic from the working line onto the protection line for the span to which the node will be added.<br>**a.** Select Status in the Protection menu<br>**b.** Select the line rate of your linear chain under Protection Summary.<br>**c.** Select the Z1 optical interface under OCn equipment protection details.<br>**d.** Click Operate.<br>**e.** In the Operate Protection Switch dialog box, click Forced Switch.<br>**f.** Click Operate.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Forced Switch Complete minor alarm is raised against slot Z1 at the right adjacent node.<br>***Note 2:*** The Forced Switch Complete-Remote minor alarm is raised against slot W1 at the left adjacent node. |
| **40** | At the left adjacent node, force traffic from the working line onto the protection line for the span to which the node will be added.<br>**a.** Select Status in the Protection menu<br>**b.** Select the line rate of your linear chain under Protection Summary.<br>**c.** Select the W1 optical interface under OCn equipment protection details.<br>**d.** Click Operate.<br>**e.** In the Operate Protection Switch dialog box, click Forced Switch.<br>**f.** Click Operate.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Forced Switch Complete minor alarm is raised against slot W1 at the left adjacent node.<br>***Note 2:*** The Forced Switch Complete-Remote minor alarm is cleared against slot W1 at the left adjacent node. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **41** | At the left adjacent node, disconnect the fibers which terminate at the working circuit pack seated in the W1 odd slot number (recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47). Take note of the following possible alarms. These alarms can be raised at the near-end left adjacent node and far-end right adjacent node.<br>• The OC-3, OC-12, or OC-48 Rx RFI minor alarm is raised at the right adjacent node unless both Transmit and Receive fibers are disconnected from W1.<br>• The OC-3, OC-12, or OC-48 Rx Loss of Signal minor alarm is raised against slot W1.<br>• The Loss of Shelf Pri. Timing Ref. major alarm is raised against W1 if the optical interface in slot W1 is provisioned as the primary timing source.<br>• The Loss of Shelf Sec. Timing Ref. major alarm is raised against W1 if the optical interface in slot W1 is provisioned as the primary timing source.<br>• The Loss of BITSout-A Primary Timing Reference major alarm is raised if the optical interface in slot W1 is provisioned as the primary timing reference for BITSout-A.<br>• The Loss of BITSout-A Secondary Timing Reference major alarm is raised against W2 if the optical interface in slot W1 is provisioned as the secondary timing reference for BITSout-A.<br>• The Loss of BITSout-B Primary Timing Reference major alarm is raised against W1 if the optical interface in slot W1 is provisioned as the primary timing reference for BITSout-B.<br>• The Loss of BITSout-B Secondary Timing Reference major alarm is raised against W1 if the optical interface in slot W1 is provisioned as the secondary timing reference for BITSout-B.<br>• If the optical interface in slot W1 is the active timing reference, the Timing Generation Entry to Holdover condition is raised and cleared after the Sync Reference Switch Completed condition is raised.<br>***Note:*** The Force Switch Complete alarms raised in previous steps remain present.<br>**—continued—** |

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|

**42** Connect the Tx and Rx fibers which come from the X1 working circuit pack to the Rx and Tx of W1 working circuit pack. Check the Rx power at the X1 and W1 using a power meter and adjust them to ensure they are set between the Rx overload and Rx sensitivity specifications from the Technical specifications section of the *Planning and Ordering Guide*, NTRN10AM before connecting the Rx fibers to the X1 and W1 circuit pack Rx ports.

**DANGER**
**Risk of personal injury**
When inserted in a shelf slot, the optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber

**CAUTION**
**Risk of inaccurate test results**
When handling the equipment, the following precautions must always be observed.

**Clean optical connections**
To ensure accurate results, clean the optical connectors and verify the optical meter calibration. Ensure positive mating of fibers in optical connectors.

**Optical fibers**
Do not mix transmit and receive fiber cables.

**Equipment handling**
Wear an antistatic strap.

**43** At the right adjacent node, disconnect the fibers which terminate on the working circuit pack, seated in the Z1 odd slot number recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **44** | Connect the Tx and Rx fibers which come from the Y1 working circuit pack to the Rx and Tx of Z1 working circuit pack. Check the Rx power at the Y1 and Z1 using a power meter and adjust them to ensure they are set between the Rx overload and Rx sensitivity specifications from the Technical specifications section of *Planning and Ordering Guide* (NTRN10AM) before connecting the Rx fibers to the Y1 and Z1 circuit pack Rx ports. |

**DANGER**
**Risk of personal injury**
When inserted in a shelf slot, the optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber

**CAUTION**
**Risk of inaccurate test results**
When handling the equipment, the following precautions must always be observed.

**Clean optical connections**
To ensure accurate results, clean the optical connectors and verify the optical meter calibration. Ensure positive mating of fibers in optical connectors.

**Optical fibers**
Do not mix transmit and receive fiber cables.

**Equipment handling**
Wear an antistatic strap.

***Note:*** All alarms raised in step 41 clear except the Force Switch Complete alarms, which remain on the left and right adjacent nodes.

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **45** | At the new network element, initialize performance monitoring data for the X1 working facility from the Site Manager session connected to the new network element.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the X1 line rate.<br>**c.** Select the X1 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>**g.** Select all the PM stats rows, then click Clear Counts.<br>**h.** In the Clear PM Counts dialog box, under Restart, click Both.<br>**i.** Under Period, select the 15 Min check box and the Day check box.<br>**j.** Select the X1-ALL facility in the Facility box.<br>**k.** Click OK, then click OK in the confirmation dialog box.<br>**l.** Select all the PM statistical rows, then click Restart Untimed.<br>**m.** Select the X1-ALL option in the Facility list.<br>**n.** Click OK, then click OK in the confirmation dialog box. |
| **46** | At the new network element, initialize performance monitoring data for the Y1 optical interface working facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the Y1 line rate.<br>**c.** Select the Y1 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>**g.** Select all the PM stats rows, then click Clear Counts.<br>**h.** In the Clear PM Counts dialog box, under Restart, click Both.<br>**i.** Under Period, select the 15 Min check box and the Day check box.<br>**j.** Select the Y1-ALL facility in the Facility box.<br>**k.** Click OK, then click OK in the confirmation dialog box.<br>**l.** Select all the PM statistical rows, then click Restart Untimed.<br>**m.** Select the Y1-ALL option in the Facility list.<br>**n.** Click OK, then click OK in the confirmation dialog box. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **47** | At the left adjacent node, initialize performance monitoring data for the optical interface working facility.At the right adjacent node, initialize performance monitoring data for the optical interface working facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the Z1 line rate.<br>**c.** Select the Z1 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>**g.** Select all the PM stats rows, then click Clear Counts.<br>**h.** In the Clear PM Counts dialog box, under Restart, click Both.<br>**i.** Under Period, select the 15 Min check box and the Day check box.<br>**j.** Select the Z1-ALL facility in the Facility box.<br>**k.** Click OK, then click OK in the confirmation dialog box.<br>**l.** Select all the PM statistical rows, then click Restart Untimed.<br>**m.** Select the Z1-ALL option in the Facility list.<br>**n.** Click OK, then click OK in the confirmation dialog box. |
| **48** | At the right adjacent node, initialize performance monitoring data for the optical interface working facility.At the right adjacent node, initialize performance monitoring data for the optical interface working facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the W1 line rate.<br>**c.** Select the W1 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>**g.** Select all the PM stats rows, then click Clear Counts.<br>**h.** In the Clear PM Counts dialog box, under Restart, click Both.<br>**i.** Under Period, select the 15 Min check box and the Day check box.<br>**j.** Select the W1-ALL facility in the Facility box.<br>**k.** Click OK, then click OK in the confirmation dialog box.<br>**l.** Select all the PM statistical rows, then click Restart Untimed.<br>**m.** Select the W1-ALL option in the Facility list.<br>**n.** Click OK, then click OK in the confirmation dialog box. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **49** | Wait 15 minutes before proceeding with the next step |
| **50** | At the new network element, retrieve performance monitoring data for the left optical interface working facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the X1 line rate.<br>**c.** Select the X1 facility in the Facility drop down list.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>***Note:*** Verify that no performance monitoring data exists for the new network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group. |
| **51** | At the new network element, retrieve performance monitoring data for the right optical interface working facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the Y1 line rate.<br>**c.** Select the Y1 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>***Note:*** Verify that no performance monitoring data exists for the new network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group. |
| **52** | At the left adjacent network element, retrieve performance monitoring data for the optical interface working facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the W1 line rate.<br>**c.** Select the W1 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>***Note:*** Verify that no performance monitoring data exists for the left adjacent network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **53** | At the right adjacent network element, retrieve performance monitoring data for the optical interface working facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the Z1 line rate.<br>**c.** Select the Z1 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>***Note:*** Verify that no performance monitoring data exists for the right adjacent network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group. |
| **54** | At the right adjacent network element, release the forced switch.<br>**a.** Select Status in the Protection menu.<br>**b.** Under Protection summary, select the OCn type matching the line rate of your linear chain.<br>**c.** Under OCn equipment protection details, select the Z1 optical interface.<br>**d.** Click Release.<br>**e.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Force Switch Complete minor alarm is cleared against slot Z1 at the right adjacent network element.<br>***Note 2:*** The Force Switch Complete-Remote minor alarm is cleared against the left adjacent network element.<br>***Note 3:*** If the new network element is line-timed, wait until the PLL Not Locked to Timing Ref. minor alarm on the new network element clears before you continue. If it does not clear within 3 minutes, contact your next level of support or your Nortel Networks support group and do not continue the procedure. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **55** | At the left adjacent network element, release the forced switch.<br>**a.** Select Status in the Protection menu.<br>**b.** Under Protection summary, select the OCn type matching the line rate of your linear chain.<br>**c.** Under OCn equipment protection details, select the W1 optical interface.<br>**d.** Click Release.<br>**e.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Force Switch Complete minor alarm is cleared against slot W1 at the left adjacent network element.<br>***Note 2:*** The Force Switch Complete-Remote minor alarm is cleared against the right adjacent network element.<br>***Note 3:*** If the new network element is line-timed, wait until the PLL Not Locked to Timing Ref. minor alarm on the new network element clears before you continue. If it does not clear within 3 minutes, contact your next level of support or your Nortel Networks support group and do not continue the procedure. |
| **56** | Switch traffic away from the protection line onto the working line for span A at the left adjacent network element.<br>**a.** Select Status in the Protection menu.<br>**b.** Under Protection summary, select the OCn type matching the line rate of your linear chain.<br>**c.** Under OCn equipment protection details, select the W2 optical interface.<br>**d.** Click Operate.<br>**e.** In the Operate Protection Switch dialog box, click Manual Switch.<br>**f.** Click Operate.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note 1:*** A traffic hit of less than 50ms occurs.<br>***Note 2:*** The SDCC Link Failure alarm raised at the new ADM site clears within 2 minutes. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **57** | At the left adjacent network element, verify that no alarms are active.<br>**a.** Select Active Alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note:*** If alarms are active at the left adjacent network element, contact your next level of support or your Nortel Networks support group. |
| **58** | At the new linear ADM node, verify that no alarms are active.<br>**a.** Select Active alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note:*** If alarms other than the following are active, contact your next level of support or your Nortel Networks support group.<br>• The OC-3, OC-12, or OC-48 Rx Loss of Signal on X2 and/or Y2 interfaces<br>• The Loss of Shelf Pri. Timing Ref. if the new network element is line-timed<br>• The Loss of Shelf Sec. Timing Ref. if the new network element is line-timed |
| **59** | At the right adjacent network element, verify that no alarms are active.<br>**a.** Select Active Alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note:*** If alarms are active at the right adjacent node, contact your next level of support or your Nortel Networks support group. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **60** | Lockout the traffic on the working line for Span A at the left adjacent network element.<br>**a.** Select Status in the Protection menu.<br>**b.** Under Protection summary, select the OCn type matching the line rate of your linear chain.<br>**c.** Under OCn equipment protection details, select the W2 optical interface.<br>**d.** Click Operate.<br>**e.** In the Operate Protection Switch dialog box, click Lockout.<br>**f.** Click Operate.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Lockout of Protection Complete minor alarm is raised against slot W2 at the left adjacent network element.<br>***Note 2:*** The Lockout of Protection Complete-Remote minor alarm is raised against slot Z2 at the right adjacent network element. |
| **61** | Lockout the traffic on the working line for Span B at the right adjacent network element.<br>**a.** Select Status in the Protection menu.<br>**b.** Under Protection summary, select the OCn type matching the line rate of your linear chain.<br>**c.** Under OCn equipment protection details, select the Z2 optical interface.<br>**d.** Click Operate.<br>**e.** In the Operate Protection Switch dialog box, click Lockout.<br>**f.** Click Operate.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Lockout of Protection Complete minor alarm is raised against slot Z2 at the right adjacent network element.<br>***Note 2:*** The Lockout of Protection Complete-Remote minor alarm is cleared against slot Z2 at the right adjacent network element. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **62** | At the left adjacent network element, disconnect the fibers that terminate on the protection circuit pack seated in the W2 slot number recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47. The following alarms can be raised both at near and far ends.<br>• The OC-3, OC-12, or OC-48 Rx RFI minor alarm is raised at the right adjacent network element.<br>• The OC-3, OC-12, or OC-48 Rx Loss of Signal minor alarm is raised against slot W2.<br>• The Loss of Shelf Primary Timing Reference major alarm is raised against W2 if the optical interface in slot W2 is provisioned as the primary timing source.<br>• The Loss of Shelf Secondary Timing Reference major alarm is raised against W2 if the optical interface in slot W2 is provisioned as the primary timing source.<br>• The Loss of BITSout-A Primary Timing Reference major alarm is raised if the optical interface in slot W2 is provisioned as the primary timing reference for BITSout-A.<br>• The Loss of BITSout-A Secondary Timing Reference major alarm is raised against W2 if the optical interface in slot W2 is provisioned as the secondary timing reference for BITSout-A.<br>• The Loss of BITSout-B Primary Timing Reference major alarm is raised against W2 if the optical interface in slot W2 is provisioned as the primary timing reference for BITSout-B.<br>• The Loss of BITSout-B Secondary Timing Reference major alarm is raised against W2 if the optical interface in slot W2 is provisioned as the secondary timing reference for BITSout-B.<br>• If the optical interface in slot W2 is the active timing reference, the Timing Generation Entry to Holdover condition is raised and cleared after the Sync Reference Switch Completed condition is raised.<br>***Note:*** The Lockout of Protection Complete alarm raised in previous steps remains present. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|

**63** Connect the Tx and Rx fibers which come from the X2 protection circuit pack to the Rx and Tx of W2 protection circuit pack.Check the Rx power at the X2 and W2 using a power meter and adjust them to ensure they are set between the Rx overload and Rx sensitivity specifications from the Technical specifications section of the *Planning and Ordering Guide*, NTRN10AM, before connecting the Rx fibers to the X2 and W2 circuit pack Rx ports.

**DANGER**
**Risk of personal injury**
When inserted in a shelf slot, the optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber

**CAUTION**
**Risk of inaccurate test results**
When handling the equipment, the following precautions must always be observed.

**Clean optical connections**
To ensure accurate results, clean the optical connectors and verify the optical meter calibration. Ensure positive mating of fibers in optical connectors.

**Optical fibers**
Do not mix transmit and receive fiber cables.

**Equipment handling**
Wear an antistatic strap.

***Note:*** A Lockout Complete-Remote alarm is raised against slot X2 on the new linear ADM network element.

**64** At the right adjacent network element, disconnect the fibers which terminate on the protection circuit pack seated in the Z2 slot number recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **65** | Connect the Tx and Rx fibers which come from the Y2 protection circuit pack to the Rx and Tx of Z2 circuit pack. Check the Rx power at the Y2 and Z2 using a power meter and adjust them to ensure they are set between the Rx overload and Rx sensitivity specifications from the Technical specifications section of the *Planning and Ordering Guide*, NTRN10AM, before connecting the Rx fibers to the Y2 and Z2 circuit pack Rx ports. |

**DANGER**
**Risk of personal injury**
When inserted in a shelf slot, the optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber

**CAUTION**
**Risk of inaccurate test results**
When handling the equipment, the following precautions must always be observed.

**Clean optical connections**
To ensure accurate results, clean the optical connectors and verify the optical meter calibration. Ensure positive mating of fibers in optical connectors.

**Optical fibers**
Do not mix transmit and receive fiber cables.

**Equipment handling**
Wear an antistatic strap.

***Note 1:*** All alarms raised in step 62 clear, except the Lockout of Protection Complete alarm.

***Note 2:*** A Lockout Complete-Remote alarm is raised against slot Y2 on the new linear ADM network element.

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **66** | At the new network element, initialize performance monitoring data for the left optical interface protection facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the X2 line rate.<br>**c.** Select the X2 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>**g.** Select all the PM stats rows, then click Clear Counts.<br>**h.** In the Clear PM Counts dialog box, under Restart, click Both.<br>**i.** Under Period, select the 15 Min check box and the Day check box.<br>**j.** Select the ALL option from the Monitor Type drop down list.<br>**k.** Select the X2 facility in the Facility box.<br>**l.** Click OK, then click OK in the confirmation dialog box.<br>**m.** Select all the PM statistical rows, then click Restart Untimed.<br>**n.** Select the X2-ALL option in the Facility list.<br>**o.** Click OK, then click OK in the confirmation dialog box. |
| **67** | At the new network element, initialize performance monitoring data for the right optical interface protection facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the Y2 line rate.<br>**c.** Select the Y2 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>**g.** Select all the PM stats rows, then click Clear Counts.<br>**h.** In the Clear PM Counts dialog box, under Restart, click Both.<br>**i.** Under Period, select the 15 Min check box and the Day check box.<br>**j.** Select the ALL option from the Monitor Type drop down list.<br>**k.** Select the Y2 facility in the Facility box.<br>**l.** Click OK, then click OK in the confirmation dialog box.<br>**m.** Select all the PM statistical rows, then click Restart Untimed.<br>**n.** Select the Y2-ALL option in the Facility list.<br>**o.** Click OK, then click OK in the confirmation dialog box. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **68** | At the left adjacent network element, initialize performance monitoring data for the optical interface protection facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the W2 line rate.<br>**c.** Select the W2 facility in the Facility drop down list.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>**g.** Select all the PM stats rows, then click Clear Counts.<br>**h.** In the Clear PM Counts dialog box, under Restart, click Both.<br>**i.** Under Period, select the 15 Min check box and the Day check box.<br>**j.** Select the ALL option from the Monitor Type drop down list.<br>**k.** Select the W2 facility in the Facility box.<br>**l.** Click OK, then click OK in the confirmation dialog box.<br>**m.** Select all the PM statistical rows, then click Restart Untimed.<br>**n.** Select the W2-ALL option in the Facility list.<br>**o.** Click OK, then click OK in the confirmation dialog box. |
| **69** | At the right adjacent network element, initialize performance monitoring data for the optical interface protection facility.<br>**a.** Select Facility PM counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the Z2 line rate.<br>**c.** Select the Z2 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>**g.** Select all the PM stats rows, then click Clear Counts.<br>**h.** In the Clear PM Counts dialog box, under Restart, click Both.<br>**i.** Under Period, select the 15 Min check box and the Day check box.<br>**j.** Select the ALL option from the Monitor Type drop down list.<br>**k.** Select the Z2 facility in the Facility box.<br>**l.** Click OK, then click OK in the confirmation dialog box.<br>**m.** Select all the PM statistical rows, then click Restart Untimed.<br>**n.** Select the Y1-ALL option in the Facility list.<br>**o.** Click OK, then click OK in the confirmation dialog box. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **70** | Wait 15 minutes before proceeding with the next step. |
| **71** | At the new linear ADM network element, retrieve performance monitoring data for the left optical interface protection facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the X2 line rate.<br>**c.** Select the X2 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>***Note:*** Verify that no performance monitoring data exists for the new network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group. |
| **72** | At the new linear ADM network element, retrieve performance monitoring data for the right optical interface protection facility.<br>**a.** Select Facility PM Counts in the Performance menu<br>**b.** In the Type box, select the OCn type matching the Y2 line rate.<br>**c.** Select the Y2 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>***Note:*** Verify that no performance monitoring data exists for the new network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group. |
| **73** | At the left adjacent network element, retrieve performance monitoring data for the optical interface protection facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the W2 line rate.<br>**c.** Select the W2 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>***Note:*** Verify that no performance monitoring data exists for the left adjacent network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **74** | At the right adjacent network element, retrieve performance monitoring data for the optical interface protection facility.<br>**a.** Select Facility PM Counts in the Performance menu.<br>**b.** In the Type box, select the OCn type matching the Z2 line rate.<br>**c.** Select the 2 facility in the Facility box.<br>**d.** Select All in the Location box.<br>**e.** Select Receive in the Direction box.<br>**f.** Click Start Monitoring and wait a few seconds, then click Stop Monitoring.<br>***Note:*** Verify that no performance monitoring data exists for the right adjacent network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group. |
| **75** | At the left adjacent network element, release the lockout.<br>**a.** Select Status in the Protection menu.<br>**b.** Under Protection summary, select the OCn type matching the line rate of the W2 optical interface.<br>**c.** Under OCn equipment protection details, select the W2 optical interface.<br>**d.** Click Release.<br>**e.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Lockout of Protection Complete minor alarm against slot W2 clears at the left adjacent network element.<br>***Note 2:*** The Lockout of Protection Complete-Remote minor alarm against slot X2 clears at the new network element. |
| **76** | At the right adjacent network element, release the lockout.<br>**a.** Select Status in the Protection menu.<br>**b.** Under Protection summary, select the OCn type matching the line rate of the Z2 optical interface.<br>**c.** Under OCn equipment protection details, select the Z2 optical interface.<br>**d.** Click Release.<br>**e.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Lockout of Protection Complete minor alarm against slot Z2 clears at the right adjacent network element.<br>***Note 2:*** The Lockout of Protection Complete-Remote minor alarm against slot Y2 clears at the new network element. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **77** | The current switch mode on span A is BI. The required switch mode for span A is recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br><br>**If** the switch mode in Recorded information (Adding an ADM network element to a linear network) on page 2-47 is — **Then** go to<br>UNI — the next step<br>BI — step 80 |
| **78** | Set the unidirectional protection switch mode at the left adjacent network element.<br><br>**a.** Select Provisioning in the Protection menu.<br><br>**b.** In the Equipment type box, select the OCn type matching the line rate of the W1 optical interface.<br><br>**c.** Select the W1 optical facility OCn-slot#/OC-n-slot#-port# in the list.<br><br>**d.** Click Edit.<br><br>***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.<br><br>**e.** In the Edit OCn Protection Provisioning dialog box, under Switch mode, click Unidirectional.<br><br>**f.** Click OK.<br><br>**g.** Click Yes in the confirmation dialog box.<br><br>***Note 1:*** The Protection Mode Mismatch minor alarm is raised against slot W2 at the left adjacent network element.<br><br>***Note 2:*** The Protection Mode Mismatch minor alarm is raised against slot X2 at the new ADM network element.<br><br>**—continued—** |

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **79** | Set the unidirectional protection switch mode at the new network element.<br>**a.** Select Provisioning in the Protection menu.<br>**b.** In the Equipment type box, select the OCn type matching the line rate of the X1 optical interface.<br>**c.** Select the X1 facility OCn-slot#/OC-n-slot#-port# in the list.<br>**d.** Click Edit.<br>***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.<br>**e.** In the Edit OCn Protection Provisioning dialog box, under Switch mode, select Unidirectional.<br>**f.** Click OK.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Protection Mode Mismatch minor alarm clears against slot W2 at the left adjacent network element.<br>***Note 2:*** The Protection Mode Mismatch minor alarm clears against slot X2 at the new ADM network element. |
| **80** | The current switch mode on span B is BI. The required switch mode for span A is recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**If** the switch mode in Recorded information (Adding an ADM network element to a linear network) on page 2-47 is — **Then** go to:<br>UNI — the next step<br>BI — step 83 |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **81** | Set the unidirectional protection switch mode at the right adjacent network element.<br>**a.** Select Provisioning in the Protection menu.<br>**b.** In the Equipment type box, select the OCn type matching the line rate of the Z1 optical interface.<br>**c.** Select the Z1 optical facility OCn-slot#/OC-n-slot#-port# in the list.<br>**d.** Click Edit.<br>***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.<br>**e.** In the Edit OCn Protection Provisioning dialog box, under Switch mode, click Unidirectional.<br>**f.** Click OK.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Protection Mode Mismatch minor alarm is raised against slot Z2 at the right adjacent network element.<br>***Note 2:*** The Protection Mode Mismatch minor alarm is raised against slot Y2 at the new ADM network element. |
| **82** | Set the unidirectional protection switch mode at the new network element.<br>**a.** Select Provisioning in the Protection menu.<br>**b.** In the Equipment type box, select the OCn type matching the line rate of the Y1 optical interface.<br>**c.** Select the Y1 optical facility OCn-slot#/OC-n-slot#-port# in the list .<br>**d.** Click Edit.<br>***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.<br>**e.** In the Edit OCn Protection Provisioning dialog box, under Switch mode, click Unidirectional.<br>**f.** Click OK.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Protection Mode Mismatch minor alarm clears against slot Z2 at the right adjacent network element.<br>***Note 2:*** The Protection Mode Mismatch minor alarm clears against slot Y2 at the new ADM network element. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **83** | Provision the section trace feature for slot X1 at the new network element.<br>**a.** At the Site Manager session connected to the new network element select Equipment & Facility Provisioning in the Configuration menu.<br>**b.** Under Equipment, select the X1 slot number.<br>**c.** Under Facility, select the X1 slot number.<br>**d.** Under Facility, click Section Trace.<br>**e.** In the Section Trace dialog box, in the Fail mode box, select the section trace fail mode value of the left adjacent network element slot W1 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**f.** In the Format box, select the section trace format value of the left adjacent network element slot W1 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**g.** In the Transmitted field, enter the Expected value of the left adjacent network element slot W1 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**h.** In the Expected Rx field, enter the Transmitted value of the left adjacent network element slot W1 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**i.** Click OK.<br>**—continued—** |

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **84** | Provision the section trace feature for slot X2 at the new network element.<br>**a.** At the Site Manager session connected to the new network element select Equipment & Facility Provisioning in the Configuration menu.<br>**b.** Under Equipment, select the X2 slot number.<br>**c.** Under Facility, select the X2 slot number.<br>**d.** Under Facility, click Section Trace.<br>**e.** In the Section Trace dialog box, in the Fail mode box, select the section trace fail mode value of the left adjacent network element slot W2 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**f.** In the Format box, select the section trace format value of the left adjacent network element slot W2 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**g.** In the Transmitted field, enter the Expected value of the left adjacent network element slot W2 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**h.** In the Expected Rx field, enter the Transmitted value of the left adjacent network element slot W2 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**i.** Click OK.<br>**—continued—** |

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **85** | Provision the section trace feature for slot Y1 at the new network element.<br>**a.** At the Site Manager session connected to the new network element select Equipment & Facility Provisioning in the Configuration menu.<br>**b.** Under Equipment, select the Y1 slot number.<br>**c.** Under Facility, select the Y1 slot number.<br>**d.** Under Facility, click Section Trace.<br>**e.** In the Section Trace dialog box, in the Fail mode box, select the section trace fail mode value of the right adjacent network element slot Z1 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**f.** In the Format box, select the section trace format value of the right adjacent network element slot Z1 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**g.** In the Transmitted field, enter the Expected value of the right adjacent network element slot Z1 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**h.** In the Expected Rx field, enter the Transmitted value of the right adjacent network element slot Z1 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**i.** Click OK. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **86** | Provision the section trace feature for slot Y2 at the new network element.<br>**a.** At the Site Manager session connected to the new network element select Equipment & Facility Provisioning in the Configuration menu.<br>**b.** Under Equipment, select the Y2 slot number.<br>**c.** Under Facility, select the Y2 slot number.<br>**d.** Under Facility, click Section Trace.<br>**e.** In the Section Trace dialog box, in the Fail mode box, select the section trace fail mode value of the right adjacent network element slot Z2 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**f.** In the Format box, select the section trace format value of the right adjacent network element slot Z2 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**g.** In the Transmitted field, enter the Expected value of the right adjacent network element slot Z2 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**h.** In the Expected Rx field, enter the Transmitted value of the right adjacent network element slot Z2 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**i.** Click OK. |
| **87** | **If** the section trace fail mode value for the left adjacent network element slot W1 in Recorded information (Adding an ADM network element to a linear network) on page 2-47 is … **Then** go to … |

| If | Then |
|---|---|
| OFF | step 89 |
| not OFF | step 88 |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **88** | Provision the section trace fail mode for the left adjacent network element slot W1.<br>**a.** At the Site Manager session connected to the left and right adjacent network elements, select the left adjacent network element.<br>**b.** Select Equipment & Facility Provisioning in the Configuration menu.<br>**c.** Under Equipment, select the W1 slot number.<br>**d.** Under Facility, select the W1 slot number.<br>**e.** Under Facility, click Section Trace.<br>**f.** In the Section Trace dialog box, in the Fail mode box, select the section trace fail mode value of the left adjacent network element slot W1 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**g.** Click OK. |
| **89** | **If** the section trace fail mode value for the left adjacent network element slot W2 in Recorded information (Adding an ADM network element to a linear network) on page 2-47 is — **Then** go to:<br>OFF — step 91<br>not OFF — step 90 |
| **90** | Provision the section trace fail mode for the left adjacent network element slot W2.<br>**a.** At the Site Manager session connected to the left and right adjacent network elements, select the left adjacent network element.<br>**b.** Select Equipment & Facility Provisioning in the Configuration menu.<br>**c.** Under Equipment, select the W2 slot number.<br>**d.** Under Facility, select the W2 slot number.<br>**e.** Under Facility, click Section Trace.<br>**f.** In the Section Trace dialog box, in the Fail mode box, select the section trace fail mode value of the left adjacent network element slot W2 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**g.** Click OK. |
| **91** | **If** the section trace fail mode value for the right adjacent network element slot Z1 in Recorded information (Adding an ADM network element to a linear network) on page 2-47 is — **Then** go to:<br>OFF — step 93<br>not OFF — step 92 |

—continued—

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **92** | Provision the section trace feature for the right adjacent network element slot Z1.<br>**a.** At the Site Manager session connected to the left and right adjacent network elements, select the right adjacent network element.<br>**b.** Select Equipment & Facility Provisioning in the Configuration menu.<br>**c.** Under Equipment, select the Z1 slot number.<br>**d.** Under Facility, select the Z1 slot number.<br>**e.** Under Facility, click Section Trace.<br>**f.** In the Section Trace dialog box, in the Fail mode box, select the section trace fail mode value of the right adjacent network element slot Z1 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**g.** Click OK. |
| **93** | **If** the section trace fail mode value for the right adjacent network element slot Z2 in Recorded information (Adding an ADM network element to a linear network) on page 2-47 is — **Then** go to:<br>OFF — step 95<br>not OFF — step 94 |
| **94** | Provision the section trace feature for the right adjacent network element slot Z2.<br>**a.** At the Site Manager session connected to the left and right adjacent network elements, select the right adjacent network element.<br>**b.** Select Equipment & Facility Provisioning in the Configuration menu.<br>**c.** Under Equipment, select the Z2 slot number.<br>**d.** Under Facility, select the Z2 slot number.<br>**e.** Under Facility, click Section Trace.<br>**f.** In the Section Trace dialog box, in the Fail mode box, select the section trace fail mode value of the right adjacent network element slot Z2 recorded in Recorded information (Adding an ADM network element to a linear network) on page 2-47.<br>**g.** Click OK. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **95** | Provision the new network element in the NP span of control.<br>**a.** At the Site Manager session connected to the left and right adjacent network elements, select the network processor.<br>**b.** Select Span of Control in the Configuration menu.<br>**c.** Click Add.<br>**d.** In the Add to Span of Control dialog box, select the new network element.<br>**e.** Enter the user identifier and password of the new network element.<br>***Note:*** If centralized security administration (CSA) is enabled on both the NP and the network element, only the user identifier is required.<br>**f.** Click OK. |
| **96** | Login to the new network element at the Site Manager session connected to the left and right adjacent network elements. |

| **97** | **If** | **Then** |
|---|---|---|
| | any of the optical interface circuit packs in the slots W1, W2, X1, X2, Y1, Y2, Z1, or Z2 at the:<br>• left adjacent network element<br>• new network element<br>• right adjacent network element<br>are OC-48 ER, OC-48 ELR, or OC-48 STS circuit packs | perform step 98 to step 108 for each of these circuit packs |
| | none of the optical interface circuit packs in the slots listed above are OC-48 ER, OC-48 ELR, or OC-48 STS circuit packs | go to step 109 |

| | |
|---|---|
| **98** | In Site Manager, select the required network element in the navigation tree. |
| **99** | Select Facility PM Thresholds in the Performance menu. |
| **100** | In the Type box, select OC48. |
| **101** | In the Facility box, select the circuit pack. |
| **102** | In the Location box, select Near end. |
| **103** | In the Direction box, select Receive. |
| **104** | Click Retrieve. |
| **105** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **106** | Click Edit. |
| **107** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **108** | Click OK. |

**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **109** | At the left adjacent network element, verify that no alarms are active.<br>**a.** Select Active alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note 1:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.<br>***Note 2:*** If alarms are active contact your next level of support or your Nortel Networks support group. |
| **110** | At the right adjacent network element, verify that no alarms are active.<br>**a.** Select Active alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note 1:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.<br>***Note 2:*** If alarms are active contact your next level of support or your Nortel Networks support group. |
| **111** | At the new network element, verify that no alarms are active.<br>**a.** Select Active alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note 1:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.<br>***Note 2:*** If alarms are active contact your next level of support or your Nortel Networks support group. |

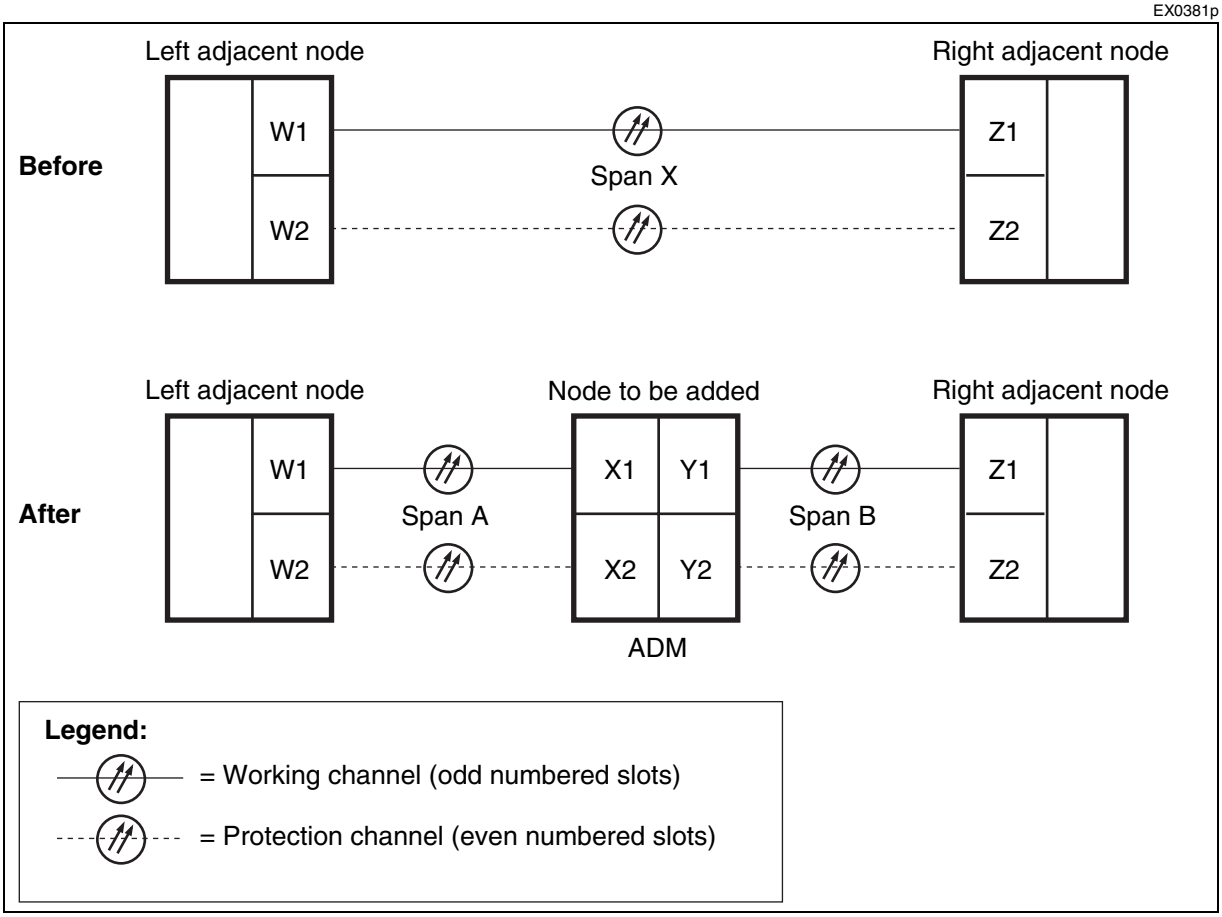
**—continued—**

Procedure 2-1 (continued)
**Adding an ADM network element to a linear network**

| Step | Action |
|---|---|
| **112** | Logout of the Site Manager session connected to the network processor and the new network element.<br>**a.** Select the network processor and all network elements in the span of control.<br>**b.** Select Logout in the File menu.<br>**c.** Select Exit in the File menu to close the Site Manager application..<br>**—end—** |

## Network diagram (Adding a linear ADM node)

EX0381p



# Recorded information (Adding an ADM network element to a linear network)

| **TID and AID of the new network element** | | **TID and AID of the left and right adjacent network elements** | |
|---|---|---|---|
| Node to be added (TID) | | Left adjacent node (TID) | |
| X1 odd slot # (working) AID | | W1 odd slot E (working) AID | |
| X2 even slot # (protection) AID | | W2 even slot # (protection) AID | |
| Y1 odd slot # (working) AID | | Right adjacent node (TID) | |
| Y2 even slot # (protection) AID | | Z1 odd slot # (working) AID | |
| | | Z2 even slot # (protection) AID | |
| **Protection switch modes for span X, A, B** | | | |
| Switch mode - span X (UNI or BI) | | | |
| Switch mode - span A (UNI or BI) | | | |
| Switch mode - span B (UNI or BI) | | | |

| **Synchronization of the new ADM network element** | | | | |
|---|---|---|---|---|
| **References** | **Primary** | | **Secondary** | |
| Source (BITSIN-A, BITSIN-B, OC3-slot#, OC3-slot#-port#, ,OC12-slot#, OC12-slot#-port#, OC48-slot#, NONE) | | | | |
| Quality level (ST1, STU, ST2, ST3, SMC, RES, DUS, NONE) | | | | |
| Framing format (ESF, or SF) | | | | |
| Line code (AMI, or B8ZS) | | | | |
| Timing mode (Line Timed, Free Run, External) | | | | |

| **Section trace parameters of the adjacent network elements** | | | | | |
|---|---|---|---|---|---|
| | **Facility** | **Section trace fail mode** | **Section trace format** | **Transmitted values** | **Expected values** |
| Left adjacent node W1 (odd slot) | | | | | |

| **TID and AID of the new network element** | | | **TID and AID of the left and right adjacent network elements** | | |
|---|---|---|---|---|---|
| Left adjacent node W2 (even slot) | | | | | |
| Right adjacent node Z1 (odd slot) | | | | | |
| Right adjacent node Z2 (even slot) | | | | | |

# Pass-through ADM connections (Adding an ADM network element to a linear network)

| Pass-through connections | | | | | A | |
|---|---|---|---|---|---|---|
| **Connection rate** | **Connection ID** | **fromAID** | **toAID** | **Connection type** | **√** | **Time** |
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| Pass-through connections | | | | | A | |
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| **Connection rate** | **Connection ID** | **fromAID** | **toAID** | **Connection type** | √ | **Time** |
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| Pass-through connections | | | | | A | |
|---|---|---|---|---|---|---|
| **Connection rate** | **Connection ID** | **fromAID** | **toAID** | **Connection type** | √ | **Time** |
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| Pass-through connections | | | | | A | |
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| **Connection rate** | **Connection ID** | **fromAID** | **toAID** | **Connection type** | √ | **Time** |
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# Procedure 2-2
# Adding a new terminal network element to a linear network

Use this procedure to add a new terminal network element to a linear configuration. This procedure converts the existing terminal network element at one end of the configuration to a linear add/drop multiplexer (ADM) network element, then connects this linear ADM network element to the new terminal network element. You can add the new terminal network element to either end of the existing configuration.

This procedure supports the addition of the new terminal network element in

- a point to point linear configuration
- a linear ADM chain with three or more network elements

See Network diagram (Extending a point to point linear configuration) on page 2-71 and Network diagram (Extending a linear ADM chain) on page 2-71.

Both reconfigurations involve the addition of a new span X from terminal network element Z. Network element Z must be reconfigured as an ADM network element before adding the new terminal network element X. See Network diagram (Connections to the new terminal network element) on page 2-72.

***Note 1:*** This procedure does not impact traffic on the existing configuration.

***Note 2:*** The new network element must be of the same line rate as the rest of the configuration.

***Note 3:*** Linear systems are supported by the following circuit packs:

- OC-3 and OC-3x4 circuit packs in tributary slots (3 to 10)
- OC-12 circuit packs in line and tributary slots (3 to 12)
- OC-12x4 STS circuit packs in tributary slots (3 to 10)
- OC-48 circuit packs in line slots (11 and 12)
- OC-48 STS circuit packs in line and tributary slots (3 to 12)

OC-12x4 STS and OC-48 STS circuit packs must be used in shelves equipped with STX-192 cross-connect circuit packs. OC-3, OC-3x4, OC-12, and OC-48 circuit packs can be used in shelves equipped with either VTX-48/48e or STX-192 cross-connect circuit packs.

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this chapter, call your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

**CAUTION**
**Risk of circuit pack damage**
Avoid touching any components on the printed circuit board. Electrostatic-sensitive devices can be damaged by your personal electrostatic discharge. Always ground yourself before handling any circuit pack.

**DANGER**
**Risk of personal injury**
Keep all optical connectors on optical interface circuit packs capped when they are not connected to optical fiber cables.

**CAUTION**
**Risk of damaging equipment**
Equipment damage can occur if the received input power of the OC-3, OC-3x4, OC-12, OC-12x4 STS, or OC-48 STS circuit pack exceeds the overload value specified in the Technical specifications section of the *Planning and Ordering Guide* (NTRN10AM). You must install a variable optical attenuator or a fixed attenuator for each instance where the received power level exceeds the overload level.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure.
- fulfill general requirements for reconfiguration procedures. See General requirements for reconfiguration procedures on page 2-253.
- fulfill specific requirements for this procedure. See Specific requirements (Adding a new terminal network element to a linear network) on page 2-254.

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

- ensure you have the required tools. See Tools required (Adding a new terminal network element to a linear network) on page 2-260.
- ensure you have the required materials. See Materials required (Adding a new terminal network element to a linear network) on page 2-263.
- observe all safety requirements described in Safety requirements on page 1-2
- obtain a user identifier (UID) and a password identifier (PID) with a level 3 or higher user privilege code (UPC)

| Step | Action |
|---|---|
| 1 | Ensure you are logged into all of the network elements in the linear chain. See 323-1059-302, Procedures for interface login and logout on page 2-1. |

***Recording information required for the reconfiguration***

***Note:*** An example of a linear configuration is shown in Network diagram (Connections to the new terminal network element) on page 2-72 to help you fill out the appropriate table in this section.

2 Record the target identifier (TID) and access identifier (AID) of the adjacent network element and the terminal network element in Recorded information (Adding a new terminal network element to a linear network) on page 2-73.

3 Record the timing mode, timing references, framing format, and line code of the terminal network element in Recorded information (Adding a new terminal network element to a linear network) on page 2-73.

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|
| **4** | Retrieve section trace parameters for the adjacent network element and the terminal network element. Record the necessary selected values of the output list in Recorded information (Adding a new terminal network element to a linear network) on page 2-73.<br>**a.** Select the adjacent network element from the Site Manager navigation tree<br>**b.** Select Equipment and Facility Provisioning from the Configuration menu.<br>**c.** Select the Working (Y1/Z1) optical interface connected to span X.<br>**d.** Select the Section Trace button to retrieve the section trace information for the working optical interface.<br>**e.** Disable the section trace feature by selecting Alarms off from the Fail Mode drop down menu<br>**f.** Click on the OK button to close the Section Trace window.<br>**g.** Select the Protection (Y2/Z2) optical interface connected to span X.<br>**h.** Select the Section Trace button to retrieve the section trace information for the protection optical interface.<br>**i.** Disable the section trace feature by selecting Alarms off from the Fail Mode drop down menu.<br>**j.** Click on the OK button to close the Section Trace window.<br>**k.** Repeat the above steps for the terminal network element. |

***Provisioning the new network element***

| | |
|---|---|
| **5** | Log into the new network element. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **6** | Retrieve the protection scheme of the optical circuit packs attached to your linear chain on the new network element.<br>**a.** Select Status in the Protection menu.<br>**b.** Under Protection summary, select the optical rate of your linear chain.<br>**c.** Determine the protection scheme for the required optical interface under OCn equipment protection details. |

| **7** | **If** the protection scheme of the new network element | **Then** go to |
|---|---|---|
| | is not 1+1 | step 8 |
| | is 1+1 | step 9 |

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|
| **8** | Provision the Z1/Z2 optical pair in linear mode.<br>**a.** Select Provisioning in the Protection menu.<br>**b.** Select the line rate of your linear chain in the Equipment type list.<br>**c.** Select the Z1 optical interface.<br>**d.** Click Edit.<br>**e.** In the Edit OCn Protection Provisioning dialog box, select 1+1 linear in the Scheme area.<br>**f.** Select Bidirectional in the Switch mode area.<br>**g.** Click OK.<br>**h.** In the confirmation dialog box, click Yes. |
| **9** | Provision the timing mode of the new network element.<br>**a.** Select Synchronization in the Configuration menu.<br>**b.** Click Edit.<br>**c.** In the Timing mode area, select the radio button that corresponds to the timing mode recorded in Recorded information (Adding a new terminal network element to a linear network) on page 2-73.<br>**d.** Click OK<br>**e.** Click Yes in the confirmation dialog box. |
| **10** | **If** the timing mode recorded in Recorded information (Adding a new terminal network element to a linear network) on page 2-73 is — **Then** go to:<br>not Internal Timing — step 11<br>Internal Timing — step 16 |
| **11** | Provision the timing references of the new network element.<br>**a.** Select Synchronization in the Configuration menu.<br>**b.** Click Edit.<br>**c.** Select the primary and secondary timing references under Timing Reference.<br>**d.** Click OK<br>**e.** Click Yes in the confirmation dialog box.<br>***Note:*** The Loss of primary timing reference and loss of secondary timing reference major alarms are raised at the new network element if the system timing is line-timed or if the BITSIN timing references are not connected if the system timing is Externally timed. |

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action | |
|---|---|---|
| **12** | **If** the timing mode recorded in Recorded information (Adding a new terminal network element to a linear network) on page 2-73 is | **Then** go to |
| | line | step 15 |
| | external | step 13 |

**13** Provision the quality level of the timing references of the new network element.

**a.** Select Synchronization in the Configuration menu.

**b.** Click Edit.

**c.** Select BITS in A in the Type box.

**d.** Set the Signal format, Line code and Frame format for BITS in A recorded in Recorded information (Adding a new terminal network element to a linear network) on page 2-73.

**e.** Click OK.

**f.** Click Yes in the confirmation dialog box.

**14** Provision the framing format of BITS in B primary reference.

**a.** Select Synchronization from the Configuration menu.

**b.** Click Edit.

**c.** Select BITS in B in the Type box.

**d.** Set the Signal format, Line code, and Frame format for BITS in B recorded in Recorded information (Adding a new terminal network element to a linear network) on page 2-73.

**e.** Click OK.

**f.** Click Yes in the confirmation dialog box.

**15** Provision the quality level of the primary and secondary reference source.

**a.** Select Synchronization from the Configuration menu.

**b.** Click Edit.

**c.** Select Source quality in the Type box.

**d.** Select the quality level of the primary reference source recorded in Recorded information (Adding a new terminal network element to a linear network) on page 2-73.

**e.** Click Apply, then click Yes in the confirmation dialog box.

**f.** Select the quality level of the secondary reference source recorded in Recorded information (Adding a new terminal network element to a linear network) on page 2-73.

**g.** Click OK, then click Yes in the confirmation dialog box.

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|
| **16** | Provision section trace parameters for the Z1/Z2 optical pair according to the values recorded in Recorded information (Adding a new terminal network element to a linear network) on page 2-73. See 323-1059-520, Editing section trace messages on page 2-4. |

***Checking for active alarms at the new network element***

**17** Check for active alarms at the new network element.

**a.** Select Active alarms in the Faults menu.

***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.

**b.** To view details of an alarm, click on the alarm.

***Note:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.

The following alarms and events should be present on the system:

- OC-3, OC-12, or OC-48 Rx Loss of Signal alarm
- Loss of Shelf Pri. Timing Ref. alarm
- Loss of Shelf Sec. Timing Ref. alarm
- Timing Generation Entry into Free Run alarm if VTX-48/48e or STX-192 circuit packs are used
- PLL Not Locked to Timing Ref. minor alarm on the new network element

***Note:*** If additional or unexpected alarms are present on the system, contact your next level of support or your Nortel Networks support group.

***Logging in to the adjacent network element***

**18** Start a new Site Manager session and connect to the network processor through a network connection or RS-232 connection. See 323-1059-302, Procedures for interface login and logout on page 2-1.

**19** Login to the adjacent network element.

**a.** Select the network element from the navigation tree.

**b.** Right click on the network element and select Login As or Autologin.

**c.** If you selected Login As, enter the user identifier in the User ID field and the password in the Password field, then click Login.

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|

***Checking for active alarms at the adjacent network element***

**20** Verify that no alarms are active at the adjacent network element.

**a.** Select Active alarms in the Faults menu.

***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.

**b.** To view details of an alarm, click on the alarm.

***Note 1:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.

***Note 2:*** If there are active alarms, contact your next level of support or your Nortel Networks support group.

***Installing the new optical interfaces in the adjacent network element***

**21** Insert an optical interface in slot Y1 recorded in Recorded information (Adding a new terminal network element to a linear network) on page 2-73.

**a.** Lift the replacement circuit pack by the locking levers and insert it carefully into the slot guide grooves.

***Note 1:*** Ensure the new circuit pack is running the same software release as the rest of the shelf.

***Note 2:*** The circuit pack is right side up when the printed labels on the front faceplate are right side up.

**b.** Push the circuit pack all the way in until the locking levers touch their latches.

**c.** Lock the circuit pack into its slot by simultaneously pushing the upper locking lever down and the lower locking lever up.

***Note 1:*** Do not force the locking levers. If the levers do not close properly, remove the circuit pack and examine the connectors on the back of the circuit pack. Look for bent pins or damage to the module or shelf keys (the colored inserts near the top and bottom of the shelf connector).

***Note 2:*** The circuit pack can take up to 5 minutes to become available.

**22** Do not install the next optical interface circuit pack until software initialization is complete.

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|
| **23** | Insert an optical interface in slot Y2 recorded in Recorded information (Adding a new terminal network element to a linear network) on page 2-73.<br>**a.** Lift the replacement circuit pack by the locking levers and insert it carefully into the slot guide grooves.<br>***Note 1:*** Ensure the new circuit pack is running the same software release as the rest of the shelf.<br>***Note 2:*** The circuit pack is right side up when the printed labels on the front faceplate are right side up.<br>**b.** Push the circuit pack all the way in until the locking levers touch their latches.<br>**c.** Lock the circuit pack into its slot by simultaneously pushing the upper locking lever down and the lower locking lever up.<br>***Note 1:*** Do not force the locking levers. If the levers do not close properly, remove the circuit pack and examine the connectors on the back of the circuit pack. Look for bent pins or damage to the module or shelf keys (the colored inserts near the top and bottom of the shelf connector).<br>***Note 2:*** The circuit pack can take up to 5 minutes to become available. |
| **24** | Do not proceed to the next step until software initialization is complete.<br>***Note:*** An OC-3, OC-12, or OC-48 Rx Loss of Signal alarm is raised against the Y1 and Y2 circuit packs. |

***Checking the inventory of the adjacent network element***

| | |
|---|---|
| **25** | Select the adjacent network element from the navigation area. |
| **26** | Select Inventory in the Configuration menu. |
| **27** | Verify that the new OC-3, OC-12, or OC-48 circuit packs are listed in the adjacent network element.<br>The output list for the adjacent network element must include:<br>`OC-3/OC-12/OC-48 in slot Y1`<br>`OC-3/OC-12/OC-48 in slot Y2` |

***Provisioning section trace parameters of the optical interfaces of the adjacent network element***

| | |
|---|---|
| **28** | Provision section trace parameters for the Y1/Y2 optical pair according to the values recorded in Recorded information (Adding a new terminal network element to a linear network) on page 2-73. See 323-1059-520, Editing section trace messages on page 2-4. |

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|

***Provisioning the optical interfaces of the adjacent network element to operate in linear mode***

**29** Provision the Y1/Y2 optical pair in linear mode.

**a.** Select Provisioning in the Protection menu.

**b.** Select the appropriate line rate (OC-3, OC-12, or OC-48) in the Equipment type list.

**c.** Select the working or protection facility (OC3-slot#, OC-3-slot#-port#, OC12-slot#, OC-12-slot#-port#, or OC-48-slot#) from the list.

**d.** Click Edit to open the Edit Protection Provisioning dialog box.

**e.** Select 1+1 linear in the Scheme area.

**f.** Select the protection mode (unidirectional or bidirectional) in the Switch mode area.

**g.** Click OK.

**h.** Click Yes in the confirmation dialog box.

***Checking for active alarms at the adjacent network element***

**30** Check for active alarms at the adjacent network element.

**a.** Select Active alarms in the Faults menu.

***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.

**b.** To view details of an alarm, click on the alarm.

***Note 1:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.

***Note 2:*** The OC-3, OC-12, or OC-48 Rx Loss of Signal alarm should be present on the system. If additional or unexpected alarms are present on the system, contact your next level of support or your Nortel Networks support group.

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|

***Connecting the new terminal network element to the working circuit packs of the adjacent network elements***

**31** Connect the Tx and Rx fibers from the Y1 working circuit pack to the Rx and Tx fibers of the Z1 working circuit pack. Check the Rx power at Y1 and Z1 using a power meter. Adjust the power to a value between the Rx overload and Rx sensitivity specifications before connecting the Rx fibers to the Y1 and Z1 circuit pack Rx ports. See the Technical specifications section of the *Planning and Ordering Guide* (NTRN10AM) for the Rx overload and Rx sensitivity values.

**DANGER**
**Risk of personal injury**
When inserted in a shelf slot, the optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber

**CAUTION**
**Risk of inaccurate test results**
When handling the equipment, the following precautions must always be observed.

**Clean optical connections**
To ensure accurate results, clean the optical connectors and verify the optical meter calibration. Ensure positive mating of fibers in optical connectors.

**Optical fibers**
Do not mix transmit and receive fiber cables.

**Equipment handling**
Wear an antistatic strap.

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|
| **32** | Connect the Tx and Rx fibers from the Y2 protection circuit pack to the Rx and Tx fibers of the Z2 protection circuit pack. Check the Rx power at Y2 and Z2 using a power meter. Adjust the power to a value between the Rx overload and Rx sensitivity specifications before connecting the Rx fibers to the Y2 and Z2 circuit pack Rx ports. See the Technical specifications section of the *Planning and Ordering Guide* (NTRN10AM) for the Rx overload and Rx sensitivity values.. |

**DANGER**
**Risk of personal injury**
When inserted in a shelf slot, the optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber

**CAUTION**
**Risk of inaccurate test results**
When handling the equipment, the following precautions must always be observed.

**Clean optical connections**
To ensure accurate results, clean the optical connectors and verify the optical meter calibration. Ensure positive mating of fibers in optical connectors.

**Optical fibers**
Do not mix transmit and receive fiber cables.

**Equipment handling**
Wear an antistatic strap.

***Note:*** All alarms raised in previous steps should clear. If there are still active alarms on the system, contact your next level of support or your Nortel Networks support group.

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|

***Adding the new terminal network element to the NP span of control***

**33** Provision the new network element in the NP span of control.

**a.** At the Site Manager session connected to the left and right adjacent network elements, select the network processor.

**b.** Select Span of Control in the Configuration menu.

**c.** Click Add.

**d.** In the Add to Span of Control dialog box, select the new network element.

**e.** Enter the user identifier and password of the new network element.

***Note:*** If centralized security administration (CSA) is enabled on both the NP and the network element, only the user identifier is required.

**f.** Click OK.

***Remotely logging in to the new terminal network element***

**34** Login to the new terminal network element.

**a.** Select the network element from the navigation tree.

**b.** Right click on the network element and select Login As or Autologin.

**c.** If you selected Login As, enter the user identifier in the User ID field and the password in the Password field, then click Login.

***Resetting the OPR baseline***

**35**

| If | Then |
|---|---|
| any of the optical interface circuit packs in the slots Y1, Y2, Z1, or Z2 at:<br>• NE Z<br>• NE X<br>are OC-48 ER, OC-48 ELR, or OC-48 STS circuit packs | perform step 36 to step 46 for each of these circuit packs |
| none of the optical interface circuit packs in the slots listed above are OC-48 ER, OC-48 ELR, or OC-48 STS circuit packs | go to step 47 |

**36** In Site Manager, select the required network element in the navigation tree.

**37** Select Facility PM Thresholds in the Performance menu.

**38** In the Type box, select OC48.

**39** In the Facility box, select the circuit pack.

**40** In the Location box, select Near end.

**41** In the Direction box, select Receive.

**42** Click Retrieve.

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|
| **43** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **44** | Click Edit. |
| **45** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **46** | Click OK. |

***Checking span performance at each site***

**47** At the adjacent network element, initialize performance monitoring data for the working facility in slot Y1.

- **a.** Select Facility PM counts in the Performance menu
- **b.** Select the Y1 line rate (OC-3, OC-12, or OC-48) in the Type list.
- **c.** Select the Y1 facility in the Facility list.
- **d.** Select All in the Location list.
- **e.** Select Receive in the Direction list.
- **f.** Click Start Monitoring. Wait a few seconds, then click Stop Monitoring.
- **g.** Select all the PM statistical rows, then click Clear Counts.
- **h.** Click Restart both.
- **i.** Select the 15 min and Day Period check boxes.
- **j.** Select the Y1-ALL option in the Facility list.
- **k.** Click OK, then click OK in the confirmation dialog box.
- **l.** Select all the PM statistical rows, then click Restart Untimed.
- **m.** Select the Y1-ALL option in the Facility list.
- **n.** Click OK, then click OK in the confirmation dialog box.

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|
| **48** | At the adjacent network element, initialize performance monitoring data for the protection facility in slot Y2.<br>**a.** Select Facility PM counts in the Performance menu<br>**b.** Select the Y2 line rate (OC-3, OC-12, or OC-48) in the Type list.<br>**c.** Select the Y2 facility in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring. Wait a few seconds, then click Stop Monitoring.<br>**g.** Select all the PM statistical rows, then click Clear Counts.<br>**h.** Click Restart both.<br>**i.** Select the 15 min and Day Period check boxes.<br>**j.** Select the Y2-ALL option in the Facility list.<br>**k.** Click OK, then click OK in the confirmation dialog box.<br>**l.** Select all the PM statistical rows, then click Restart Untimed.<br>**m.** Select the Y2-ALL option in the Facility list.<br>**n.** Click OK, then click OK in the confirmation dialog box. |
| **49** | At the new terminal network element, initialize performance monitoring data for the working facility in slot Z1.<br>**a.** Select Facility PM counts in the Performance menu<br>**b.** Select the Z1 line rate (OC-3, OC-12, or OC-48) in the Type list.<br>**c.** Select the Z1 facility in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring. Wait a few seconds, then click Stop Monitoring.<br>**g.** Select all the PM statistical rows, then click Clear Counts.<br>**h.** Click Restart both.<br>**i.** Select the 15 min and Day Period check boxes.<br>**j.** Select the Z1-ALL option in the Facility list.<br>**k.** Click OK, then click OK in the confirmation dialog box.<br>**l.** Select all the PM statistical rows, then click Restart Untimed.<br>**m.** Select the Z1-ALL option in the Facility list.<br>**n.** Click OK, then click OK in the confirmation dialog box. |

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|
| **50** | At the new terminal network element, initialize performance monitoring data for the protection facility in slot Z2.<br>**a.** Select Facility PM counts in the Performance menu<br>**b.** Select the Z2 line rate (OC-3, OC-12, or OC-48) in the Type list.<br>**c.** Select the Z2 facility in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring. Wait a few seconds, then click Stop Monitoring.<br>**g.** Select all the PM statistical rows, then click Clear Counts.<br>**h.** Click Restart both.<br>**i.** Select the 15 min and Day Period check boxes.<br>**j.** Select the Z2-ALL option in the Facility list.<br>**k.** Click OK, then click OK in the confirmation dialog box.<br>**l.** Select all the PM statistical rows, then click Restart Untimed.<br>**m.** Select the Z2-ALL option in the Facility list.<br>**n.** Click OK, then click OK in the confirmation dialog box. |
| **51** | Wait 15 minutes before proceeding with the next step. |
| **52** | At the adjacent network element, retrieve performance monitoring data for the working facility in slot Y1.<br>**a.** Select Facility PM counts in the Performance menu<br>**b.** Select the Y1 line rate (OC-3, OC-12, or OC-48) in the Type list.<br>**c.** Select the Y1 facility in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring.<br>**g.** Verify that no performance monitoring data exists for the adjacent network element. If non-zero performance monitoring data exists for the adjacent network element, contact your next level of support or your Nortel Networks support group.<br>**h.** Click Stop Monitoring. |

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|
| **53** | At the adjacent network element, retrieve performance monitoring data for the protection facility in slot Y2.<br>**a.** Select Facility PM counts in the Performance menu<br>**b.** Select the Y2 line rate (OC-3, OC-12, or OC-48) in the Type list.<br>**c.** Select the Y2 facility in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring.<br>**g.** Verify that no performance monitoring data exists for the adjacent network element. If non-zero performance monitoring data exists for the adjacent network element, contact your next level of support or your Nortel Networks support group.<br>**h.** Click Stop Monitoring. |
| **54** | At the new terminal network element, retrieve performance monitoring data for the working facility in slot Z1.<br>**a.** Select Facility PM counts in the Performance menu<br>**b.** Select the Z1 line rate (OC-3, OC-12, or OC-48) in the Type list.<br>**c.** Select the Z1 facility in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring.<br>**g.** Verify that no performance monitoring data exists for the new network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group.<br>**h.** Click Stop Monitoring. |

**—continued—**

Procedure 2-2 (continued)
**Adding a new terminal network element to a linear network**

| Step | Action |
|---|---|
| **55** | At the new terminal network element, retrieve performance monitoring data for the protection facility in slot Z2.<br>**a.** Select Facility PM counts in the Performance menu<br>**b.** Select the Z2 line rate (OC-3, OC-12, or OC-48) in the Type list.<br>**c.** Select the Z2 facility in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring.<br>**g.** Verify that no performance monitoring data exists for the new network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group.<br>**h.** Click Stop Monitoring. |

***Checking for active alarms at each site***

| | |
|---|---|
| **56** | Check for active alarms at the new and adjacent network element.<br>**a.** Select Active alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note 1:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.<br>***Note 2:*** If alarms are active, contact your next level of support or your Nortel Networks support group. |

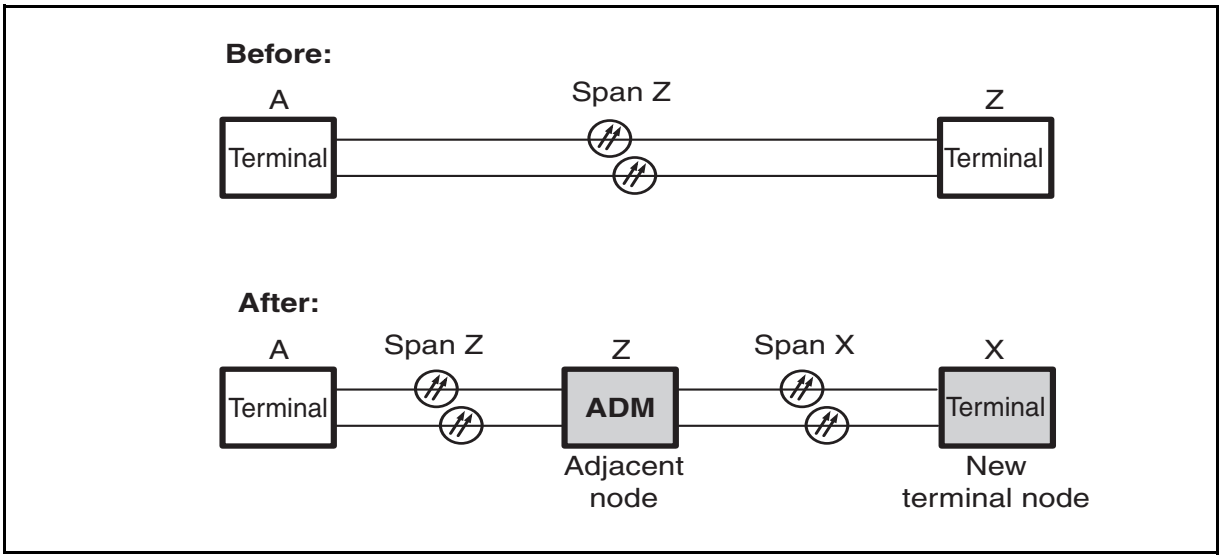
***Logging out***

| | |
|---|---|
| **57** | Logout of the Site Manager session connected to the network processor and the new terminal network element.<br>**a.** Select the network processor and all network elements in the span of control.<br>**b.** Select Logout in the File menu.<br>**c.** Select Exit in the File menu to close the Site Manager application. |

**—end—**

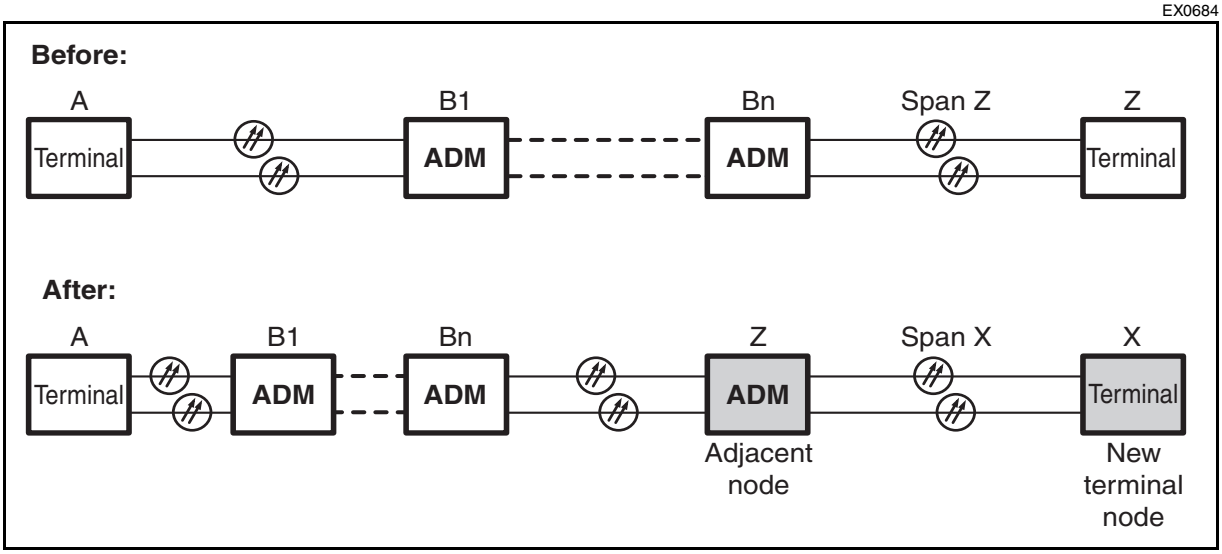
## Network diagram (Extending a point to point linear configuration)

EX0683



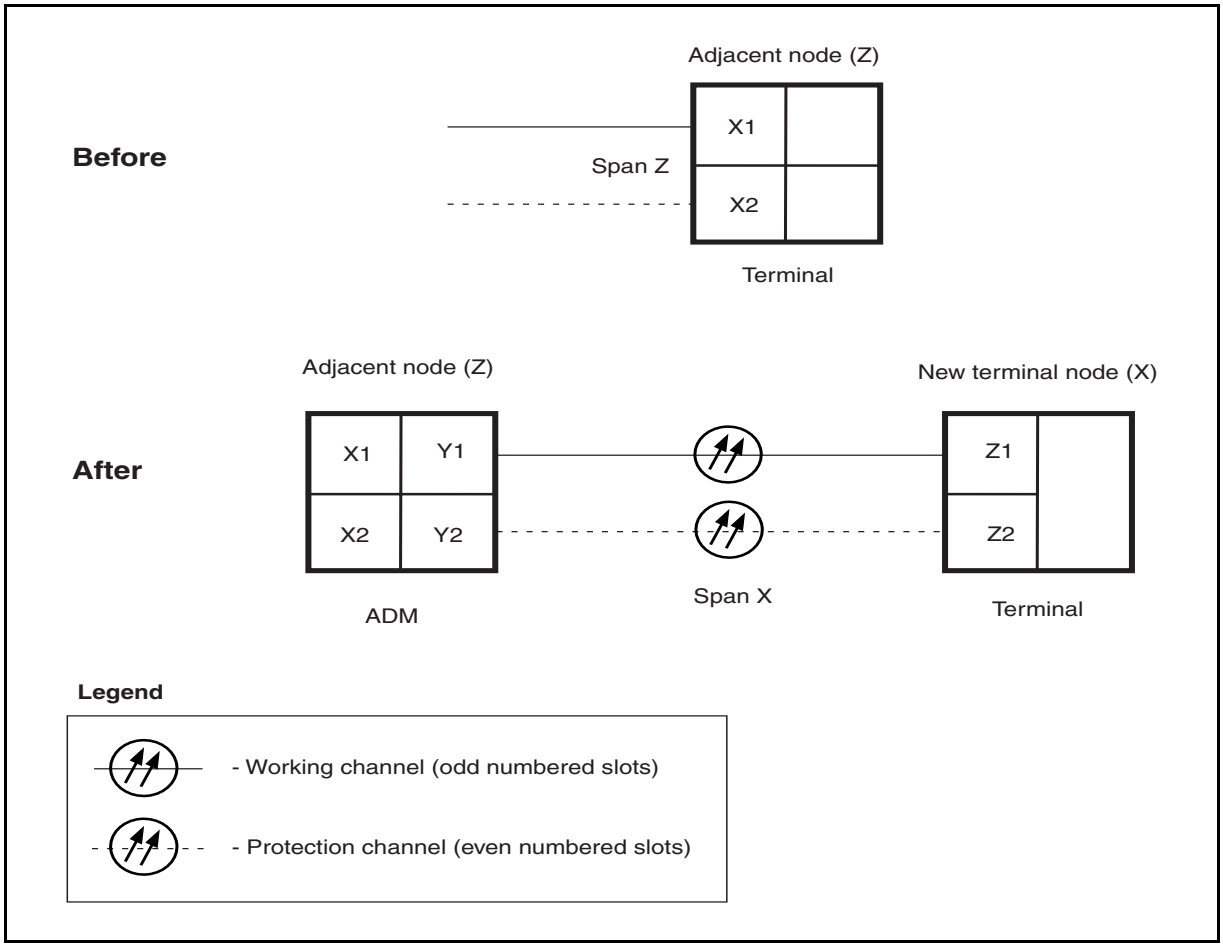

## Network diagram (Extending a linear ADM chain)

EX0684



# Network diagram (Connections to the new terminal network element)

EX0394



# Recorded information (Adding a new terminal network element to a linear network)

| **TID and AID of the adjacent network element** | | **TID and AID of the terminal network element** | |
|---|---|---|---|
| Adjacent network element (TID) | | New Terminal network element (TID) | |
| Y1 odd slot # (working) AID | | Z1 odd slot # (working) AID | |
| Y2 even slot # (protection) AID | | Z2 even slot # (protection) AID | |

| **Synchronization of the terminal network element** | | | | | |
|---|---|---|---|---|---|
| **References** | **Primary** | | **Secondary** | | |
| Source (BITSIN-A, BITSIN-B, OC3-slot#, OC3-slot#-port#, OC12-slot#, OC12-slot#-port#, OC48-slot#, NONE) | | | | | |
| Quality level (ST1, STU, ST2, ST3, SMC, RES, DUS, NONE) | | | | | |
| Framing format (ESF, or SF) | | | | | |
| Line code (AMI, or B8ZS) | | | | | |
| Timing mode (Line Timed, Free Run, External) | | | | | |

| **Section trace parameters of the adjacent and terminal network elements** | | | | | |
|---|---|---|---|---|---|
| | **Facility** | **Section trace fail mode** | **Section trace format** | **Transmitted values** | **Expected values** |
| Adjacent node Y1 (odd slot) | | | | | |
| Adjacent node Y2 (even slot) | | | | | |
| Terminal node Z1 (odd slot) | | | | | |
| Terminal node Z2 (even slot) | | | | | |

# Procedure 2-3
# Adding a network element to a UPSR

Use this procedure to add a new network element to a unidirectional path switched ring (UPSR).

***Note 1:*** This procedure applies only if the adjacent network elements to the network element being added are OPTera Metro 3000-series network elements. If one of the adjacent network elements is not an OPTera Metro 3000-series network element, contact your next level of support or your Nortel Networks support group.

***Note 2:*** The line rate of the new network element must be consistent with that of the UPSR.

***Note 3:*** Depending on the facility and timing provisioned , several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during UPSR DWDM Converting and UPSR Adding / Removing NE reconfiguration on page 2-267.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure.
- fulfill general requirements for reconfiguration procedures.
  See General requirements for reconfiguration procedures on page 2-253.
- fulfill specific requirements for this procedure.
  See Specific requirements (Adding a network element to a UPSR) on page 2-254
- ensure you have the required tools. See Tools required (Adding a network element to a UPSR / BLSR) on page 2-260

—continued—

Procedure 2-3 (continued)
**Adding a network element to a UPSR**

- ensure you have the required materials. See Materials required (Adding an ADM network element to a linear network) on page 2-263
- observe all safety requirements described in Safety requirements on page 1-2
- obtain a user identifier (UID) and a password identifier (PID) with a level 3 or higher user privilege code (UPC)

| Step | Action |
|---|---|
| 1 | Make a copy of the network diagram and customize it so it matches your UPSR. See Network diagram (Adding a network element to a UPSR) on page 2-82. |
| 2 | Record network and nodal information. See Recording information (Adding a network element to a UPSR) on page 2-227. |
| 3 | Log into the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 4 | Log into Network Element A and Network Element B. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 5 | Identify the location of the head-end network element and the synchronization boundary from the Network diagram (Adding a network element to a UPSR) on page 2-82 that you have already drawn. |
| 6 | If the synchronization boundary is not between Network Element A and Network Element B, move the synchronization boundary to that span.<br>See:<br>• Synchronization map with synchronization boundary (Adding a network element to a UPSR) on page 2-83.<br>• Moving a synchronization boundary on page 2-216. |
| 7 | Log in to the new network element using a direct cable or modem connection. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 8 | Provision synchronization for the new network element as follows:<br>• Externally timed if the new network element is an externally-timed head-end. See 323-1051-310, Synchronizing a network element to an external timing source on page 1-3.<br>• Internally timed if the new network element is an internally-timed head-end. See 323-1051-310, Synchronizing a network element to an internal timing source on page 1-4.<br>• Line-timed if the new network element is not the head-end. See 323-1051-310, Synchronizing a network element to a line-timing source on page 1-5. |

—continued—

Procedure 2-3 (continued)
**Adding a network element to a UPSR**

| Step | Action |
|---|---|
| **9** | **If** the section trace feature **Then** go to<br>**is** used in this network step 10<br>**is not** used in this network step 11 |
| **10** | Set section trace fail mode to OFF for the optical interface<br>• in slot x of Network Element C.<br>• in slot y of Network Element C.<br>See 323-1059-520, Editing section trace messages on page 2-4. |
| **11** | Add the pass-through cross-connects for Network Element C, recorded in the Network Element C cross-connects table.<br>See:<br>• Network Element C cross-connects on page 2-252.<br>• 323-1059-320, Procedures for the nodal provisioning of UPSR networks on page 3-1. |
| **12** | **If** the section trace feature **Then** go to<br>**is** used in this network step 13<br>**is not** used in this network step 14 |
| **13** | Set section trace fail mode to OFF for the optical interface<br>• in slot x of Network Element A.<br>• in slot y of Network Element B.<br>See 323-1059-520, Editing section trace messages on page 2-4. |
| **14** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br>***Note:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during UPSR DWDM Converting and UPSR Adding / Removing NE reconfiguration on page 2-267. |
| **15** | Change the slot x optical facility state at Network Element A to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25.<br>***Note:*** This fiber span may have a traffic hit of less than 50 ms. |
| **16** | Change the slot y optical facility state at Network Element B to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25.<br>***Note:*** This fiber span may have a traffic hit of less than 50 ms. |

**—continued—**

Procedure 2-3 (continued)
**Adding a network element to a UPSR**

| Step | Action |
|---|---|
| **17** | At Network Element C, measure the Transmit (Tx) power of the optical interface circuit packs in slot x and slot y.<br>See:<br>• 323-1059-222, Testing the power at the optical interface Tx port on page 2-8<br>• Optical interface specifications on page 2-265.<br>***Note:*** The values obtained from the test must comply with the Launch power minimum values found in the interface specifications table for the optical interface. |
| **18** | At Network Element C, connect the new fiber-optic cable to the Tx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **19** | At Network Element A, disconnect the fiber-optic cable from the Rx connector of the slot x optical interface circuit pack. |
| **20** | At Network Element A, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot y of Network Element C. |
| **21** | At Network Element A, measure the Receive (Rx) input power of the fiber-optic cable identified in step 20.<br>See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265.<br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **22** | At Network Element A, connect the fiber-optic cable, identified in step 20, to the Rx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **23** | At Network Element A, disconnect the fiber-optic cable from the Tx connector of the slot x optical interface circuit pack. |

**—continued—**

Procedure 2-3 (continued)
**Adding a network element to a UPSR**

| Step | Action |
|---|---|
| **24** | At Network Element A, measure the Transmit (Tx) power of the slot x optical interface circuit pack.<br>See:<br>• 323-1059-222, Testing the power at the optical interface Tx port on page 2-8.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Launch power minimum value found in the interface specifications table for the optical interface. |
| **25** | At Network Element A, connect the new fiber-optic cable to the Tx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **26** | At Network Element C, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot x of Network Element A. |
| **27** | At Network Element C, measure the Receive (Rx) input power of the fiber-optic cable identified in step 26.<br>See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265.<br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **28** | At Network Element C, connect the fiber-optic cable, identified in step 26, to the Rx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **29** | At Network Element C, connect the new fiber-optic cable to the Tx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |

**—continued—**

Procedure 2-3 (continued)
**Adding a network element to a UPSR**

| Step | Action |
|---|---|
| **30** | At Network Element B, disconnect the fiber-optic cable from the Rx connector of the slot y optical interface circuit pack. |
| **31** | At Network Element B, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot x of Network Element C. |
| **32** | At Network Element B, measure the Receive (Rx) input power of the fiber-optic cable identified in step 31.<br>See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265.<br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **33** | At Network Element B, connect the fiber-optic cable, identified in step 31, to the Rx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **34** | At Network Element B, disconnect the fiber-optic cable from the Tx connector of the slot y optical interface circuit pack. |
| **35** | At Network Element B, measure the Transmit (Tx) power of the slot y optical interface circuit pack.<br>See:<br>• 323-1059-222, Testing the power at the optical interface Tx port on page 2-8.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Launch power minimum value found in the interface specifications table for the optical interface. |
| **36** | At Network Element B, connect the new fiber-optic cable to the Tx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |

**—continued—**

Procedure 2-3 (continued)
**Adding a network element to a UPSR**

| Step | Action |
|---|---|
| **37** | At Network Element C, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot y of Network Element B. |
| **38** | At Network Element C, measure the Receive (Rx) input power of the fiber-optic cable identified in step 37.<br>See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265. |

**CAUTION**
**Risk of damaging equipment**
Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level.

| | |
|---|---|
| **39** | At Network Element C, connect the fiber-optic cable, identified in step 37, to the Rx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **40** | Add Network Element C to the NPx span of control. See 323-1059-520, Adding a network element to the span of control of a network processor on page 4-3. |
| **41** | At the terminal you are using to connect by direct connection or modem to Network Element C, select Disconnect in the File menu, and click Ok. |
| **42** | Log into Network Element C through the NPx. See 323-1059-302, Logging in to a network element automatically on page 2-30. |
| **43** | **If** the section trace feature — **Then** go to<br>**is** used in this network — step 44<br>**is not** used in this network — step 47 |
| **44** | Provision section trace parameters for the slot x optical facility of Network Element C according to values in the Network Element C, slot x row of the Final section trace parameters table on page 2-249. See 323-1059-520, Editing section trace messages on page 2-4. |
| **45** | Provision section trace parameters for the slot y optical facility of Network Element C according to values in the Network Element C, slot y row of the Initial section trace parameters table on page 2-249. See 323-1059-520, Editing section trace messages on page 2-4. |

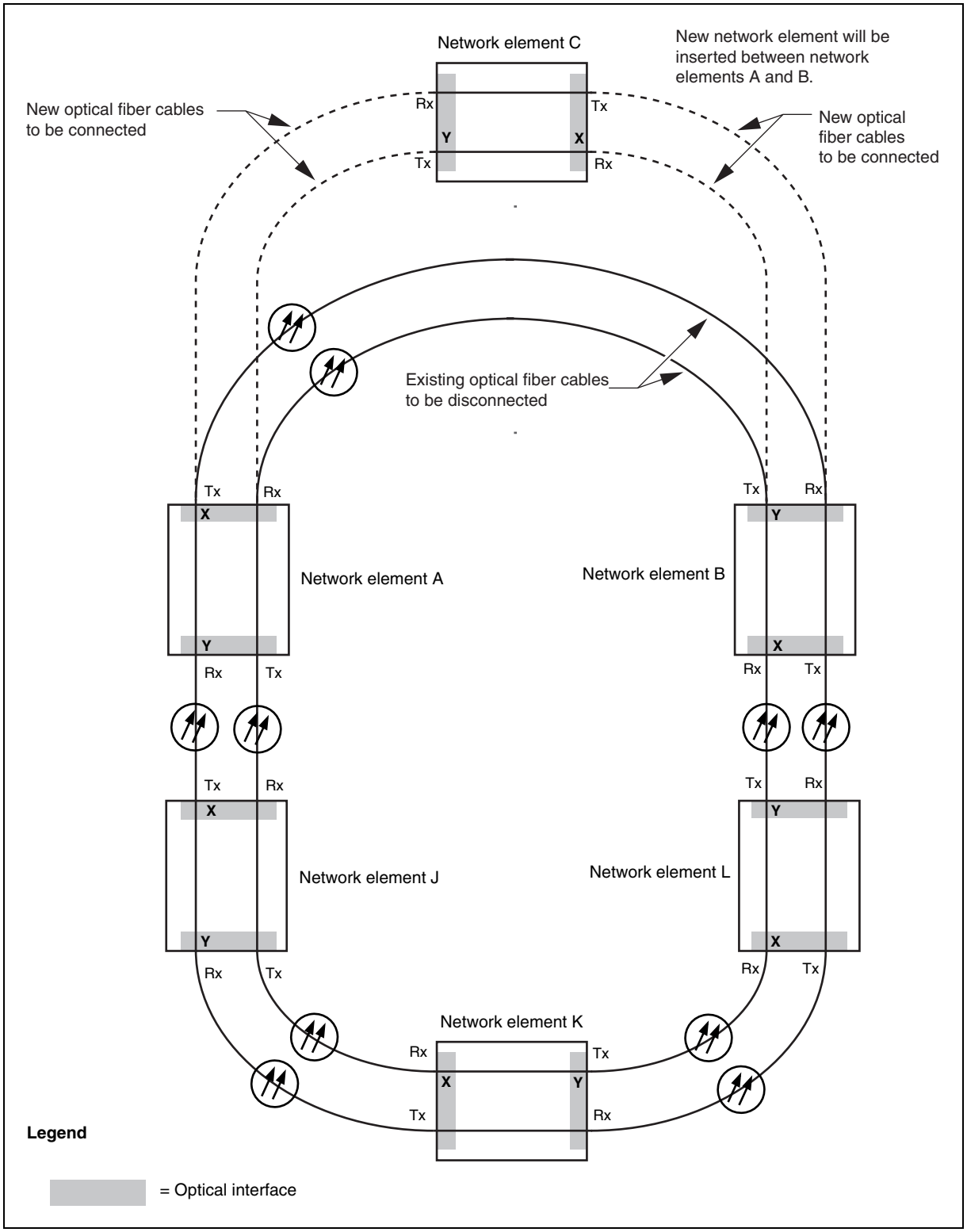
**—continued—**

Procedure 2-3 (continued)
**Adding a network element to a UPSR**

| Step | Action |
|---|---|
| **46** | Reprovision the section trace parameters recorded on the Final section trace parameters table on page 2-249 for the optical interface in slot x of Network Element A and in slot y of Network Element B. See 323-1059-520, Editing section trace messages on page 2-4. |
| **47** | Change the slot x optical facility state at network element A to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **48** | Change the slot y optical facility state at network element B to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **49** | **If** the line rate of your UPSR — **Then** go to<br>is OC-48 or OC-192 — step 50<br>is not OC-48 or OC-192 — step 62 |
| **50** | **If** — **Then**<br>any of the optical interface circuit packs at:<br>• Network Element A, slot x<br>• Network Element B, slot y<br>• Network Element C, slot x<br>• Network Element C, slot y<br>are OC-48 ER, OC-48 ELR, OC-48 STS, or OC-192 — perform step 51 to step 61 for each of these circuit packs<br>none of the optical interface circuit packs at the locations listed above are OC-48 ER, OC-48 ELR, OC-48 STS, or OC-192 — go to step 62 |
| **51** | In Site Manager, select the required network element in the navigation tree. |
| **52** | Select Facility PM Thresholds in the Performance menu. |
| **53** | In the Type box, select OC48 or OC192, as applicable. |
| **54** | In the Facility box, select the circuit pack identified in step 50. |
| **55** | In the Location box, select Near end. |
| **56** | In the Direction box, select Receive. |
| **57** | Click Retrieve. |
| **58** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **59** | Click Edit. |
| **60** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **61** | Click OK. |
| **62** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br>You have completed this reconfiguration.<br>**—end—** |

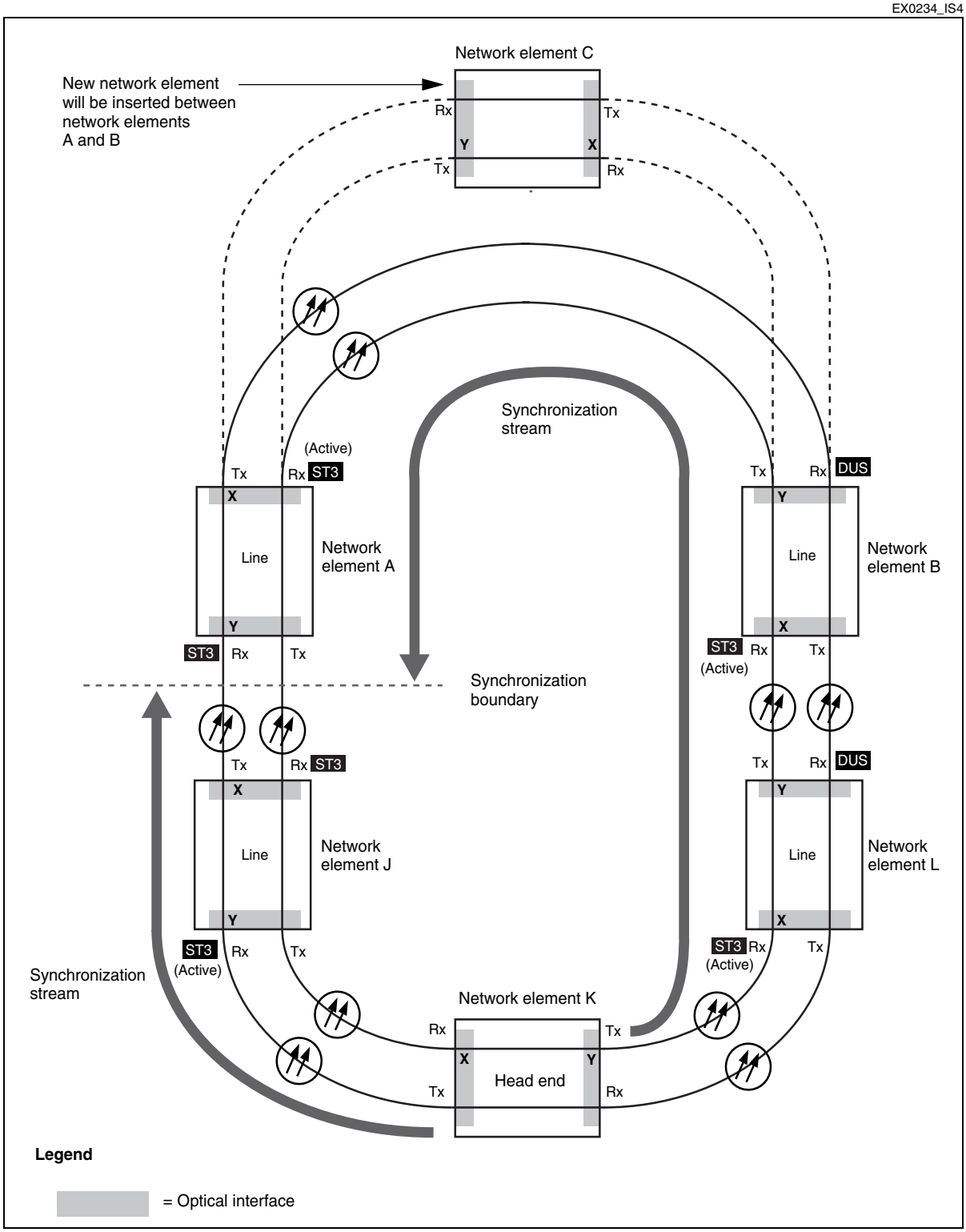
# Network diagram (Adding a network element to a UPSR)

EX0234_IS4



# Synchronization map with synchronization boundary (Adding a network element to a UPSR)

EX0234_IS4



# Procedure 2-4
# Adding a network element to a BLSR

Use this procedure to add a new network element to a 2-fiber, bidirectional line-switched ring.

***Note 1:*** This procedure applies only if all the network elements in the BLSR are OPTera Metro 3500 network elements. If one or more of the network elements are not OPTera Metro 3500 network elements, contact your next level of support or your Nortel Networks support group.

***Note 2:*** If at any time before step 20 (before physically pulling out fiber), you wish to back out of this procedure, perform step 28.

***Note 3:*** Depending on the facility and timing provisioned , several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during BLSR DWDM Converting and BLSR Adding / Removing NE reconfiguration on page 2-269.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure.
- fulfill general requirements for reconfiguration procedures.
  See General requirements for reconfiguration procedures on page 2-253.
- fulfill specific requirements for this procedure.
  See Specific requirements (Adding a network element to a BLSR) on page 2-255
- ensure you have the required tools. See Tools required (Adding a network element to a UPSR / BLSR) on page 2-260

**—continued—**

Procedure 2-4 (continued)
**Adding a network element to a BLSR**

- ensure you have the required materials. See Materials required (Adding an ADM network element to a linear network) on page 2-263
- observe all safety requirements described in Safety requirements on page 1-2
- obtain a user identifier (UID) and a password identifier (PID) with a level 4 or higher user privilege code (UPC)

| Step | Action |
|---|---|
| 1 | Make a copy of the network diagram and customize it so it matches your BLSR. See Network diagram (Adding a network element to a BLSR) on page 2-95. |
| 2 | Record network and nodal information. See Recording information (Adding a network element to a BLSR) on page 2-232. |
| 3 | Log into the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 4 | Log into all the network elements in the NPx Span of Control. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 5 | Perform a network element data backup to the network processor for all network elements in the NPx Span of Control. See 323-1059-302, Saving provisioning data from a shelf processor to a network processor on page 6-8. |
| 6 | Perform a network processor data backup.<br>**If** you are backing up data to — **Then** go to<br>a PC — step 7<br>an OPC — step 8<br>a UNIX workstation — step 9 |
| 7 | See:<br>• 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19, or<br>• 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29.<br>Go to step 10. |
| 8 | See:<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34, or<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40.<br>Go to step 10. |

—continued—

Procedure 2-4 (continued)
**Adding a network element to a BLSR**

| Step | Action |
|---|---|
| **9** | See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24. |
| **10** | Log into Network Element A and Network Element B. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **11** | Identify the location of the head-end network element and the synchronization boundary from the Network diagram (Adding a network element to a BLSR) on page 2-95 that you have already drawn. |
| **12** | If the synchronization boundary is not between Network Element A and Network Element B, move the synchronization boundary to that span.<br>See:<br>• Synchronization map with synchronization boundary (Adding a network element to a BLSR) on page 2-96.<br>• Moving a synchronization boundary on page 2-216. |
| **13** | Log in to the new network element using a direct cable or modem connection. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **14** | Configure the line optical interfaces to BLSR mode. See 323-1059-311, Changing the protection scheme from UPSR to BLSR on page 1-10.<br>***Note:*** If your network is configured as a 1+1 linear configuration, you must first perform a reconfiguration from 1+1 linear to UPSR before performing this step. See Converting a 1+1 linear point-to-point configuration to a 2-node UPSR on page 2-185. |
| **15** | **If** the section trace feature — **Then** go to<br>**is** used in this network — step 16<br>**is not** used in this network — step 17 |
| **16** | Set section trace fail mode to Alarms Off for the optical interface<br>• in slot x of Network Element A.<br>• in slot y of Network Element B.<br>See 323-1059-520, Editing section trace messages on page 2-4. |
| **17** | Set section trace fail mode to Alarms Off for the optical interface<br>• in slot x of Network Element C.<br>• in slot y of Network Element C.<br>See 323-1059-520, Editing section trace messages on page 2-4. |

**—continued—**

Procedure 2-4 (continued)
**Adding a network element to a BLSR**

| Step | Action |
|---|---|
| **18** | Provision synchronization for the new network element as follows:<br>• Externally timed if the new network element is an externally-timed head-end. See 323-1051-310, Synchronizing a network element to an external timing source on page 1-3.<br>• Internally timed if the new network element is an internally-timed head-end. See 323-1051-310, Synchronizing a network element to an internal timing source on page 1-4.<br>• Line-timed if the new network element is not the synchronization head-end. See 323-1051-310, Synchronizing a network element to a line-timing source on page 1-5. |
| **19** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br>***Note:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during BLSR DWDM Converting and BLSR Adding / Removing NE reconfiguration on page 2-269. |
| **20** | Perform a manual switch on slot x of Network Element A to verify the protection line. See 323-1059-311, Operating a manual switch in a BLSR on page 1-31.<br>***Note:*** This fiber span may have a traffic hit of less than 50 ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **21** | Release the manual switch on slot x of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **22** | Perform a manual switch on slot y of Network Element B to verify the protection line. See 323-1059-311, Operating a manual switch in a BLSR on page 1-31.<br>***Note:*** This fiber span may have a traffic hit of less than 50 ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **23** | Release the manual switch on slot y of Network Element B. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **24** | Perform a forced switch on slot y of Network Element B. See 323-1059-311, Operating a forced switch in a BLSR on page 1-32. |
| **25** | Perform a forced switch on slot x of Network Element A. See 323-1059-311, Operating a forced switch in a BLSR on page 1-32. |
| **26** | Change the slot x optical facility state at Network Element A to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |

**—continued—**

Procedure 2-4 (continued)
**Adding a network element to a BLSR**

| Step | Action |
|---|---|
| **27** | Change the slot y optical facility state at Network Element B to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **28** | **CAUTION**<br>You may not back out of this procedure beyond this point.<br><br>If you need to back out of this procedure, restore provisioning data to the network processor and the network elements in the span of control.<br><br>See:<br>• 323-1059-302, Restoring provisioning data from an OPC to a network processor over a TCP/IP link on page 6-42<br>• 323-1059-302, Restoring provisioning data from an OPC to a network processor over an OSI link on page 6-36<br>• 323-1059-302, Restoring provisioning data from a local PC to a network processor using an Ethernet connection on page 6-31<br>• 323-1059-302, Restoring provisioning data from a UNIX workstation to a network processor on page 6-26<br>• 323-1059-302, Restoring provisioning data to a network processor from a remote PC that has an FTP server running on page 6-21<br>• 323-1059-302, Restoring provisioning data from a network processor to a shelf processor on page 6-10<br>• 323-1059-302, Restoring provisioning data from a local PC to a shelf processor on page 6-5<br><br>***Note:*** If you restored provisioning data, then you have completed this procedure. |
| **29** | At Network Element C, measure the Transmit (Tx) power of the optical interface circuit packs in slot x and slot y.<br><br>See:<br>• Testing the power at the optical interface Tx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br><br>***Note:*** The values obtained from the test must comply with the Launch power minimum values found in the interface specifications table for the optical interface. |

**—continued—**

Procedure 2-4 (continued)
**Adding a network element to a BLSR**

| Step | Action |
|---|---|
| **30** | At Network Element C, connect the new fiber-optic cable to the Tx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **31** | At Network Element A, disconnect the fiber-optic cable from the Rx connector of the slot x optical interface circuit pack. |
| **32** | At Network Element A, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot y of Network Element C. |
| **33** | At Network Element A, measure the Receive (Rx) input power of the fiber-optic cable identified in step 32.<br>See:<br>• Testing the power at the optical interface Rx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **34** | At Network Element A, connect the fiber-optic cable, identified in step 32, to the Rx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **35** | At Network Element A, disconnect the fiber-optic cable from the Tx connector of the slot x optical interface circuit pack. |
| **36** | At Network Element A, measure the Transmit (Tx) power of the slot x optical interface circuit pack.<br>See:<br>• Testing the power at the optical interface Tx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Launch power minimum value found in the interface specifications table for the optical interface. |

**—continued—**

Procedure 2-4 (continued)
**Adding a network element to a BLSR**

| Step | Action |
|---|---|
| **37** | At Network Element A, connect the new fiber-optic cable to the Tx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **38** | At Network Element C, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot x of Network Element A. |
| **39** | At Network Element C, measure the Receive (Rx) input power of the fiber-optic cable identified in step 38.<br>See:<br>• Testing the power at the optical interface Rx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **40** | At Network Element C, connect the fiber-optic cable, identified in step 38, to the Rx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **41** | At Network Element C, connect the new fiber-optic cable to the Tx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **42** | At Network Element B, disconnect the fiber-optic cable from the Rx connector of the slot y optical interface circuit pack. |
| **43** | At Network Element B, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot x of Network Element C. |

**—continued—**

Procedure 2-4 (continued)
**Adding a network element to a BLSR**

| Step | Action |
|---|---|
| **44** | At Network Element B, measure the Receive (Rx) input power of the fiber-optic cable identified in step 43. See:<br>• Testing the power at the optical interface Rx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br><br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **45** | At Network Element B, connect the fiber-optic cable, identified in step 43, to the Rx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **46** | At Network Element B, disconnect the fiber-optic cable from the Tx connector of the slot y optical interface circuit pack. |
| **47** | At Network Element B, measure the Transmit (Tx) power of the slot y optical interface circuit pack.<br><br>See:<br>• Testing the power at the optical interface Tx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br><br>***Note:*** The value obtained from the test must comply with the Launch power minimum value found in the interface specifications table for the optical interface. |
| **48** | At Network Element B, connect the new fiber-optic cable to the Tx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **49** | At Network Element C, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot y of Network Element B. |

**—continued—**

Procedure 2-4 (continued)
**Adding a network element to a BLSR**

| Step | Action |
|---|---|
| **50** | At Network Element C, measure the Receive (Rx) input power of the fiber-optic cable identified in step 49. See:<br>• Testing the power at the optical interface Rx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br><br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **51** | At Network Element C, connect the fiber-optic cable, identified in step 49, to the Rx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **52** | Change the slot x optical facility state at network element A to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **53** | Change the slot y optical facility state at network element B to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **54** | In Site Manager, at the terminal you are using to connect to the network processor, add Network Element C to the NPx span of control. See 323-1059-520, Adding a network element to the span of control of a network processor on page 4-3. |
| **55** | At the terminal you are using to connect (by direct connection or modem) to Network Element C, select Disconnect in the File menu, and click Ok. |
| **56** | Log into Network Element C through the network processor. See 323-1059-302, Logging in to a network element automatically on page 2-30. |
| **57** | **If** the section trace feature — **Then** go to<br>**is** used in this network — step 58<br>**is not** used in this network — step 62 |
| **58** | Provision section trace parameters for the slot x optical facility of Network Element C according to values in the Network Element C, slot x row of the Final section trace parameters table on page 2-249. See 323-1059-520, Editing section trace messages on page 2-4. |

**—continued—**

Procedure 2-4 (continued)
**Adding a network element to a BLSR**

| Step | Action |
|---|---|
| **59** | Provision section trace parameters for the slot y optical facility of Network Element C according to values in the Network Element C, slot y row of the Initial section trace parameters table on page 2-249. See 323-1059-520, Editing section trace messages on page 2-4. |
| **60** | Retrieve section trace parameters for slot x at Network Element A and slot y at Network Element B. See 323-1059-520, Retrieving section trace messages on page 2-2. |
| **61** | Ensure the section trace parameters retrieved in step 60 match with the recorded section trace parameters on the Final section trace parameters table on page 2-249 for the optical interface<br>• in slot x of Network Element A<br>• in slot y of Network Element B<br>See 323-1059-520, Editing section trace messages on page 2-4. |
| **62** | Edit the BLSR ring configuration to include the new network element. See:<br>• Final BLSR configuration data table on page 2-249<br>• Editing a BLSR configuration (adding a network element) on page 2-222 |
| **63** | Add the pass-through cross-connects for Network Element C, recorded in the Network Element C cross-connects table. See:<br>• Network Element C cross-connects on page 2-252.<br>• 323-1059-320, Adding a 2WAY cross-connect (BLSR networks) on page 6-13. |
| **64** | Release the forced switch on slot x of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **65** | Release the forced switch on slot y of Network Element B. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **66** | **If** / **Then**<br>any of the optical interface circuit packs at:<br>• Network Element A, slot x<br>• Network Element B, slot y<br>• Network Element C, slot x<br>• Network Element C, slot y<br>are OC-48 ER, OC-48 ELR, OC-48 STS, or OC-192 circuit packs — perform step 67 to step 77 for each of these circuit packs<br>none of the optical interface circuit packs at the locations listed above are OC-48 ER, OC-48 ELR, OC-48 STS, or OC-192 circuit packs — go to step 78 |
| **67** | In Site Manager, select the required network element in the navigation tree. |

**—continued—**

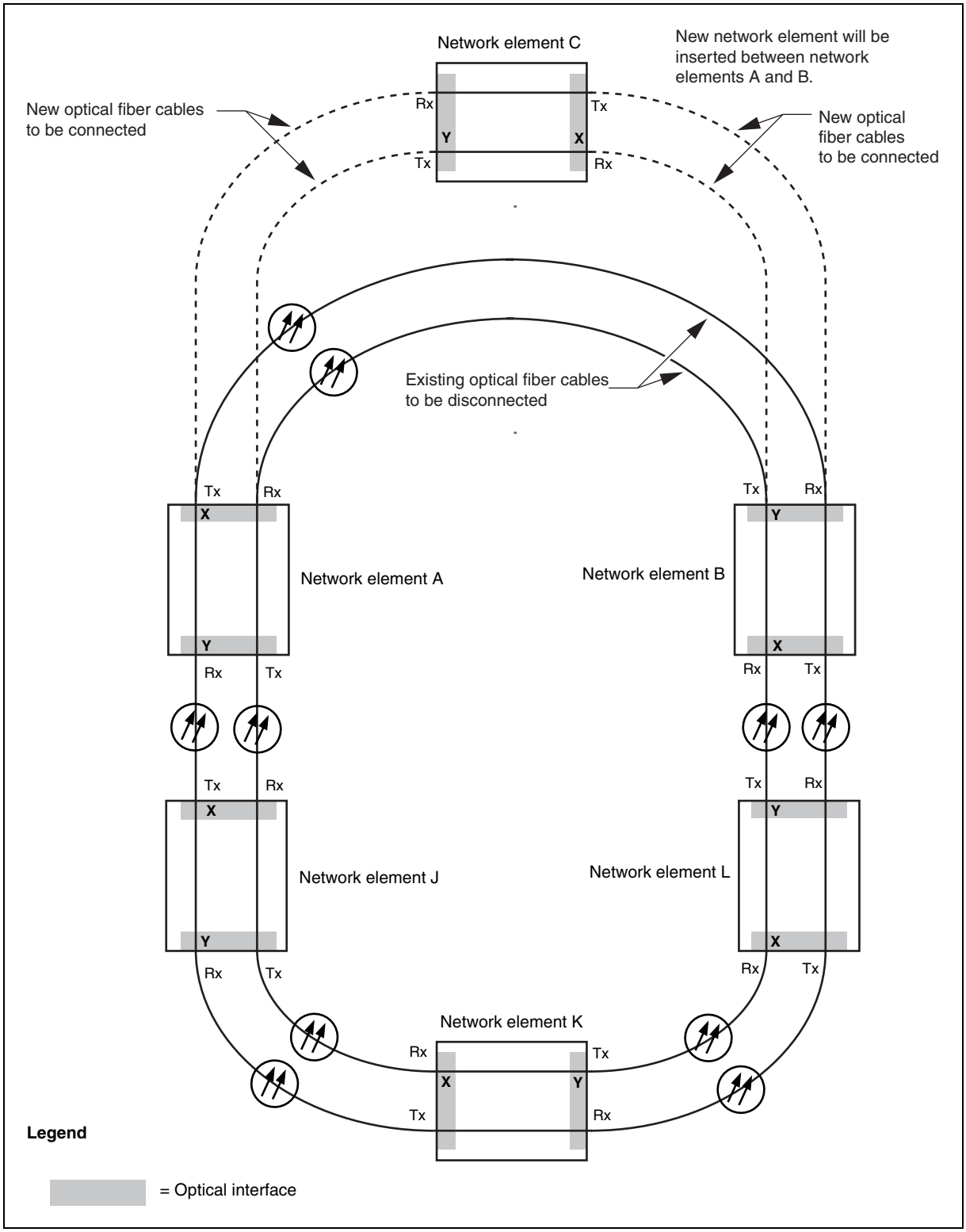
Procedure 2-4 (continued)
**Adding a network element to a BLSR**

| Step | Action |
|---|---|
| **68** | Select Facility PM Thresholds in the Performance menu. |
| **69** | In the Type box, select OC48 or OC192, as applicable. |
| **70** | In the Facility box, select the circuit pack identified in step 66. |
| **71** | In the Location box, select Near end. |
| **72** | In the Direction box, select Receive. |
| **73** | Click Retrieve. |
| **74** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **75** | Click Edit. |
| **76** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **77** | Click OK. |
| **78** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **79** | Save provisioning data from each network element to the NPx.<br>See 323-1059-302, Saving provisioning data from all shelf processors in a span of control to the network processor on page 6-13. |
| **80** | Perform a network processor data backup.<br>**If** you are backing up data to — **Then** go to<br>a PC — step 81<br>an OPC — step 82<br>a UNIX workstation — step 83 |
| **81** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19, or<br>• 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29.<br>You have completed this procedure. |
| **82** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34, or<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40.<br>You have completed this procedure. |
| **83** | See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24. |

**—end—**

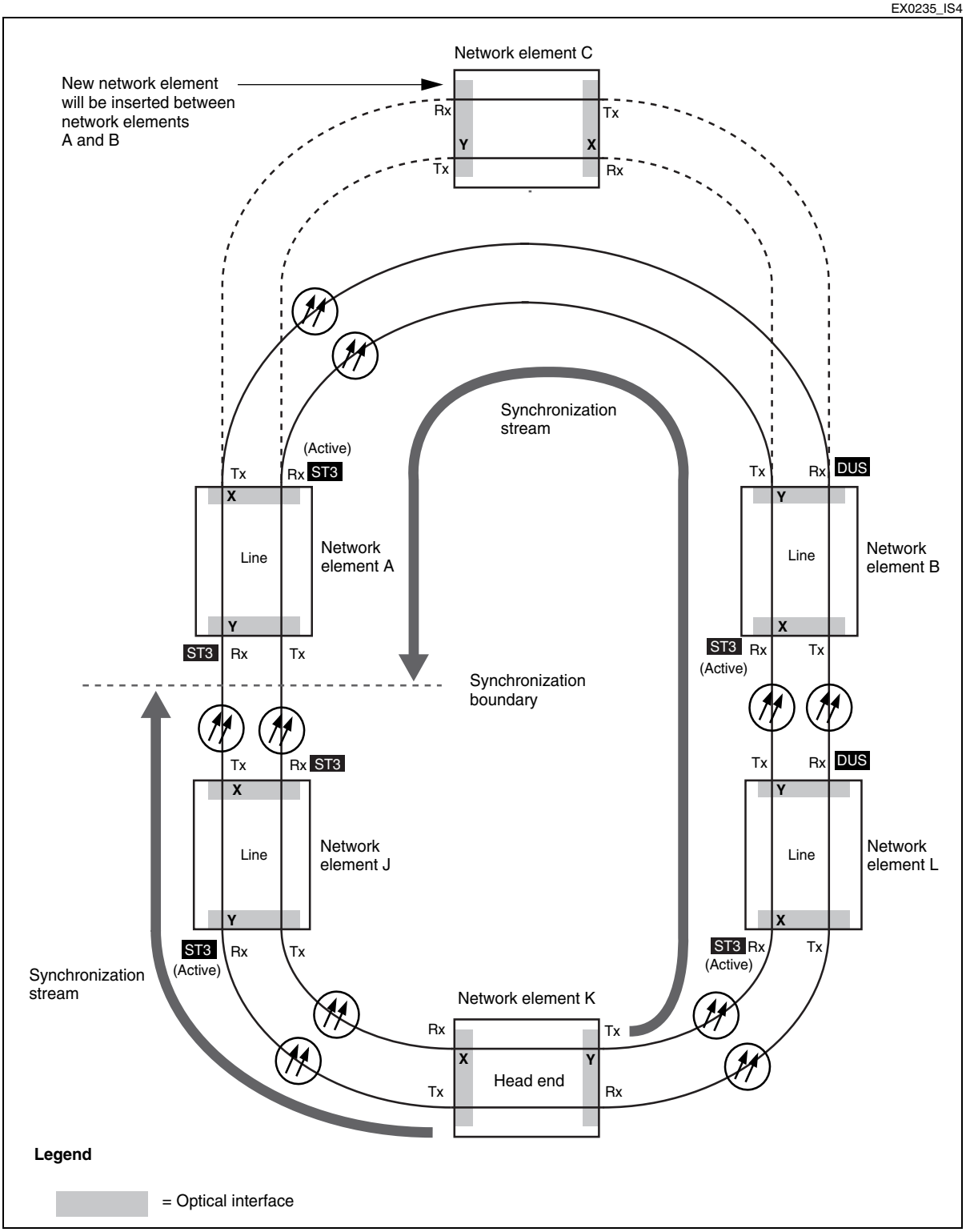
# Network diagram (Adding a network element to a BLSR)

EX0234_IS4



# Synchronization map with synchronization boundary (Adding a network element to a BLSR)

EX0235_IS4



# Procedure 2-5
# Removing an ADM network element from a linear network

Use this procedure to remove an add/drop multiplexer (ADM) network element from a linear configuration. This procedure disconnects the network element to be deleted from the optical standby (or protection) path, performs a protection switch on the new standby (or protection) path, then disconnects the network element from the active and working path.

You can perform this reconfiguration if the network element to be deleted does not affect cross-connect continuity after deletion.

***Note 1:*** This reconfiguration supports the deletion of line-timed network elements only. The reconfiguration does not support the deletion of head-end network elements. If you need to delete the head-end network element, contact your next level of support or your Nortel Networks support group.

***Note 2:*** This reconfiguration supports the deletion of network elements with protected optical spans only. The reconfiguration does not support the deletion of network elements with unprotected optical spans. If you need to delete a network element with unprotected optical spans, contact your next level of support or your Nortel Networks support group.

***Note 3:*** Linear systems are supported by the following circuit packs:

- OC-3 and OC-3x4 circuit packs in tributary slots (3 to 10)
- OC-12 circuit packs in line and tributary slots (3 to 12)
- OC-12x4 STS circuit packs in tributary slots (3 to 10)
- OC-48 circuit packs in line slots (11 and 12)
- OC-48 STS circuit packs in line and tributary slots (3 to 12)

OC-12x4 STS and OC-48 STS circuit packs must be used in shelves equipped with STX-192 cross-connect circuit packs. OC-3, OC-3x4, OC-12, and OC-48 circuit packs can be used in shelves equipped with either VTX-48/48e or STX-192 cross-connect circuit packs.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this chapter, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

**CAUTION**
**Risk of service interruption**
This procedure leaves the system without autonomous path protection switching. To minimize the time the system is without path protection switching, perform the procedure without interruptions and during a low-traffic period. Make sure you have a thorough understanding of the procedure before starting, so you can work efficiently during the procedure.

**CAUTION**
**Risk of damaging equipment**
Equipment damage can occur if the received input power of the OC-3, OC-3x4, OC-12, OC-12x4 STS, or OC-48 STS circuit pack exceeds the overload value specified in the Technical specifications section of the *Planning and Ordering Guide* (NTRN10AM). You must install a variable optical attenuator or a fixed attenuator for each instance where the received power level exceeds the overload level.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure.
- fulfill general requirements for reconfiguration procedures. See General requirements for reconfiguration procedures on page 2-253.
- fulfill specific requirements for this procedure. See Specific requirements (Removing an ADM network element from a linear network) on page 2-255.
- ensure you have the required tools. See Tools required (Removing an ADM network element from a linear network) on page 2-261.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

- ensure you have the required materials. See Materials required (Removing an ADM network element from a linear network) on page 2-264.
- observe all safety requirements described in Safety requirements on page 1-2
- obtain a user identifier (UID) and a password identifier (PID) with a level 3 or higher user privilege code (UPC)

| Step | Action |
|---|---|

***Recording information required for the reconfiguration***

***Note:*** An example of a linear configuration is shown in Network diagram (Removing an ADM network element from a linear network) on page 2-139 to help you fill out the appropriate tables throughout this section.

**1** Ensure you are logged into all of the network elements in the linear chain. See 323-1059-302, Procedures for interface login and logout on page 2-1.

**2** Record the target identifier (TID) and access identifier (AID) of span A and span B in on page 2-140.

**3** Retrieve the protection switch modes of spans A and B and record in on page 2-140.

**a.** Select one of the network elements connected to span X from the navigation tree.

**b.** Select Provisioning in the Protection menu.

**c.** Select the appropriate equipment (OC-3, OC-12, or OC-48) in the Equipment type list.

**d.** Record the protection switch modes in on page 2-140.

**4** Record the required protection switch mode of the future span X in on page 2-140.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **5** | Retrieve section trace features for the left adjacent network element and record in on page 2-140.<br>**a.** Select the network element from the navigation tree<br>**b.** Select Equipment and Facility Provisioning in the Configuration menu.<br>**c.** Select the working W1 slot number in the Equipment area.<br>**d.** Click Section Trace to open the Section Trace dialog box.<br>**e.** Disable the section trace feature by selecting Alarms off from the Fail Mode list.<br>**f.** Click OK to close the Section Trace dialog box.<br>**g.** Select the protection W1 slot number in the Equipment area.<br>**h.** Click Section Trace to open the Section Trace dialog box.<br>**i.** Disable the section trace feature by selecting Alarms off from the Fail Mode list.<br>**j.** Click OK to close the Section Trace dialog box. |
| **6** | Retrieve section trace features for the right adjacent network element and record in on page 2-140.<br>**a.** Select the network element from the navigation tree<br>**b.** Select Equipment and Facility Provisioning in the Configuration menu.<br>**c.** Select the working Z1 slot number in the Equipment area.<br>**d.** Click Section Trace to open the Section Trace dialog box.<br>**e.** Disable the section trace feature by selecting Alarms off from the Fail Mode list.<br>**f.** Click OK to close the Section Trace dialog box.<br>**g.** Select the protection Z1 slot number in the Equipment area.<br>**h.** Click Section Trace to open the Section Trace dialog box.<br>**i.** Disable the section trace feature by selecting Alarms off from the Fail Mode list.<br>**j.** Click OK to close the Section Trace dialog box. |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Checking for active alarms***

**7** Check for active alarms at the network element to be deleted.

**a.** Select Active alarms in the Faults menu.

***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.

**b.** To view details of an alarm, click on the alarm.

***Note:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.

**c.** Clear any active alarms at the network element to be deleted before you go to the next step. See *Alarm and Trouble Clearing,* 323-1059-543.

**8** Check for active alarms at the left adjacent network element.

**a.** Select Active alarms in the Faults menu.

***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.

**b.** To view details of an alarm, click on the alarm.

***Note:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.

**c.** Clear any active alarms at the left adjacent network element before you go to the next step. See *Alarm and Trouble Clearing,* 323-1059-543.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **9** | Check for active alarms at the right adjacent network element.<br>**a.** Select Active alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.<br>**c.** Clear any active alarms at the right adjacent network element before you go to the next step. See *Alarm and Trouble Clearing,* 323-1059-543.<br>**—continued—** |

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Checking for unauthorized pass-through cross-connects at the network element to be deleted***

**10** Retrieve cross-connects for the network element to be deleted.

**a.** Select the network element to be deleted from the navigation area.

**b.** Select Nodal Cross-Connects in the Configuration menu.

**c.** Click Yes if a confirmation dialog box opens.

An authorized retrieval includes the From, To, and Type fields:

| | |
|---|---|
| From & To | Must meet the following requirements:<br>All connections containing X1 in the From or To fields must connect to Y1 using the same STS channel, VT group, and VT number.<br>***Note:*** The VT group and VT number only apply to VT1.5 connections. VT1.5 connections are supported on OPTera Metro 3500 shelves equipped with VTX-48/48e cross-connect circuit packs. OPTera Metro 3500 shelves equipped with STX-192 circuit packs support STS connections only.<br>Slot X1 is recorded in<br>Slot Y1 is recorded in |
| Type | Must be either 2WAY or 1WAY |

**d.** If the retrieval matches the above description, go to the next step. Otherwise, contact your next level of support or your Nortel Networks support group.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Checking for unauthorized synchronization at the network element to be deleted***

**11** Verify that the network element to be deleted does not provide BITS Out to the BITS clock or to other digital equipment that accepts a BITS signal.

**a.** Select the network element to be deleted from the navigation area.

**b.** Select Synchronization in the Configuration menu.

**c.** Click Synchronization to open the Synchronization dialog box.

**d.** Under BITS Out A and BITS Out B, verify that the Primary and Secondary fields are set to None.

**e.** If the Primary and Secondary fields are set to None for both BITS Out A and BITS Out B, go to the next step. Otherwise, contact your next level of support or your Nortel Networks support group.

***Verifying that the network element to be deleted is not equipped with a network processor (NP)***

**12**

| **If** an NP is | **Then** go to |
|---|---|
| not present at the network element to be deleted | step 14 |
| present at the network element to be deleted | step 13 |

**13** Relocate the NP.

**a.** Delete the equipment on the NP. See *Network Surveillance*, 323-1059-520.

**b.** Remove the NP circuit pack from the shelf. See *Alarm and Trouble Clearing*, 323-1059-543.

**c.** Install the NP on another shelf in the network. See *Network Surveillance*, 323-1059-520.

***Determining if the protection switch mode of span A requires change***

**14**

| **If** the protection switch mode of span A is recorded as | **Then** go to |
|---|---|
| unidirectional in | step 15 |
| bidirectional in | step 17 |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Changing the protection switch mode of span A to bidirectional***

**15** Change the protection switch mode to bidirectional at the network element to be deleted.

**a.** Select Provisioning in the Protection menu.

**b.** Select the X1 equipment (OC-3, OC-12, or OC-48) in the Equipment type list.

**c.** Select the working or protection facility (OC3-slot#, OC-3-slot#-port#, OC12-slot#, OC-12-slot#-port#, or OC-48-slot#) from the list.

**d.** Click Edit to open the Edit Protection Provisioning dialog box.

**e.** Select bidirectional to match the switch mode of the adjacent network element.

***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.

**f.** Click OK.

**g.** Click Yes in the confirmation dialog box.

***Note:*** Protection Mode Mismatch minor alarms are raised at the network element to be deleted and at the left adjacent network element recorded in .

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **16** | Change the protection switch mode to bidirectional at the left adjacent network element.<br>**a.** Select Provisioning in the Protection menu.<br>**b.** Select the W1 equipment (OC-3, OC-12, or OC-48) in the Equipment type list.<br>**c.** Select the working or protection facility (OC3-slot#, OC-3-slot#-port#, OC12-slot#, OC-12-slot#-port#, or OC-48-slot#) from the list.<br>**d.** Click Edit to open the Edit Protection Provisioning dialog box.<br>**e.** Select bidirectional to match the switch mode of the adjacent network element.<br>***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.<br>**f.** Click OK.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Protection Mode Mismatch minor alarms raised in step 15 clear at the network element to be deleted and at the left adjacent network element.<br>***Note 2:*** A traffic hit of less than 50 ms can occur if traffic in unidirectional mode was being carried on the protection fiber of span A. |

***Determining if the protection switch mode of span B requires change***

| Step | **If** the protection switch mode of span B is recorded as | **Then** go to |
|---|---|---|
| **17** | unidirectional in | step 18 |
| | bidirectional in | step 20 |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Changing the protection switch mode of span B to bidirectional***

**18** Change the protection switch mode to bidirectional at the network element to be deleted.

**a.** Select Provisioning in the Protection menu.

**b.** Select the Y1 equipment (OC-3, OC-12, or OC-48) in the Equipment type list.

**c.** Select the working or protection facility (OC3-slot#, OC-3-slot#-port#, OC12-slot#, OC-12-slot#-port#, or OC-48-slot#) from the list.

**d.** Click Edit to open the Edit Protection Provisioning dialog box.

**e.** Select bidirectional to match the switch mode of the adjacent network element.

***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.

**f.** Click OK.

**g.** Click Yes in the confirmation dialog box.

***Note:*** Protection Mode Mismatch minor alarms are raised at the network element to be deleted and at the left adjacent network element recorded in .

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **19** | Change the protection switch mode to bidirectional at the right adjacent network element.<br>**a.** Select Provisioning in the Protection menu.<br>**b.** Select the Z1 equipment (OC-3, OC-12, or OC-48) in the Equipment type list.<br>**c.** Select the working or protection facility (OC3-slot#, OC-3-slot#-port#, OC12-slot#, OC-12-slot#-port#, or OC-48-slot#) from the list.<br>**d.** Click Edit to open the Edit Protection Provisioning dialog box.<br>**e.** Select bidirectional to match the switch mode of the adjacent network element.<br>***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.<br>**f.** Click OK.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Protection Mode Mismatch minor alarms raised in step 18 clear at the network element to be deleted and at the right adjacent network element recorded in .<br>***Note 2:*** A traffic hit of less than 50 ms can occur if traffic in unidirectional mode was carried on the protection fiber of span B.<br>**—continued—** |

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Logging out of the network element to be deleted***

**20** Log out of the network element to be deleted.

**a.** Select the network element to be deleted from the navigation area.

**b.** Select Logout in the File menu.

***Operating a lockout at span A and span B***

**21** Ensure traffic in span A remains on the working fiber by operating a lockout of protection at the left adjacent network element.

**a.** Select Status in the Protection menu.

**b.** Select the appropriate equipment (OC-3, OC-12, or OC-48) under Protection Summary.

**c.** Select the W2 optics for the equipment under Equipment Protection details.

**d.** Click Operate to open the Operate Protection Switch dialog box.

**e.** Select Lockout and click Operate.

**f.** Click Yes in the confirmation dialog box.

***Note:*** The Lockout of Protection Request minor alarm is raised at the left adjacent network element recorded in .

**22** Ensure traffic in span B remains on the working fiber by operating a lockout of protection at the right adjacent network element.

**a.** Select Status in the Protection menu

**b.** Select the appropriate equipment (OC-3, OC-12, or OC-48) under Protection Summary.

**c.** Select the Z2 optics for the equipment under Equipment Protection details.

**d.** Click Operate to open the Operate Protection Switch dialog box.

**e.** Select Lockout and click Operate.

**f.** Click Yes in the confirmation dialog box.

***Note:*** The Lockout of Protection Request minor alarm is raised at the right adjacent network element recorded in .

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Connecting the protection optical interfaces of the adjacent network elements***

**DANGER**
**Risk of personal injury**
Optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber.

**CAUTION**
**Performance monitoring**
When monitored performance monitoring (PM) counts exceed their provisioned thresholds, the system generates a threshold crossing report. These reports are displayed in the Event screen.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **23** | At the left adjacent network element recorded in , disconnect the receive fiber that terminates on the optical interface located in slot W2 recorded in . Note the alarms raised at the left adjacent network element recorded in .<br>• The OC-3 Rx Loss of Signal, OC-12 Rx Loss of Signal, or OC-48 Rx Loss of Signal minor alarm is raised.<br>• The Loss of Shelf Pri. Timing Ref. minor alarm is raised if the optical interface located in slot W2 recorded in  is provisioned as the primary timing reference.<br>• The Loss of Shelf Sec. Timing Ref. minor alarm is raised if the optical interface located in slot W2 recorded in  is provisioned as the secondary timing reference.<br>• The Loss of BITSout-A Pri. Timing Ref. minor alarm is raised if the optical interface located in slot W2 recorded in  is provisioned as the primary timing reference for BITS Out A.<br>• The Loss of BITSout-A Sec. Timing Ref. minor alarm is raised if the optical interface located in slot W2 recorded in  is provisioned as the secondary timing reference for BITS Out A.<br>**—continued—** |

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| | • The Loss of BITSout-B Pri. Timing Ref. minor alarm is raised if the optical interface located in slot W2 recorded in  is provisioned as the primary timing reference for BITS Out B.<br>• The Loss of BITSout-B Sec. Timing Ref. minor alarm is raised if the optical interface located in slot W2 recorded in  is provisioned as the secondary timing reference for BITS Out B.<br>• If the optical interface located in slot W2 recorded in  is the active timing reference, the Timing Generation Entry to Holdover event is raised and clears after the Sync Reference Switch Completed event is raised. If only slot W2 is provisioned as a timing reference, the Timing Generation Entry to Holdover event clears only after the OC-3 Rx Loss of Signal, the OC-12 Rx Loss of Signal, or OC-48 Rx Loss of Signal minor alarm clears. |
| **24** | At the right adjacent network element recorded in , disconnect the receive fiber that terminates on the optical interface located in slot Z2 recorded in . Note the alarms raised at the right adjacent network element recorded in .<br>• The OC-3 Rx Loss of Signal minor alarm, OC-12 Rx Loss of Signal minor alarm or OC-48 Rx Loss of Signal minor alarm is raised.<br>• The Loss of Shelf Pri. Timing Ref. minor alarm is raised if the optical interface located in slot Z2 recorded in  is provisioned as the primary timing reference.<br>• The Loss of Shelf Sec. Timing Ref. minor alarm is raised if the optical interface located in slot Z2 recorded in  is provisioned as the secondary timing reference.<br>• The Loss of BITSout-A Pri. Timing Ref. minor alarm is raised if the optical interface located in slot Z2 recorded in  is provisioned as the primary timing reference for BITS Out A.<br>• The Loss of BITSout-A Sec. Timing Ref. minor alarm is raised if the optical interface located in slot Z2 recorded in  is provisioned as the secondary timing reference for BITS Out A. |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| | • The Loss of BITSout-B Pri. Timing Ref. minor alarm is raised if the optical interface located in slot Z2 recorded in  is provisioned as the primary timing reference for BITS Out B.<br>• The Loss of BITSout-B Sec. Timing Ref. minor alarm is raised if the optical interface located in slot Z2 recorded in  is provisioned as the secondary timing reference for BITS Out B.<br>• If the optical interface located in slot Z2 recorded in  is the active timing reference, the Timing Generation Entry to Holdover event is raised and clears after the Sync Reference Switch Completed event is raised. If only slot Z2 is provisioned as a timing reference, the Timing Generation Entry to Holdover event clears only after the OC-3 Rx Loss of Signal, the OC-12 Rx Loss of Signal, or OC-48 Rx Loss of Signal minor alarm clears. |
| **25** | At the left adjacent network element recorded in , disconnect the transmit fiber that terminates on the optical interface located in slot W2 recorded in . |
| **26** | At the right adjacent network element recorded in , disconnect the transmit fiber which terminates on the optical interface located in slot Z2 recorded in . |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **27** | Connect a fiber from the transmit side of the optical interface located in slot W2 recorded in  to the receive side of the optical interface located in slot Z2 recorded in . Check the Rx power at Z2 using a power meter. Adjust the power to a value between the Rx overload and Rx sensitivity specifications before connecting the Rx fiber to the Z2 circuit pack Rx port. See the Technical specifications section of the *Planning and Ordering Guide* (NTRN10AM) for the Rx overload and Rx sensitivity values. |

**DANGER**
**Risk of personal injury**
When inserted in a shelf slot, the optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber

**CAUTION**
**Risk of inaccurate test results**
When handling the equipment, the following precautions must always be observed.

**Clean optical connections**
To ensure accurate results, clean the optical connectors and verify the optical meter calibration. Ensure positive mating of fibers in optical connectors.

**Optical fibers**
Do not mix transmit and receive fiber cables.

**Equipment handling**
Wear an antistatic strap.

***Note 1:*** All alarms raised in step 24 clear.

***Note 2:*** The OC-3 Rx RFI, OC-12 Rx RFI, or OC-48 Rx RFI minor alarm is raised at the right adjacent network element recorded in .

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **28** | Connect a fiber from the receive side of the optical interface located in slot W2 recorded in  to the transmit side of the optical interface located in slot Z2 recorded in . Check the Rx power at W2 using a power meter. Adjust the power to a value between the Rx overload and Rx sensitivity specifications before connecting the Rx fiber to the W2 circuit pack Rx port. See the Technical specifications section of the *Planning and Ordering Guide* (NTRN10AM) for the Rx overload and Rx sensitivity values. |

**DANGER**
**Risk of personal injury**
When inserted in a shelf slot, the optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber

**CAUTION**
**Risk of inaccurate test results**
When handling the equipment, the following precautions must always be observed.

**Clean optical connections**
To ensure accurate results, clean the optical connectors and verify the optical meter calibration. Ensure positive mating of fibers in optical connectors.

**Optical fibers**
Do not mix transmit and receive fiber cables.

**Equipment handling**
Wear an antistatic strap.

***Note 1:*** All alarms raised in step 23 clear.

***Note 2:*** The OC-3 Rx RFI, OC-12 Rx RFI, or OC-48 Rx RFI minor alarm raised in step 27 clears at the right adjacent network element recorded in .

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Checking span performance at the adjacent network elements***

**29** Initialize performance monitoring data at the left adjacent network element for the optical facility in slot W2.

**a.** Select Facility PM counts in the Performance menu

**b.** Select the W2 line rate (OC-3, OC-12, or OC-48) in the Type list.

**c.** Select the W2 facility in the Facility list.

**d.** Select All in the Location list.

**e.** Select Receive in the Direction list.

**f.** Click Start Monitoring. Wait a few seconds, then click Stop Monitoring.

**g.** Select all the PM statistical rows, then click Clear Counts.

**h.** Click Restart both.

**i.** Select the 15 min and Day Period check boxes.

**j.** Select the W2-ALL option from the Facility list.

**k.** Click OK, then click OK in the confirmation dialog box.

**l.** Select all the PM statistical rows, then click Restart Untimed.

**m.** Select the W2-ALL option in the Facility list.

**n.** Click OK, then click OK in the confirmation dialog box.

**30** Initialize performance monitoring data at the right adjacent network element for the optical facility in slot Z2.

**a.** Select Facility PM counts in the Performance menu

**b.** Select the Z2 line rate (OC-3, OC-12, or OC-48) in the Type list.

**c.** Select the Z2 facility in the Facility list.

**d.** Select All in the Location list.

**e.** Select Receive in the Direction list.

**f.** Click Start Monitoring. Wait a few seconds, then click Stop Monitoring.

**g.** Select all the PM statistical rows, then click Clear Counts.

**h.** Click Restart both.

**i.** Select the 15 min and Day Period check boxes.

**j.** Select the Z2-ALL option from the Facility list.

**k.** Click OK, then click OK in the confirmation dialog box.

**l.** Select all the PM statistical rows, then click Restart Untimed.

**m.** Select the Z2-ALL option in the Facility list.

**n.** Click OK, then click OK in the confirmation dialog box.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **31** | Wait 15 minutes before proceeding with the next step. |
| **32** | Retrieve performance monitoring data at the left adjacent network element for the optical facility in slot W2.<br>**a.** Select Facility PM counts in the Performance menu<br>**b.** Select the W2 line rate (OC-3, OC-12, or OC-48) in the Type list.<br>**c.** Select the W2 facility in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring.<br>**g.** Verify that no performance monitoring data exists for the left adjacent network element. If non-zero performance monitoring data exists for the left adjacent network element, contact your next level of support or your Nortel Networks support group.<br>**h.** Click Stop Monitoring. |
| **33** | Retrieve performance monitoring data at the right adjacent network element for the optical facility in slot Z2.<br>**a.** Select Facility PM counts in the Performance menu<br>**b.** Select the Z2 line rate (OC-3, OC-12, or OC-48) in the Type list.<br>**c.** Select the Z2 facility in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring.<br>**g.** Verify that no performance monitoring data exists for the right adjacent network element. If non-zero performance monitoring data exists for the right adjacent network element, contact your next level of support or your Nortel Networks support group.<br>**h.** Click Stop Monitoring. |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Releasing the lockouts at the adjacent network elements***

**34** Release the lockout at the left adjacent network element.

**a.** Select Status in the Protection menu.

**b.** Select the W2 line rate (OC-3, OC-12, or OC-48) under Protection Summary.

**c.** Select the W2 optics under Equipment Protection details.

**d.** Click Release.

**e.** Click Yes in the confirmation dialog box.

***Note 1:*** The Lockout of Protection Complete minor alarm raised in step 21 clears at the left adjacent network element recorded in .

***Note 2:*** The Lockout of Protection Complete-Remote minor alarm is raised at the left adjacent network element recorded in .

**35** Release the lockout at the right adjacent network element.

**a.** Select Status in the Protection menu.

**b.** Select the Z2 line rate (OC-3, OC-12, or OC-48) under Protection Summary.

**c.** Select the Z2 optics under Equipment Protection details.

**d.** Click Release.

**e.** Click Yes in the confirmation dialog box.

***Note 1:*** The Lockout of Protection Complete minor alarm raised in step 22 clears at the right adjacent network element recorded in .

***Note 2:*** The Lockout of Protection Complete-Remote minor alarm raised in step 34 clears at the left adjacent network element recorded in .

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Checking for active alarms***

**36** Check for active alarms at the left and right adjacent network elements.

**a.** Select Active alarms in the Faults menu.

***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.

**b.** To view details of an alarm, click on the alarm.

***Note 1:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.

***Note 2:*** If alarms are active at the left or right adjacent network elements, contact your next level of support or your Nortel Networks support group.

***Operating a forced switch at span A and span B***

**37** Switch traffic from the working fiber in span A to the new protection fiber in span X.

**a.** Select the left adjacent network element from the navigation tree.

**b.** Select Status in the Protection menu

**c.** Select the W1 line rate (OC-3, OC-12, or OC-48) under Protection Summary.

**d.** Select the W1 optics under Equipment Protection details.

**e.** Click Operate to open the Operate Protection Switch dialog box.

**f.** Select Forced switch and click Operate.

**g.** Click Yes in the confirmation dialog box.

***Note 1:*** The Force Switch Complete minor alarm is raised at the left adjacent network element recorded in .

***Note 2:*** The Force Switch Complete-Remote minor alarm is raised at the right adjacent network element recorded in .

***Note 3:*** A traffic hit of less than 50 ms occurs.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **38** | Switch traffic from the working fiber in span B to the new protection fiber in span X.<br>**a.** Select the right adjacent network element from the navigation tree.<br>**b.** Select Status in the Protection menu<br>**c.** Select the Z1 line rate (OC-3, OC-12, or OC-48) under Protection Summary.<br>**d.** Select the Z1 optics under Equipment Protection details.<br>**e.** Click Operate to open the Operate Protection Switch dialog box.<br>**f.** Select Forced switch and click Operate.<br>**g.** Click Yes in the confirmation dialog box.<br>***Note 1:*** The Force Switch Complete-Remote minor alarm raised in step 37 clears at the right adjacent network element recorded in .<br>***Note 2:*** The Force Switch Complete minor alarm is raised at the right adjacent network element recorded in . |

***Connecting the working optical interfaces of the adjacent network elements***

**DANGER**
**Risk of personal injury**
Optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber.

**CAUTION**
**Performance Monitoring**
When monitored performance monitoring (PM) counts exceed their provisioned thresholds, the system generates a threshold crossing report. These reports are displayed in the Event screen.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **39** | At the left adjacent network element recorded in , disconnect the receive fiber that terminates on the optical interface located in slot W1 recorded in . Note the alarms raised at the left adjacent network element recorded in .<br>• The OC-3 Rx Loss of Signal, OC-12 Rx Loss of Signal, or OC-48 Rx Loss of Signal minor alarm is raised.<br>• The Loss of Shelf Pri. Timing Ref. minor alarm is raised if the optical interface in slot W1 recorded in  is provisioned as the primary timing reference.<br>• The Loss of Shelf Sec. Timing Ref. minor alarm is raised if the optical interface in slot W1 recorded in  is provisioned as the secondary timing reference.<br>• The Loss of BITSout-A Pri. Timing Ref. minor alarm is raised if the optical interface in slot W1 recorded in  is provisioned as the primary timing reference for BITS Out A.<br>• The Loss of BITSout-A Sec. Timing Ref. minor alarm is raised if the optical interface in slot W1 recorded in  is provisioned as the secondary timing reference for BITS Out A.<br>• The Loss of BITSout-B Pri. Timing Ref. minor alarm is raised if the optical interface in slot W1 recorded in  is provisioned as the primary timing reference for BITS Out B.<br>• The Loss of BITSout-B Sec. Timing Ref. minor alarm is raised if the optical interface in slot W1 recorded in  is provisioned as the secondary timing reference for BITS Out B.<br>• If the optical interface in slot W1 recorded in  is the active timing reference, the Timing Generation Entry to Holdover event is raised and clears after the Sync Reference Switch Completed event is raised. If only slot W1 is provisioned as a timing reference, the Timing Generation Entry to Holdover event clears only after the OC-3 Rx Loss of Signal, OC-12 Rx Loss of Signal, or OC-48 Rx Loss of Signal minor alarm clears.<br>**—continued—** |

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **40** | At the right adjacent network element recorded in , disconnect the receive fiber that terminates on the optical interface located in slot Z1 recorded in . Note the alarms raised at the right adjacent network element recorded in .<br>• The OC-3 Rx Loss of Signal, OC-12 Rx Loss of Signal, or OC-48 Rx Loss of Signal minor alarm is raised.<br>• The Loss of Shelf Pri. Timing Ref. minor alarm is raised if the optical interface in slot Z1 recorded in  is provisioned as the primary timing reference.<br>• The Loss of Shelf Sec. Timing Ref. minor alarm is raised if the optical interface in slot Z1 recorded in  is provisioned as the secondary timing reference.<br>• The Loss of BITSout-A Pri. Timing Ref. minor alarm is raised if the optical interface in slot Z1 recorded in  is provisioned as the primary timing reference for BITS Out A.<br>• The Loss of BITSout-A Sec. Timing Ref. minor alarm is raised if the optical interface in slot Z1 recorded in  is provisioned as the secondary timing reference for BITS Out A.<br>• The Loss of BITSout-B Pri. Timing Ref. minor alarm is raised if the optical interface in slot Z1 recorded in  is provisioned as the primary timing reference for BITS Out B.<br>• The Loss of BITSout-B Sec. Timing Ref. minor alarm is raised if the optical interface in slot Z1 recorded in  is provisioned as the secondary timing reference for BITS Out B.<br>• If the optical interface in slot Z1 recorded in  is the active timing reference, the Timing Generation Entry to Holdover event is raised and cleared after the Sync Reference Switch Completed event is raised. If only slot Z1 is provisioned as a timing reference, the Timing Generation Entry to Holdover event clears only after the OC-3 Rx Loss of Signal, OC-12 Rx Loss of Signal, or OC-48 Rx Loss of Signal minor alarm clears.<br>**—continued—** |

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **41** | At the left adjacent network element recorded in , disconnect the transmit fiber that terminates on the optical interface located in slot W1 recorded in . |
| **42** | At the right adjacent network element recorded in , disconnect the transmit fiber that terminates on the optical interface located in slot Z1 recorded in . |
| **43** | Connect a fiber from the transmit side of the optical interface located in slot W1 recorded in  to the receive side of the optical interface located in slot Z1 recorded in . Check the Rx power at Z1 using a power meter. Adjust the power to a value between the Rx overload and Rx sensitivity specifications before connecting the Rx fiber to the Z1 circuit pack Rx port. See the Technical specifications section of the *Planning and Ordering Guide* (NTRN10AM) for the Rx overload and Rx sensitivity values. |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

**DANGER**
**Risk of personal injury**
When inserted in a shelf slot, the optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber

**CAUTION**
**Risk of inaccurate test results**
When handling the equipment, the following precautions must always be observed.

**Clean optical connections**
To ensure accurate results, clean the optical connectors and verify the optical meter calibration. Ensure positive mating of fibers in optical connectors.

**Optical fibers**
Do not mix transmit and receive fiber cables.

**Equipment handling**
Wear an antistatic strap.

***Note 1:*** All alarms raised in step 40 clear.

***Note 2:*** The OC3, OC12, or OC48 Rx RFI minor alarm is raised at the right adjacent network element recorded in .

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **44** | Connect a fiber from the receive side of the optical interface located in slot W1 recorded in  to the transmit side of the optical interface located in slot Z1 recorded in . Check the Rx power at W1 using a power meter. Adjust the power to a value between the Rx overload and Rx sensitivity specifications. See the Technical specifications section of the *Planning and Ordering Guide* (NTRN10AM) for the Rx overload and Rx sensitivity values. |

**DANGER**
**Risk of personal injury**
When inserted in a shelf slot, the optical interface circuit packs emit laser light which can blind. Keep all optical connectors on the optical interface circuit packs capped when they are not connected to optical fiber cables. Never look directly into the end of an optical fiber

**CAUTION**
**Risk of inaccurate test results**
When handling the equipment, the following precautions must always be observed.

**Clean optical connections**
To ensure accurate results, clean the optical connectors and verify the optical meter calibration. Ensure positive mating of fibers in optical connectors.

**Optical fibers**
Do not mix transmit and receive fiber cables.

**Equipment handling**
Wear an antistatic strap.

***Note 1:*** All alarms raised in step 39 clear.

***Note 2:*** The OC3, OC12, or OC48 Rx RFI minor alarm raised in step 43 clears at the right adjacent network element recorded in .

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Checking span performance at the adjacent network elements***

**45** Initialize performance monitoring data at the left adjacent network element for the optical facility in slot W1.

**a.** Select Facility PM counts in the Performance menu.

**b.** Select the W1 line rate (OC-3, OC-12, or OC-48) in the Type list.

**c.** Select the W1 facility in the Facility list.

**d.** Select All in the Location list.

**e.** Select Receive in the Direction list.

**f.** Click Start Monitoring. Wait a few seconds, then click Stop Monitoring.

**g.** Select all the PM statistical rows, then click Clear Counts.

**h.** Click Restart both.

**i.** Select the 15 min and Day Period check boxes.

**j.** Select the W1-ALL option from the Facility list.

**k.** Click OK, then click OK in the confirmation dialog box.

**l.** Select all the PM statistical rows, then click Restart Untimed.

**m.** Select the W1-ALL option in the Facility list.

**n.** Click OK, then click OK in the confirmation dialog box.

**46** Initialize performance monitoring data at the right adjacent network element for the optical facility in slot Z1.

**a.** Select Facility PM counts in the Performance menu

**b.** Select the Z1 line rate (OC-3, OC-12, or OC-48) in the Type list.

**c.** Select the Z1 facility in the Facility list.

**d.** Select All in the Location list.

**e.** Select Receive in the Direction list.

**f.** Click Start Monitoring. Wait a few seconds, then click Stop Monitoring.

**g.** Select all the PM statistical rows, then click Clear Counts.

**h.** Click Restart both.

**i.** Select the 15 min and Day Period check boxes.

**j.** Select the Z1-ALL option from the Facility list.

**k.** Click OK, then click OK in the confirmation dialog box.

**l.** Select all the PM statistical rows, then click Restart Untimed.

**m.** Select the Z1-ALL option in the Facility list.

**n.** Click OK, then click OK in the confirmation dialog box.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **47** | Wait 15 minutes before proceeding with the next step. |
| **48** | Retrieve performance monitoring data at the left adjacent network element for the optical facility in slot W1.<br>**a.** Select Facility PM counts in the Performance menu.<br>**b.** Select the W1 line rate (OC-3, OC-12, or OC-48) in the Type list.<br>**c.** Select the W1 facility in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring.<br>**g.** Verify that no performance monitoring data exists for the new network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group.<br>**h.** Click Stop Monitoring. |
| **49** | Retrieve performance monitoring data at the right adjacent network element for the optical facility in slot Z1.<br>**a.** Select Facility PM counts in the Performance menu.<br>**b.** Select the Z1 line rate (OC-3, OC-12, or OC-48) in the Type list.<br>**c.** Select the Z1 facility in the Facility list.<br>**d.** Select All in the Location list.<br>**e.** Select Receive in the Direction list.<br>**f.** Click Start Monitoring.<br>**g.** Verify that no performance monitoring data exists for the new network element. If non-zero performance monitoring data exists for the new network element, contact your next level of support or your Nortel Networks support group.<br>**h.** Click Stop Monitoring. |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Releasing the forced switch at the adjacent network elements***

**50** Release the forced switch at the left adjacent network element.

**a.** Select Status in the Protection menu.

**b.** Select the W1 line rate (OC-3, OC-12, or OC-48) under Protection Summary.

**c.** Select the W1 optics under Equipment Protection details.

**d.** Click Release.

**e.** Click Yes in the confirmation dialog box.

***Note 1:*** The Force Switch Complete minor alarm raised in step 37 clears at the left adjacent network element recorded in .

***Note 2:*** The Forced Switch Complete-Remote minor alarm is raised at the left adjacent network element recorded in .

**51** Release the forced switch at the right adjacent network element.

**a.** Select Status in the Protection menu.

**b.** Select the Z1 line rate (OC-3, OC-12, or OC-48) under Protection Summary.

**c.** Select the Z1 optics under Equipment Protection details.

**d.** Click Release.

**e.** Click Yes in the confirmation dialog box.

***Note 1:*** The Force Switch Complete minor alarm raised in step 38 clears at the right adjacent network element recorded in

***Note 2:*** The Forced Switch Complete-Remote minor alarm raised in step 50 clears at the left adjacent network element recorded in .

***Determining if the protection switch mode of span X requires change***

**52** Note the protection switch mode of span X recorded in .

| **If** the protection switch mode is | **Then** go to |
|---|---|
| unidirectional | step 53 |
| bidirectional | step 55 |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Changing the protection switch mode of span X to unidirectional***

**53** Change the protection switch mode to unidirectional at the left adjacent network element.

**a.** Select Provisioning in the Protection menu.

**b.** Select the W1 equipment (OC-3, OC-12, or OC-48) in the Equipment type list.

**c.** Select the working or protection W1 facility (OC3-slot#, OC-3-slot#-port#, OC12-slot#, OC-12-slot#-port#, or OC-48-slot#) from the list.

**d.** Click Edit to open the Edit Protection Provisioning dialog box.

**e.** Select unidirectional.

***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.

**f.** Click OK.

**g.** Click Yes in the confirmation dialog box.

***Note:*** The Protection Mode Mismatch minor alarm is raised at the left adjacent network element and at the right adjacent network element recorded in .

**54** Change the protection switch mode to unidirectional at the right adjacent network element.

**a.** Select Provisioning in the Protection menu.

**b.** Select the Z1 equipment (OC-3, OC-12, or OC-48) in the Equipment type list.

**c.** Select the working or protection Z1 facility (OC3-slot#, OC-3-slot#-port#, OC12-slot#, OC-12-slot#-port#, or OC-48-slot#) from the list.

**d.** Click Edit to open the Edit Protection Provisioning dialog box.

**e.** Select unidirectional.

***Note:*** Changing the protection switch mode for one of the optical interface circuit packs in a pair automatically changes the protection switch mode for the other circuit pack in the pair.

**f.** Click OK.

**g.** Click Yes in the confirmation dialog box.

***Note:*** The Protection Mode Mismatch minor alarms raised in step 53 clear at the left adjacent network element and at the right adjacent network element recorded in .

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|

***Reprovisioning the section trace parameters on the left and right adjacent network elements***

**55** Compare the section trace parameters of slot W1 and slot Z1 recorded in .

| **If** slot W1 and slot Z1 section trace parameters | **Then** go to |
|---|---|
| are identical | step 63 |
| are not identical | step 56 |

**56** Note the section trace fail modes of slot W1 and slot Z1 recorded in .

| **If** the section trace fail modes of slot W1 and slot Z1 | **Then** go to |
|---|---|
| are OFF | step 57 |
| are not OFF | step 60 |

**57** Set the default section trace values for slot W1.

**a.** At the Site Manager session connected to the new network element, select Equipment & Facility Provisioning in the Configuration menu.

**b.** Select the W1 slot number in the Equipment area.

**c.** Select the W1 slot number in the Facility area.

**d.** Click Section Trace in the Facility area to open the Section Trace dialog box.

**e.** Select OFF in the Fail mode list.

**f.** Select NUM in the Format list.

**g.** In the Transmitted field, enter 1 in the Transmitted value to send to slot Z1.

**h.** In the Expected field, enter 1 in the Expected value to recieve from slot Z1.

**i.** Click OK.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **58** | Set default section trace values for slot Z1.<br>**a.** At the Site Manager session connected to the new network element, select Equipment & Facility Provisioning in the Configuration menu.<br>**b.** Select the Z1 slot number in the Equipment area.<br>**c.** Select the Z1 slot number in the Facility area.<br>**d.** Click Section Trace in the Facility area to open the Section Trace dialog box.<br>**e.** Select OFF in the Fail mode list.<br>**f.** Select NUM in the Format list.<br>**g.** In the Transmitted field, enter 1 in the Transmitted value to send to slot Z1.<br>**h.** In the Expected field, enter 1 in the Expected value to recieve from slot Z1.<br>**i.** Click OK. |
| **59** | Go to step 63. |
| **60** | Select the network element (W1 or Z1) that originates the section trace on the new optical span. Highlight this network element row in . |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **61** | Reprovision the section trace parameters for network element W1 or Z1.<br>***Note 1:*** If you highlighted network element W1 in , you must modify the section trace parameters on network element Z1 (use Z1 in the following steps).<br>***Note 2:*** If you highlighted network element Z1 in , you must modify the section trace parameters on network element W1 (use W1 in the following steps).<br>**a.** At the Site Manager session connected to the left and right adjacent network elements, select network element W1 or Z1.<br>**b.** Select Equipment & Facility Provisioning in the Configuration menu.<br>**c.** Select the W1 or Z1 slot number in the Equipment area.<br>**d.** Select the W1 or Z1 slot number in the Facility area.<br>**e.** Click Section Trace in the Facility area to open the Section Trace dialog box.<br>**f.** In the Fail mode list, select the section trace fail mode value of the network element highlighted in .<br>**g.** In the Format list, select the section trace format value of the network element highlighted in .<br>**h.** In the Transmitted field, enter the expected value of the network element highlighted in .<br>**i.** In the Expected field, enter the transmitted value of the network element highlighted in .<br>**j.** Click OK.<br>**—continued—** |

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **62** | Reprovision the section trace fail mode for network element W1 or Z1.<br>***Note 1:*** If network element W1 is highlighted in , you must modify the section trace fail mode on the W1 optics.<br>***Note 2:*** If network element Z1 is highlighted in , you must modify the section trace fail mode on the Z1 optics.<br>**a.** At the Site Manager session connected to the new network element, select Equipment & Facility Provisioning in the Configuration menu.<br>**b.** Select the W1 or Z1 slot number in the Equipment area.<br>**c.** Select the W1 or Z1 slot number in the Facility area.<br>**d.** Click Section Trace in the Facility area to open the Section Trace dialog box.<br>**e.** In the Fail mode list, select the section trace fail mode value of the network element highlighted in .<br>**f.** Click OK. |
| **63** | Compare the section trace parameters of slot W2 and slot Z2 recorded in .<br>**If** slot W2 and slot Z2 section trace parameters — **Then** go to<br>are identical — step 84<br>are not identical — step 64 |
| **64** | Note the section trace fail modes of slot W2 and slot Z2 recorded in .<br>**If** the section trace fail modes of slot W2 and slot Z2 — **Then** go to<br>are OFF — step 65<br>are not OFF — step 68 |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **65** | Set default section trace values for slot W2.<br>**a.** At the Site Manager session connected to the new network element, select Equipment & Facility Provisioning in the Configuration menu.<br>**b.** Select the W2 slot number in the Equipment area.<br>**c.** Select the W2 slot number in the Facility area.<br>**d.** Click Section Trace in the Facility area to open the Section Trace dialog box.<br>**e.** Select OFF in the Fail mode list.<br>**f.** Select NUM in the Format list.<br>**g.** In the Transmitted field, enter 1 in the Transmitted value to send to slot Z2.<br>**h.** In the Expected field, enter 1 in the Expected value to recieve from slot Z2.<br>**i.** Click OK. |
| **66** | Set default section trace values for slot Z2.<br>**a.** At the Site Manager session connected to the new network element, select Equipment & Facility Provisioning in the Configuration menu.<br>**b.** Select the Z2 slot number in the Equipment area.<br>**c.** Select the Z2 slot number in the Facility area.<br>**d.** Click Section Trace in the Facility area to open the Section Trace dialog box.<br>**e.** Select OFF in the Fail mode list.<br>**f.** Select NUM in the Format list.<br>**g.** In the Transmitted field, enter 1 in the Transmitted value to send to slot W2.<br>**h.** In the Expected field, enter 1 in the Expected value to recieve from slot W2.<br>**i.** Click OK. |
| **67** | Go to step 84. |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **68** | Select the network element (W2 or Z2) that originates the section trace on the new optical span. Highlight this network element row in . |
| **69** | Reprovision the section trace parameters for network element W2 or Z2.<br><br>***Note 1:*** If you highlighted network element W2 in , you must modify the section trace parameters on network element Z2 (use Z2 in the following steps).<br><br>***Note 2:*** If you highlighted network element Z2 in , you must modify the section trace parameters on network element W2 (use W2 in the following steps).<br><br>**a.** At the Site Manager session connected to the left and right adjacent network elements, select network element W2 or Z2.<br><br>**b.** Select Equipment & Facility Provisioning in the Configuration menu.<br><br>**c.** Select the W2 or Z2 slot number in the Equipment area.<br><br>**d.** Select the W2 or Z2 slot number in the Facility area.<br><br>**e.** Click Section Trace in the Facility area to open the Section Trace dialog box.<br><br>**f.** In the Fail mode list, select the section trace fail mode value of the network element highlighted in .<br><br>**g.** In the Format list, select the section trace format value of the network element highlighted in .<br><br>**h.** In the Transmitted field, enter the expected value of the network element highlighted in .<br><br>**i.** In the Expected field, enter the transmitted value of the network element highlighted in .<br><br>**j.** Click OK.<br><br>**—continued—** |

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **70** | Reprovision the section trace fail mode for network element W2 or Z2.<br>***Note 1:*** If network element W2 is highlighted in , you must modify the section trace fail mode on the W2 optics.<br>***Note 2:*** If network element Z2 is highlighted in , you must modify the section trace fail mode on the Z2 optics.<br>**a.** At the Site Manager session connected to the new network element, select Equipment & Facility Provisioning in the Configuration menu.<br>**b.** Select the W2 or Z2 slot number in the Equipment area.<br>**c.** Select the W2 or Z2 slot number in the Facility area.<br>**d.** Click Section Trace in the Facility area to open the Section Trace dialog box.<br>**e.** In the Fail mode list, select the section trace fail mode value recorded in for network element W2 or Z2.<br>**f.** Click OK. |

***Resetting the OPR baseline***

| 71 | If | Then |
|---|---|---|
| | any of the optical interface circuit packs in the slots W1, W2, Z1, Z2 at the:<br>• left adjacent network element<br>• right adjacent network element<br>are OC-48 ER, OC-48 ELR, or OC-48 STS circuit packs | perform step 72 to step 82 for each of these circuit packs |
| | none of the optical interface circuit packs in the slots at the locations listed above are OC-48 ER, OC-48 ELR, or OC-48 STS circuit packs | go to step 83 |

| | |
|---|---|
| **72** | In Site Manager, select the required network element in the navigation tree. |
| **73** | Select Facility PM Thresholds in the Performance menu. |
| **74** | In the Type box, select OC48. |
| **75** | In the Facility box, select the circuit pack. |
| **76** | In the Location box, select Near end. |
| **77** | In the Direction box, select Receive. |
| **78** | Click Retrieve. |
| **79** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **80** | Click Edit. |

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **81** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **82** | Click OK. |

***Removing the deleted network element from the NP span of control***

**83** Remove the deleted network element from the NP span of control.

**a.** At the Site Manager session connected to the left and right adjacent network elements, select the network processor.

**b.** Select Span of Control in the Configuration menu.

**c.** Select the network element to delete from the table.

**d.** Click Delete.

**e.** Click Yes in the confirmation dialog box.

***Checking for active alarms***

**84** Check for active alarms at the left adjacent network element.

**a.** Select Active alarms in the Faults menu.

***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.

**b.** To view details of an alarm, click on the alarm.

***Note 1:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.

***Note 2:*** If alarms are active at the left adjacent network element, contact your next level of support or your Nortel Networks support group.

**—continued—**

Procedure 2-5 (continued)
**Removing an ADM network element from a linear network**

| Step | Action |
|---|---|
| **85** | Check for active alarms at the right adjacent network element.<br>**a.** Select Active alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note 1:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.<br>***Note 2:*** If alarms are active at the right adjacent network element, contact your next level of support or your Nortel Networks support group. |

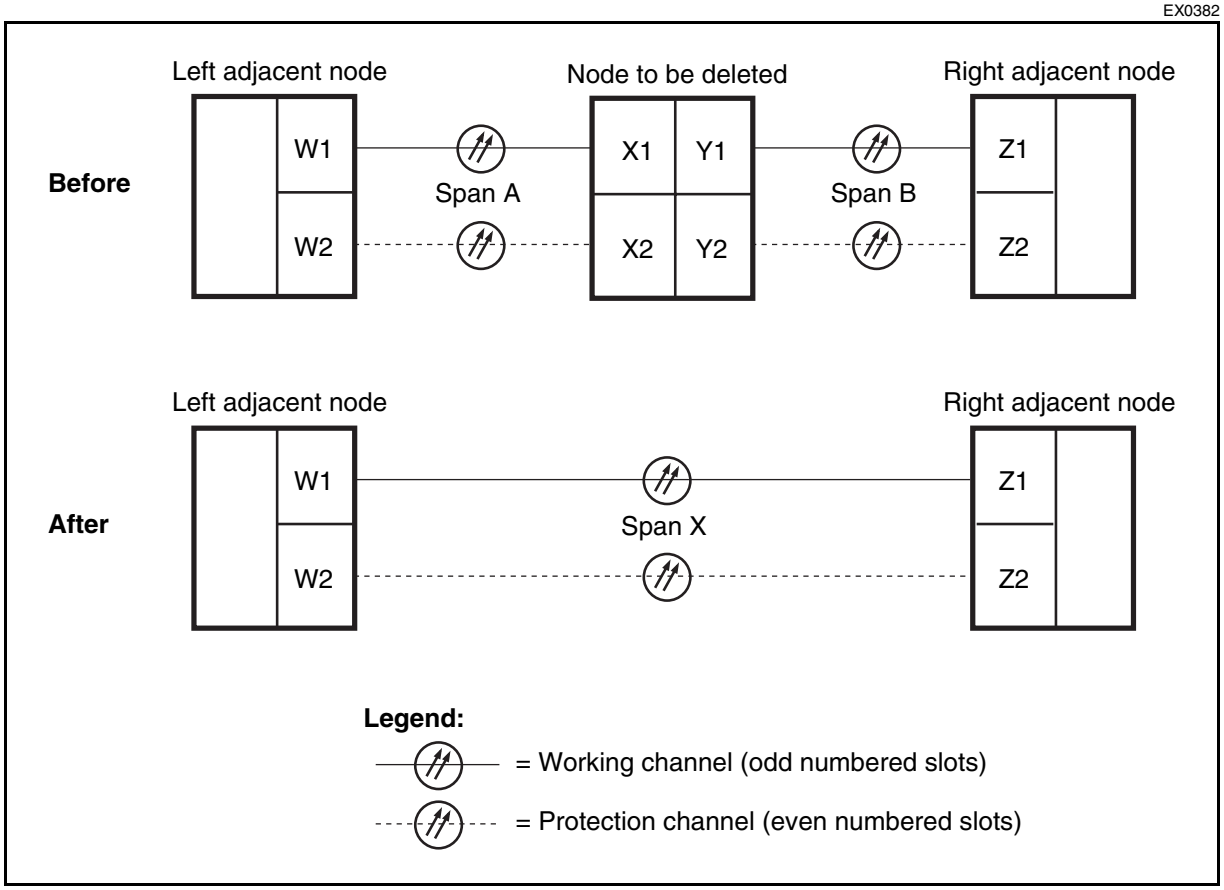
***Logging out of the new span X***

| | |
|---|---|
| **86** | Logout of the Site Manager session connected to the network processor and the left and right adjacent network elements.<br>**a.** Select the network processor and all network elements in the span of control.<br>**b.** Select Logout in the File menu.<br>**c.** Select Exit in the File menu to close the Site Manager application. |

**—end—**

# Network diagram (Removing an ADM network element from a linear network)

EX0382



# Recorded information (Removing an ADM network element from a linear network)

| **TID and AID of the ADM network element to be deleted** | | **TID and AID of the left and right adjacent network elements** | |
|---|---|---|---|
| network element to be deleted (TID) | | Left adjacent network element (TID) | |
| X1 odd slot # (working) AID | | W1 odd slot # (working) AID | |
| X2 even slot # (protection) AID | | W2 even slot # (protection) AID | |
| Y1 odd slot # (working) AID | | Right adjacent network element (TID) | |
| Y2 even slot # (protection) AID | | Z1 odd slot # (working) AID | |
| | | Z2 even slot # (protection) AID | |

| **Protection switch modes for span A, B, X** | |
|---|---|
| Switch mode - span A (UNI or BI) | |
| Switch mode - span B (UNI or BI) | |
| Switch mode - span X (UNI or BI) | |

**Section Trace parameters of the adjacent network elements**

| | Facility | Section Trace Fail Mode | Section Trace Format | Transmitted Values | Expected Values |
|---|---|---|---|---|---|
| Left adjacent network element W1 (odd slot) | | | | | |
| Left adjacent network element W2 (even slot) | | | | | |
| Right adjacent network element Z1 (odd slot) | | | | | |
| Right adjacent network element Z2 (even slot) | | | | | |

# Procedure 2-6
# Removing a terminal network element from a linear network

Use this procedure to remove a terminal network element from a linear configuration. This procedure deprovisions and removes the terminal network element at the end of the configuration and converts the adjacent linear add/drop multiplexer (ADM) network element into the new terminal network element.

You can perform this reconfiguration if the network element to be deleted does not affect cross-connect continuity after deletion.

***Note 1:*** This reconfiguration supports the deletion of line-timed network elements only. The reconfiguration does not support the deletion of head-end network elements. If you need to delete the head-end network element, contact your next level of support or your Nortel Networks support group.

***Note 2:*** Linear systems are supported by the following circuit packs:

- OC-3 and OC-3x4 circuit packs in tributary slots (3 to 10)
- OC-12 circuit packs in line and tributary slots (3 to 12)
- OC-12x4 STS circuit packs in tributary slots (3 to 10)
- OC-48 circuit packs in line slots (11 and 12)
- OC-48 STS circuit packs in line and tributary slots (3 to 12)

OC-12x4 STS and OC-48 STS circuit packs must be used in shelves equipped with STX-192 cross-connect circuit packs. OC-3, OC-3x4, OC-12, and OC-48 circuit packs can be used in shelves equipped with either VTX-48/48e or STX-192 cross-connect circuit packs.

**—continued—**

Procedure 2-6 (continued)
**Removing a terminal network element from a linear network**

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this chapter, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

**CAUTION**
**Risk of service interruption**
This procedure leaves the system without autonomous path protection switching. To minimize the time the system is without path protection switching, perform the procedure without interruptions and during a low-traffic period. Make sure you have a thorough understanding of the procedure before starting, so you can work efficiently during the procedure.

**CAUTION**
**Risk of damaging equipment**
Equipment damage can occur if the received input power of the OC-3, OC-3x4, OC-12, OC-12x4 STS, or OC-48 STS circuit pack exceeds the overload value specified in the Technical specifications section of the *Planning and Ordering Guide* (NTRN10AM). You must install a variable optical attenuator or a fixed attenuator for each instance where the received power level exceeds the overload level.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure.
- fulfill general requirements for reconfiguration procedures. See General requirements for reconfiguration procedures on page 2-253.
- fulfill specific requirements for this procedure. See Specific requirements (Removing a terminal network element from a linear network) on page 2-256.
- ensure you have the required tools. See Tools required (Removing a terminal network element from a linear network) on page 2-261.

**—continued—**

Procedure 2-6 (continued)
**Removing a terminal network element from a linear network**

- ensure you have the required materials. See Materials required (Removing a terminal network element from a linear network) on page 2-264.
- observe all safety requirements described in Safety requirements on page 1-2.
- obtain a user identifier (UID) and a password identifier (PID) with a level 3 or higher user privilege code (UPC)

| Step | Action |
|---|---|

***Recording information required for the reconfiguration***

***Note:*** An example of a linear configuration is shown in Network diagram (Removing a terminal network element from a linear network) on page 2-148 to help you fill out the appropriate tables throughout this section.

**1** Ensure you are logged into all of the network elements in the linear chain. See 323-1059-302, Procedures for interface login and logout on page 2-1.

**2** Record the target identifier (TID) and access identifier (AID) of the adjacent network element and the terminal network element in Recorded information (Removing a terminal network element from a linear network) on page 2-149.

***Checking for active alarms***

**3** Check for active alarms at the network element to be deleted.

**a.** Select Active alarms in the Faults menu.

***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.

**b.** To view details of an alarm, click on the alarm.

***Note:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.

**c.** Clear any active alarms at the network element to be deleted before you go to the next step. See *Alarm and Trouble Clearing,* 323-1059-543.

**—continued—**

Procedure 2-6 (continued)
**Removing a terminal network element from a linear network**

| Step | Action |
|---|---|
| **4** | Check for active alarms at the left adjacent network element.<br>**a.** Select Active alarms in the Faults menu.<br>***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.<br>**b.** To view details of an alarm, click on the alarm.<br>***Note:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.<br>**c.** Clear any active alarms at the left adjacent network element before you go to the next step. See *Alarm and Trouble Clearing,* 323-1059-543. |

***Verifying that the network element to be deleted is not equipped with a network processor (NP)***

| **5** | **If** an NP is | **Then** go to |
|---|---|---|
| | present at the network element to be deleted | step 6 |
| | not present at the network element to be deleted | step 10 |

| | |
|---|---|
| **6** | Relocate the NP.<br>**a.** Delete the equipment on the NP. See *Network Surveillance*, 323-1059-520.<br>**b.** Remove the NP circuit pack from the shelf. See *Alarm and Trouble Clearing*, 323-1059-543.<br>**c.** Install the NP on another shelf in the network. See *Network Surveillance*, 323-1059-520. |

***Delete all connections from Y1 and Y2 optical interfaces on the adjacent network element***

| | |
|---|---|
| **7** | Delete all cross-connects from Y1 and Y2 optical interfaces on the adjacent network element.<br>**a.** Select the adjacent network element from the navigation tree.<br>**b.** Select Nodal Cross-Connects in the Configuration menu. Click Yes if a confirmation dialog box appears.<br>**c.** Select the connections running on the Y1 and Y2 optical interfaces, then click Delete. |

**—continued—**

Procedure 2-6 (continued)
**Removing a terminal network element from a linear network**

| Step | Action |
|---|---|

***Deprovision the optical interfaces in the adjacent network element***

**8** Deprovisioin the Y1 optical interface recorded in Recorded information (Removing a terminal network element from a linear network) on page 2-149.

**a.** Select the network element from the navigation tree.

**b.** Select Equipment & Facility Provisioning in the Configuration menu.

**c.** Select the Y1 optical interface in the Equipment area.

**d.** Select the Y1 facility in the Facility area.

**e.** Click SDCC to open the Lower Layer SDCC dialog box.

**f.** Select Inactive from the Change Status drop-down list.

**g.** Click OK to close the dialog box.

**h.** Make sure the Y1 facility is selected in the Facility area.

**i.** Click Edit in the Facility area to open the Edit Facility dialog box.

**j.** Select OOS from the Primary state drop-down list.

**k.** Click OK, then click Yes in the confirmation dialog box.

**l.** Make sure the Y1 facility is selected in the Facility area.

**m.** Click Delete in the Facility area.

**n.** Click Yes in the warning dialog box.

**9** Deprovisioin the Y2 optical interface recorded in Recorded information (Removing a terminal network element from a linear network) on page 2-149.

**a.** Select the network element from the navigation tree.

**b.** Select Equipment & Facility Provisioning in the Configuration menu.

**c.** Select the Y2 optical interface in the Equipment area.

**d.** Select the Y2 facility in the Facility area.

**e.** Click SDCC to open the Lower Layer SDCC dialog box.

**f.** Select Inactive from the Change Status drop-down list.

**g.** Click OK to close the dialog box.

**h.** Make sure the Y2 facility is selected in the Facility area.

**i.** Click Edit in the Facility area to open the Edit Facility dialog box.

**j.** Select OOS from the Primary state drop-down list.

**k.** Click OK, then click Yes in the confirmation dialog box.

**l.** Make sure the Y2 facility is selected in the Facility area.

**m.** Click Delete in the Facility area.

**n.** Click Yes in the warning dialog box.

**—continued—**

Procedure 2-6 (continued)
**Removing a terminal network element from a linear network**

| Step | Action |
|---|---|

***Change the protection scheme of the optical interfaces from linear to UPSR***

**10** Change the protection scheme for Y1 and Y2 from linear 1+1 to UPSR.

**a.** Select Provisioning in the Protection menu.

**b.** Select the Y1/Y2 line rate in the Equipment type list.

**c.** Select the Y1 facility from the list.

**d.** Click Edit to open the Edit Protection Provisioning dialog box.

**e.** Select UPSR in the Scheme area.

**f.** Click OK.

**g.** Click Yes in the confirmation dialog box.

***Removing the deleted terminal network element from the NP span of control***

**11** Remove the deleted terminal network element from the NP span of control.

**a.** At the Site Manager session connected to the linear network elements, select the network processor.

**b.** Select Span of Control in the Configuration menu.

**c.** Select the terminal network element to delete from the table.

**d.** Click Delete.

**e.** Click Yes in the confirmation dialog box.

***Checking for active alarms at the adjacent network element***

**12** Check for active alarms at the adjacent network element.

**a.** Select Active alarms in the Faults menu.

***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.

**b.** To view details of an alarm, click on the alarm.

***Note 1:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.

***Note 2:*** The OC-3, OC-12, or OC-48 Rx Loss of Signal alarm should be present on the system. If additional or unexpected alarms are present on the system, contact your next level of support or your Nortel Networks support group.

**—continued—**

Procedure 2-6 (continued)
**Removing a terminal network element from a linear network**

| Step | Action |
|---|---|

***Checking for active alarms at each site***

**13** Check for active alarms at the other network elements in the linear configuration.

**a.** Select Active alarms in the Faults menu.

***Note:*** By default, the Active Alarms window retrieves alarms from all network elements you are logged into. To locate a specific alarm, click on any column header (Network Element, Unit, Class, Severity, Service, Description, Date, Time) in order to sort the alarm list in increasing or decreasing order. You can also use Critical, Major, minor and warning filters to locate an alarm.

**b.** To view details of an alarm, click on the alarm.

***Note 1:*** You can open the alarm screen in a separate window by selecting Open In New Window... from the File menu.

***Note 2:*** If alarms are active, contact your next level of support or your Nortel Networks support group.

***Logging out***

**14** Logout of the Site Manager session connected to the network processor and all network elements in the linear configuration.

**a.** Select the network processor and all the network elements in the linear configuration.

***Note:*** You can select multiple network elements by pressing the Crtl key while you select.

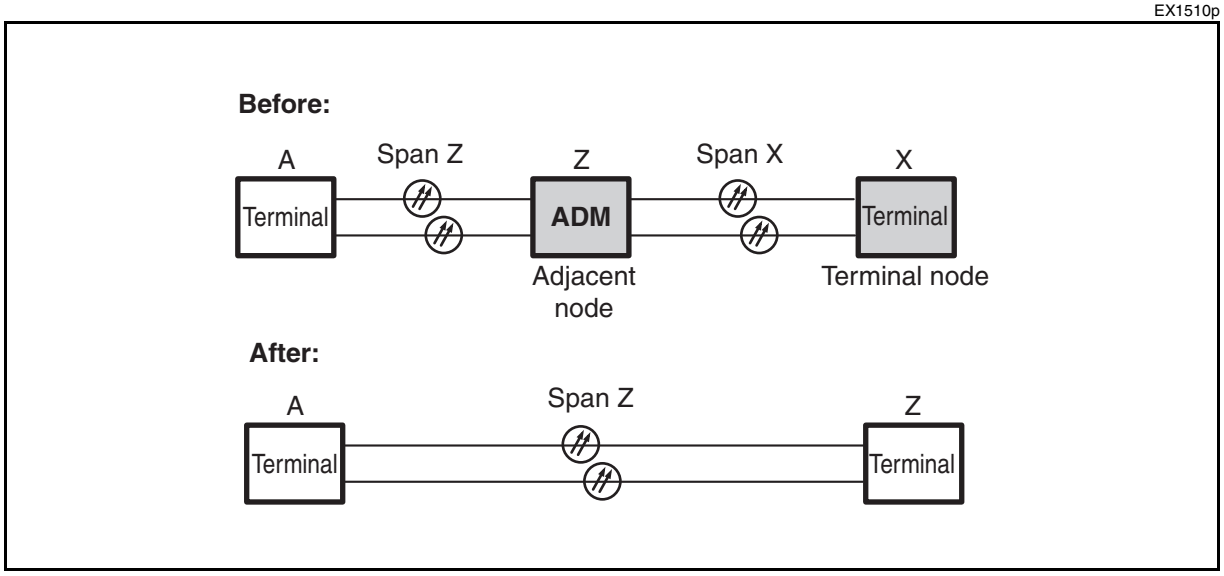
**b.** Right click and select Logout.

**c.** Close the Site Manager application by selecting Exit from the File menu.

**—end—**

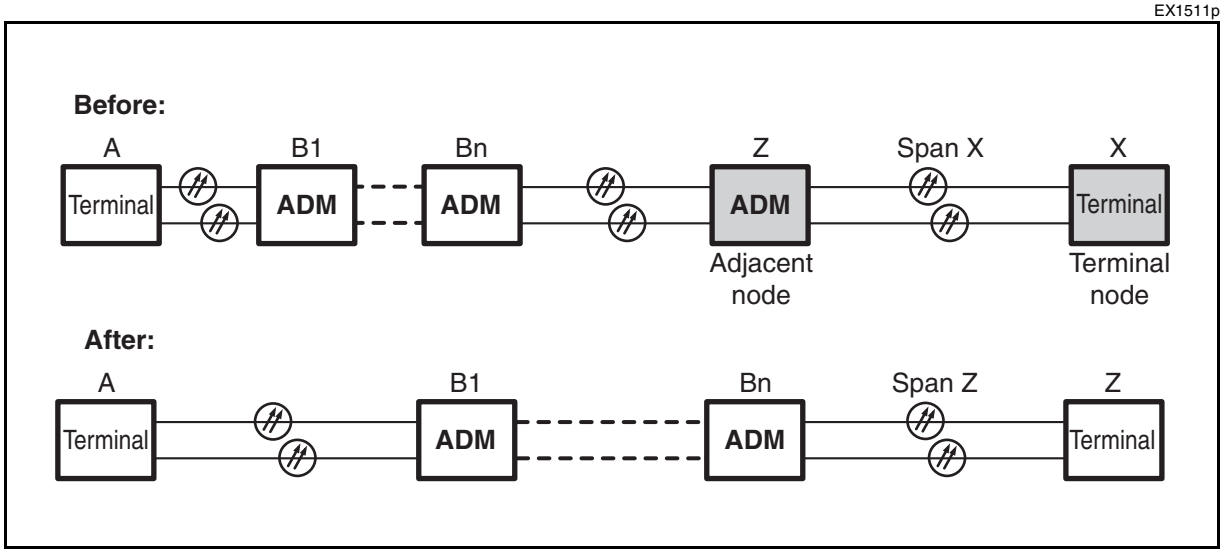
## Network diagram (Removing a terminal network element from a linear network)

EX1510p



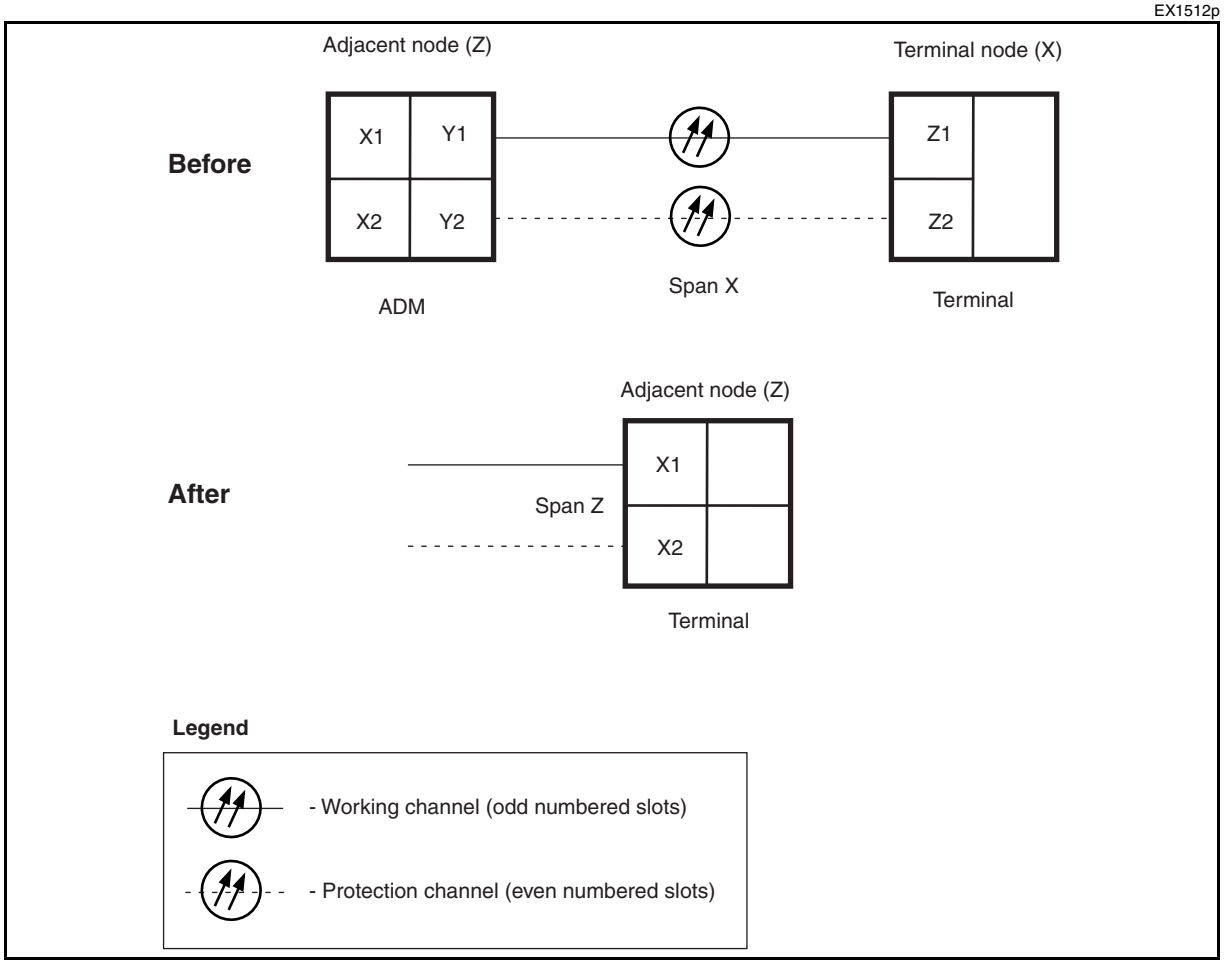

## Network diagram (Reducing a linear ADM chain)

EX1511p



## Network diagram (Removing connections to the terminal network element)

EX1512p




## Recorded information (Removing a terminal network element from a linear network)

| TID and AID of the adjacent network element | | TID and AID of the terminal network element | |
|---|---|---|---|
| Adjacent network element (TID) | | Terminal network element (TID) | |
| Y1 odd slot # (working) AID | | Z1 odd slot # (working) AID | |
| Y2 even slot # (protection) AID | | Z2 even slot # (protection) AID | |

# Procedure 2-7
# Removing a network element from a UPSR

You can execute the reconfiguration if the network element to be deleted does not affect cross-connect continuity after deletion.

***Note 1:*** This procedure supports the deletion of line-timed network elements. It does not support the deletion of a head-end network element. If you need to delete a head-end network element, contact your next level of support or your Nortel Networks support group.

***Note 2:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during UPSR DWDM Converting and UPSR Adding / Removing NE reconfiguration on page 2-267.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure.
- fulfill general requirements for reconfiguration procedures.
  See General requirements for reconfiguration procedures on page 2-253.
- fulfill specific requirements for this procedure.
  See Specific requirements (Removing a network element from a UPSR) on page 2-256.
- ensure you have the required tools. See Tools required (Removing a network element from a UPSR / BLSR) on page 2-262.
- ensure you have the required materials. See Materials required (Removing a network element from a UPSR / BLSR) on page 2-264.
- observe all safety requirements described in Safety requirements on page 1-2
- obtain a user identifier (UID) and a password identifier (PID) with a level 3 or higher user privilege code (UPC)

**—continued—**

Procedure 2-7 (continued)
**Removing a network element from a UPSR**

| Step | Action |
|---|---|
| **1** | Make a copy of the network diagram and customize it so it matches your UPSR. See Network diagram (Removing a network element from a UPSR) on page 2-156. |
| **2** | Record network and nodal information. See Recording information (Removing a network element from a UPSR) on page 2-239. |
| **3** | Log into the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **4** | Log into Network Element A, Network Element B and Network Element C. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **5** | Identify the location of the head-end network element and the synchronization boundary from the Network diagram (Removing a network element from a UPSR) on page 2-156 that you have already drawn. |
| **6** | If the synchronization boundary is not between<br>• Network Element A and C, or<br>• Network Element B and C,<br>move the synchronization boundary to one of these spans.<br>See:<br>• Synchronization map with synchronization boundary (Removing a network element from a UPSR) on page 2-157<br>• Moving a synchronization boundary on page 2-216. |
| **7** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br>***Note:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during UPSR DWDM Converting and UPSR Adding / Removing NE reconfiguration on page 2-267. |
| **8** | If the network element to be removed is equipped with a network processor, relocate the network processor to another shelf. See Relocating the network processor on page 2-221. |
| **9** | Remove Network Element C from the NPx span of control. See 323-1059-520, Removing a network element from the span of control of a network processor on page 4-6. |
| **10** | **If** the section trace feature — **Then** go to<br>**is** used in this network — step 11<br>**is not** used in this network — step 12 |

**—continued—**

Procedure 2-7 (continued)
**Removing a network element from a UPSR**

| Step | Action |
|---|---|
| **11** | Set section trace fail mode to OFF for the optical interface in slot x of Network Element A and in slot y of Network Element B. See 323-1059-520, Editing section trace messages on page 2-4. |
| **12** | Change the slot x optical facility state at Network Element A to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25.<br><br>***Note:*** This fiber span may have a traffic hit of less than 50 ms. |
| **13** | Change the slot y optical facility state at Network Element B to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25.<br><br>***Note:*** This fiber span may have a traffic hit of less than 50 ms. |
| **14** | At Network Element A, disconnect the fiber-optic cable from the Tx and Rx connectors of the slot x optical interface circuit pack. |
| **15** | At Network Element A, measure the Transmit (Tx) power of the slot x optical interface circuit pack. See:<br>• 323-1059-222, Testing the power at the optical interface Tx port on page 2-8.<br>• Optical interface specifications on page 2-265.<br><br>***Note:*** The value obtained from the test must comply with the Launch power minimum value found in the interface specifications table for the optical interface. |
| **16** | At Network Element A, connect the new fiber-optic cable (originating from Network Element B) to the Tx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **17** | At Network Element B, disconnect the fiber-optic cable from the Tx and Rx connectors of the slot y optical interface circuit pack. |
| **18** | At Network Element B, measure the Transmit (Tx) power of the slot y optical interface circuit pack. See:<br>• 323-1059-222, Testing the power at the optical interface Tx port on page 2-8.<br>• Optical interface specifications on page 2-265.<br><br>***Note:*** The value obtained from the test must comply with the Launch power minimum value found in the interface specifications table for the optical interface. |
| **19** | At Network Element B, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot x of Network Element A. |

**—continued—**

Procedure 2-7 (continued)
**Removing a network element from a UPSR**

| Step | Action |
|---|---|
| **20** | At Network Element B, measure the Receive (Rx) input power of the fiber-optic cable identified in step 19. See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265.<br><br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **21** | At Network Element B, connect the fiber-optic cable identified in step 19 to the Rx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **22** | At Network Element B, connect the new fiber-optic cable (originating from Network Element A) to the Tx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **23** | At Network Element A, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot y of Network Element B. |
| **24** | At Network Element A, measure the Receive (Rx) input power of the fiber-optic cable identified in step 23. See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265.<br><br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |

**—continued—**

Procedure 2-7 (continued)
**Removing a network element from a UPSR**

| Step | Action |
|---|---|
| **25** | At Network Element A, connect the fiber-optic cable identified in step 23 to the Rx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **26** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **27** | **If** the section trace feature — **Then** go to<br>**is** used in this network — step 28<br>**is not** used in this network — step 29 |
| **28** | Reprovision the section trace parameters that were recorded in the Final section trace parameters table on page 2-249 for Network Element A and Network Element B. See 323-1059-520, Editing section trace messages on page 2-4.<br>***Note 1:*** Ensure that Network Element A, slot x transmitted values equal Network Element B, slot y expected values.<br>***Note 2:*** Ensure that Network Element A, slot x expected values equal Network Element B, slot y transmitted values. |
| **29** | Change the slot x optical facility state at Network Element A to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **30** | Change the slot y optical facility state at Network Element B to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **31** | **If** the line rate of your UPSR is — **Then** go to<br>OC-48 or OC-192 — step 32<br>not OC-48 or OC-192 — step 44 |
| **32** | **If** — **Then**<br>any of the optical interface circuit packs at:<br>• Network Element A, slot x<br>• Network Element B, slot y<br>are OC-48 ER, OC-48 ELR, OC-48 STS, or OC-192 circuit packs — perform step 33 to step 43 for each of these circuit packs<br>none of the optical interface circuit packs at the locations listed above are OC-48 ER, OC-48 ELR, OC-48 STS, or OC-192 circuit packs — go to step 44 |
| **33** | In Site Manager, select the required network element in the navigation tree. |
| **34** | Select Facility PM Thresholds in the Performance menu. |
| **35** | In the Type box, select OC48 or OC192, as applicable. |

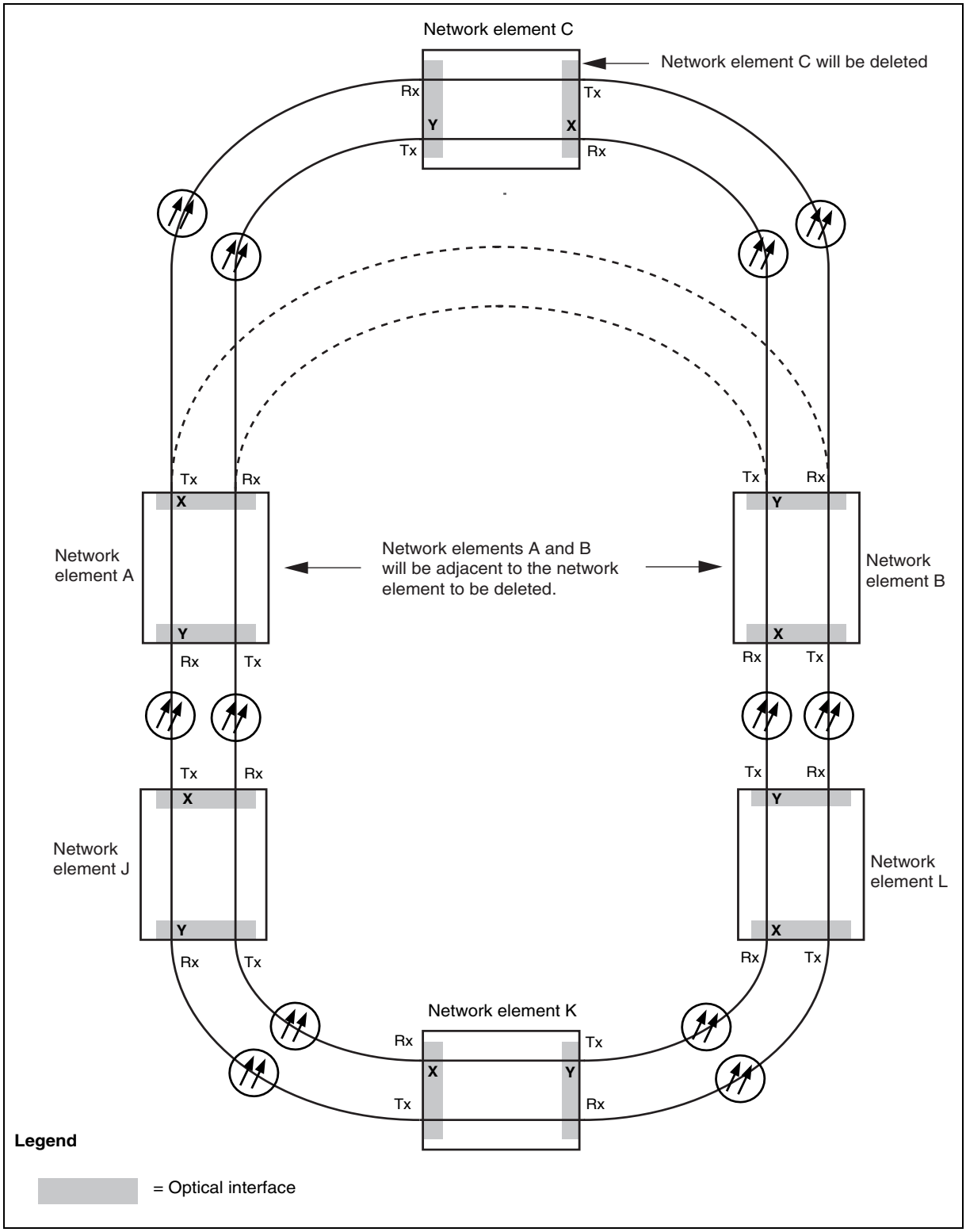
**—continued—**

Procedure 2-7 (continued)
**Removing a network element from a UPSR**

| Step | Action |
|---|---|
| **36** | In the Facility box, select the circuit pack identified in step 32. |
| **37** | In the Location box, select Near end. |
| **38** | In the Direction box, select Receive. |
| **39** | Click Retrieve. |
| **40** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **41** | Click Edit. |
| **42** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **43** | Click OK. |
| **44** | Check span performance at the adjacent network elements. See 323-1059-510, Procedures for facility PM counts on page 1-1. |
| **45** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br>You have completed this reconfiguration.<br>**—end—** |

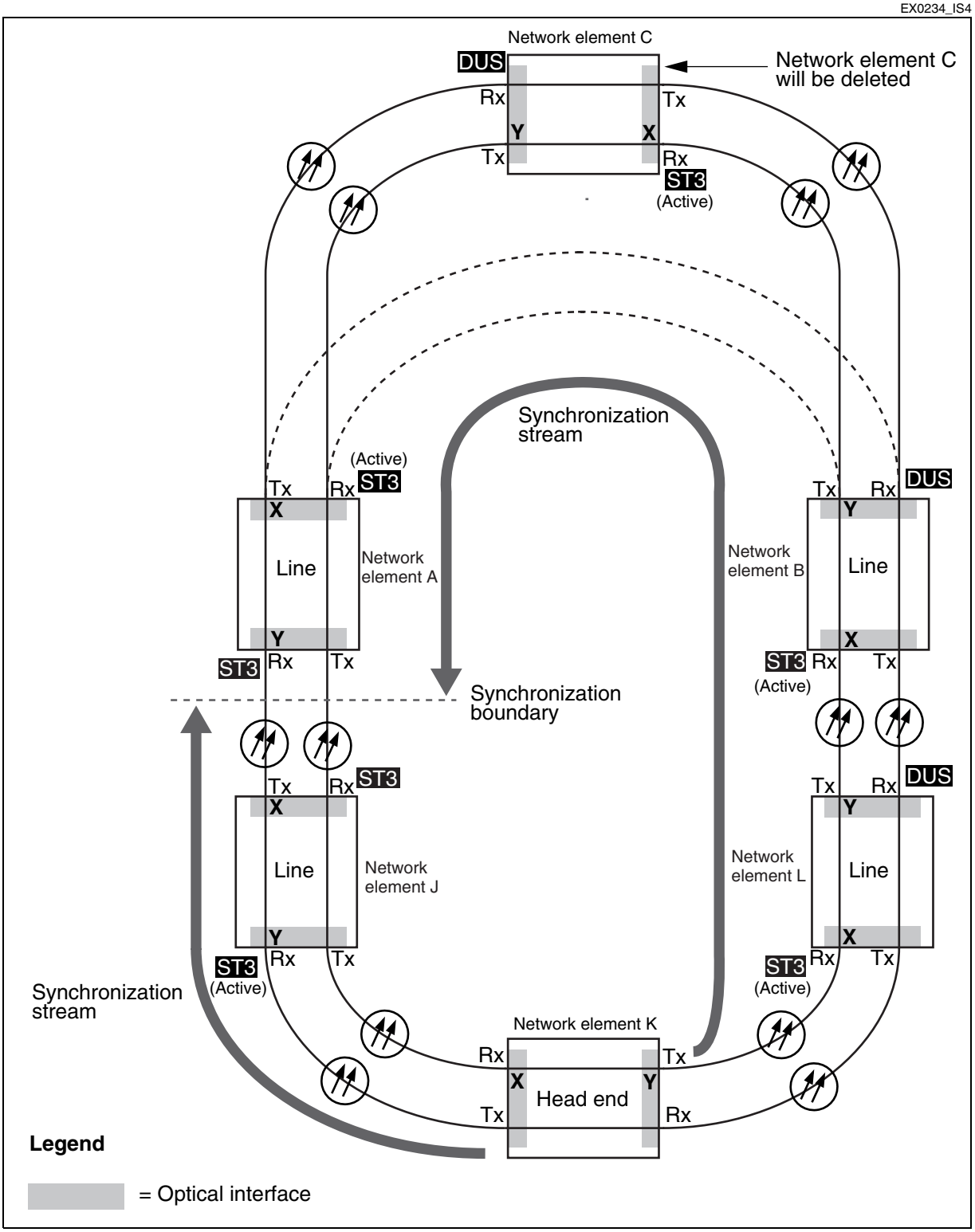
# Network diagram (Removing a network element from a UPSR)

EX0240_IS4



# Synchronization map with synchronization boundary (Removing a network element from a UPSR)

EX0234_IS4



# Procedure 2-8
# Removing a network element from a BLSR

You can execute the reconfiguration if the network element to be deleted does not affect cross-connect continuity after deletion.

***Note 1:*** This procedure applies only if all the network elements in the BLSR are OPTera Metro 3500 network elements. If one or more of the network elements are not OPTera Metro 3500 network elements, contact your next level of support or your Nortel Networks support group.

***Note 2:*** This procedure supports the deletion of line-timed network elements. It does not support the deletion of a synchronization head-end network element. If you need to delete a head-end network element, contact your next level of support or your Nortel Networks support group.

***Note 3:*** If at any time before step 28 (before removing the network element from the network processor span of control), you wish to back out of this procedure, perform step 27.

***Note 4:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during BLSR DWDM Converting and BLSR Adding / Removing NE reconfiguration on page 2-269.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure.
- fulfill general requirements for reconfiguration procedures.
  See General requirements for reconfiguration procedures on page 2-253.
- fulfill specific requirements for this procedure.
  See Specific requirements (Removing a network element from a BLSR) on page 2-256.

**—continued—**

Procedure 2-8 (continued)
**Removing a network element from a BLSR**

- ensure you have the required tools. See Tools required (Removing a network element from a UPSR / BLSR) on page 2-262.
- ensure you have the required materials. See Materials required (Removing a network element from a UPSR / BLSR) on page 2-264.
- observe all safety requirements described in Safety requirements on page 1-2 and in *Installation*, 323-1059-201
- obtain a user identifier (UID) and a password identifier (PID) with a level 4 or higher user privilege code (UPC)

| Step | Action |
|---|---|
| 1 | Make a copy of the network diagram and customize it so it matches your BLSR. See Network diagram (Removing a network element from a BLSR) on page 2-167. |
| 2 | Record network and nodal information. See Recording information (Removing a network element from a BLSR) on page 2-244. |
| 3 | Log into the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 4 | Perform a network element data backup to the network processor for all network elements in the NPx Span of Control. See 323-1059-302, Saving provisioning data from a shelf processor to a network processor on page 6-8. |
| 5 | Perform a network processor data backup.<br>**If** you are backing up data to — **Then** go to<br>a PC — step 6<br>an OPC — step 7<br>a UNIX workstation — step 8 |
| 6 | See:<br>• 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19, or<br>• 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29.<br>Go to step 9. |
| 7 | See:<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34, or<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40.<br>Go to step 9. |

—continued—

Procedure 2-8 (continued)
**Removing a network element from a BLSR**

| Step | Action |
|---|---|
| **8** | See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24. |
| **9** | Log into Network Element A, Network Element B and Network Element C. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **10** | Identify the location of the head-end network element and the synchronization boundary from the Network diagram (Removing a network element from a BLSR) on page 2-167 that you have already drawn. |
| **11** | If the synchronization boundary is not between<br>• Network Element A and C, or<br>• Network Element B and C,<br>move the synchronization boundary to one of these spans.<br>See:<br>• Synchronization map with synchronization boundary (Removing a network element from a BLSR) on page 2-168<br>• Moving a synchronization boundary on page 2-216. |
| **12** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br>***Note:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during BLSR DWDM Converting and BLSR Adding / Removing NE reconfiguration on page 2-269. |
| **13** | If the network element to be removed is equipped with a network processor, relocate the network processor to another shelf. See Relocating the network processor on page 2-221. |
| **14** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **15** | **If** the section trace feature — **Then** go to<br>**is** used in this network — step 16<br>**is not** used in this network — step 17 |
| **16** | Set section trace fail mode to OFF for the optical interface<br>• in slot x of Network Element A.<br>• in slot y of Network Element B.<br>See 323-1059-520, Editing section trace messages on page 2-4. |

**—continued—**

Procedure 2-8 (continued)
**Removing a network element from a BLSR**

| Step | Action |
|---|---|
| **17** | Perform a manual switch on slot x of Network Element A to verify the protection line. See 323-1059-311, Operating a manual switch in a BLSR on page 1-31.<br>***Note:*** This fiber span may have a traffic hit of less than 50 ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **18** | Release the manual switch on slot x of Network Element A.<br>See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **19** | Perform a manual switch on slot y of Network Element B to verify the protection line. See 323-1059-311, Operating a manual switch in a BLSR on page 1-31.<br>***Note:*** This fiber span may have a traffic hit of less than 50 ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **20** | Release the manual switch on slot y of Network Element B.<br>See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **21** | Perform a forced switch on the slot y optical interface circuit pack of Network Element B. See 323-1059-311, Operating a forced switch in a BLSR on page 1-32. |
| **22** | Perform a forced switch on the slot x optical interface circuit pack of Network Element A. See 323-1059-311, Operating a forced switch in a BLSR on page 1-32. |
| **23** | Change the slot x optical facility state at Network Element A to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **24** | Change the slot y optical facility state at Network Element B to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **25** | Delete all pass-through cross-connects on Network Element C.<br>See 323-1059-320, Deleting a cross-connect on page 6-4 |
| **26** | Edit the BLSR configuration so that it does not include the network element to be removed.<br>See:<br>• Final BLSR configuration data table on page 2-249<br>• Editing a BLSR configuration (removing a network element) on page 2-225. |

**—continued—**

Procedure 2-8 (continued)
**Removing a network element from a BLSR**

| Step | Action |
|---|---|

**27**

**CAUTION**
**Risk of traffic loss**
You must restore the provisioning data at Network Element C first, or else a traffic loss will occur.

**CAUTION**
**Risk of not being able to back out of the procedure**
You may not back out of this procedure if you proceed past this point.

If you need to back out of this procedure, restore provisioning data to the network processor and the network elements in the span of control.

See:

- 323-1059-302, Restoring provisioning data from an OPC to a network processor over a TCP/IP link on page 6-42
- 323-1059-302, Restoring provisioning data from an OPC to a network processor over an OSI link on page 6-36
- 323-1059-302, Restoring provisioning data from a local PC to a network processor using an Ethernet connection on page 6-31
- 323-1059-302, Restoring provisioning data from a UNIX workstation to a network processor on page 6-26
- 323-1059-302, Restoring provisioning data to a network processor from a remote PC that has an FTP server running on page 6-21
- 323-1059-302, Restoring provisioning data from a network processor to a shelf processor on page 6-10
- 323-1059-302, Restoring provisioning data from a local PC to a shelf processor on page 6-5

***Note:*** If you restored provisioning data, then you have completed this procedure.

**28** Remove Network Element C from the NPx span of control. See 323-1059-520, Removing a network element from the span of control of a network processor on page 4-6.

**29** At Network Element A, disconnect the fiber-optic cable from the Tx and Rx connectors of the slot x optical interface circuit pack.

**—continued—**

Procedure 2-8 (continued)
**Removing a network element from a BLSR**

| Step | Action |
|---|---|
| **30** | At Network Element A, measure the Transmit (Tx) power of the slot x optical interface circuit pack. See:<br>• Testing the power at the optical interface Tx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Launch power minimum value found in the interface specifications table for the optical interface. |
| **31** | At Network Element A, connect the new fiber-optic cable (originating from Network Element B) to the Tx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **32** | At Network Element B, disconnect the fiber-optic cable from the Tx and Rx connectors of the slot y optical interface circuit pack. |
| **33** | At Network Element B, measure the Transmit (Tx) power of the slot y optical interface circuit pack. See:<br>• Testing the power at the optical interface Tx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Launch power minimum value found in the interface specifications table for the optical interface. |
| **34** | At Network Element B, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot x of Network Element A. |
| **35** | At Network Element B, measure the Receive (Rx) input power of the fiber-optic cable identified in step 34. See:<br>• Testing the power at the optical interface Rx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |

**—continued—**

Procedure 2-8 (continued)
**Removing a network element from a BLSR**

| Step | Action |
|---|---|
| **36** | At Network Element B, connect the fiber-optic cable identified in step 34 to the Rx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **37** | At Network Element B, connect the new fiber-optic cable (originating from Network Element A) to the Tx connector of the slot y optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **38** | At Network Element A, identify the fiber-optic cable originating from the Tx connector of the optical interface circuit pack in slot y of Network Element B. |
| **39** | At Network Element A, measure the Receive (Rx) input power of the fiber-optic cable identified in step 38.<br>See:<br>• Testing the power at the optical interface Rx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265. |

**CAUTION**
**Risk of damaging equipment**
Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level.

| | | |
|---|---|---|
| **40** | At Network Element A, connect the fiber-optic cable identified in step 38 to the Rx connector of the slot x optical interface circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. | |
| **41** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. | |
| **42** | **If** the section trace feature | **Then** go to |
| | **is** used in this network | step 43 |
| | **is not** used in this network | step 44 |

**—continued—**

Procedure 2-8 (continued)
**Removing a network element from a BLSR**

| Step | Action |
|---|---|
| **43** | Reprovision the section trace parameters that were recorded in the Final section trace parameters table on page 2-249 for Network Element A and Network Element B. See 323-1059-520, Editing section trace messages on page 2-4.<br>***Note 1:*** Ensure that Network Element A, slot x transmitted values equal Network Element B, slot y expected values.<br>***Note 2:*** Ensure that Network Element A, slot x expected values equal Network Element B, slot y transmitted values. |
| **44** | Change the slot x optical facility state at Network Element A to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **45** | Change the slot y optical facility state at Network Element B to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **46** | Release the forced switch on the slot x optical interface circuit pack of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30.<br>***Note:*** This fiber span may have a traffic hit of less than 50 ms. |
| **47** | Release the forced switch on the slot y optical interface circuit pack of Network Element B. See 323-1059-311, Releasing an optical line switch on page 1-30.<br>***Note:*** This fiber span may have a traffic hit of less than 50 ms. |
| **48** | **If** / **Then**<br>any of the optical interface circuit packs at:<br>• Network Element A, slot x<br>• Network Element B, slot y<br>are OC-48 ER, OC-48 ELR, OC-48 STS, or OC-192 circuit packs — perform step 49 to step 59 for each of these circuit packs<br>none of the optical interface circuit packs at the locations listed above are OC-48 ER, OC-48 ELR, OC-48 STS, or OC-192 circuit packs — go to step 60 |
| **49** | In Site Manager, select the required network element in the navigation tree. |
| **50** | Select Facility PM Thresholds in the Performance menu. |
| **51** | In the Type box, select OC48 or OC192, as applicable. |
| **52** | In the Facility box, select the circuit pack identified in step 48. |
| **53** | In the Location box, select Near end. |
| **54** | In the Direction box, select Receive. |
| **55** | Click Retrieve. |
| **56** | In the Monitor Type column of the PM Thresholds list, select OPR. |

**—continued—**

Procedure 2-8 (continued)
**Removing a network element from a BLSR**

| Step | Action |
|---|---|
| **57** | Click Edit. |
| **58** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **59** | Click OK. |
| **60** | Check span performance at the adjacent network elements.<br>See 323-1059-510, Procedures for facility PM counts on page 1-1. |
| **61** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **62** | Save provisioning data from all the network elements to the network processor. See 323-1059-302, Saving provisioning data from all shelf processors in a span of control to the network processor on page 6-13. |
| **63** | Perform a network processor data backup. |

| **If** you are backing up data to | **Then** go to |
|---|---|
| a PC | step 64 |
| an OPC | step 65 |
| a UNIX workstation | step 66 |

**64** See:

- 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19, or
- 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29.

You have completed this procedure.

**65** See:

- 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34, or
- 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40.

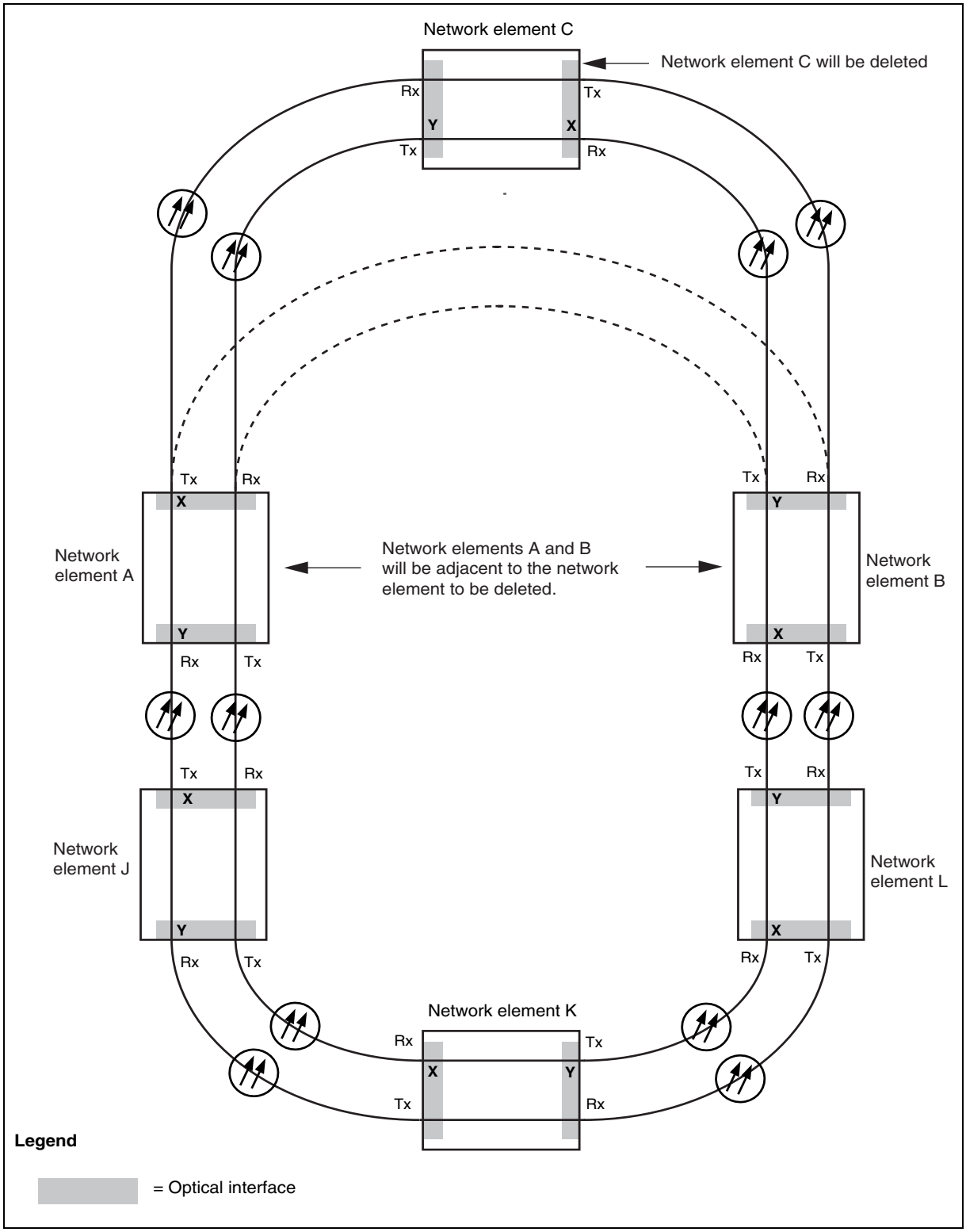
You have completed this procedure.

**66** See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24.

**—end—**

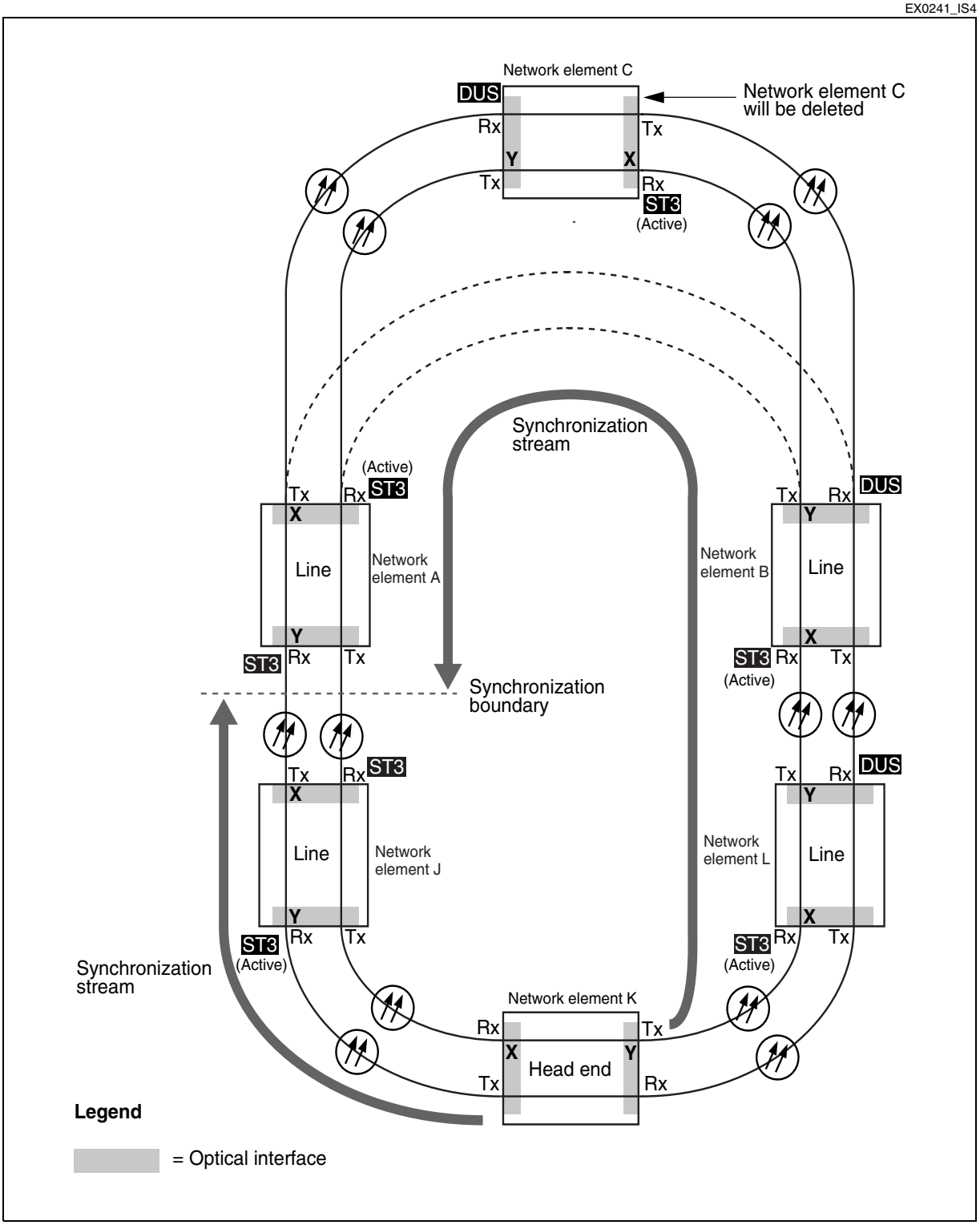
# Network diagram (Removing a network element from a BLSR)

EX0240_IS4



# Synchronization map with synchronization boundary (Removing a network element from a BLSR)

EX0241_IS4



# Procedure 2-9
# Upgrading a fiber span from an OC-3 to an OC-12 line rate

Perform this procedure to upgrade the line rate of a fiber span from OC-3 to OC-12 for either a UPSR or a linear 1+1 system.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behavior described in this chapter, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

**CAUTION**
**Risk of traffic loss**
Before performing the following steps, ensure all the optical line traffic protection is available and that there are no active high speed protection switches. Unprotected traffic will be lost throughout the reconfiguration of a fiber span. Once that fiber span is reconfigured, traffic will be restored.

**CAUTION**
**Risk of fiber pinching**
Ensure the removal and the insertion of the circuit packs do not cause any fiber pinching. Keep all the fiber cables away while inserting or removing the new circuit pack.

***Note 1:*** You must execute this procedure simultaneously at both network elements of the fiber span you are upgrading.

***Note 2:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. Important alarms are listed after each step to help the user to perform this procedure. See Alarms observed during OC-3 to OC-12 line rate upgrade on page 2-271.

***Note 3:*** This procedure is applicable only to the OC-3 optical interface circuit pack and not the OC-3x4 optical interface circuit pack.

**—continued—**

Procedure 2-9 (continued)
**Upgrading a fiber span from an OC-3 to an OC-12 line rate**

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- fulfill general requirements for reconfiguration procedures.
  See General requirements for reconfiguration procedures on page 2-253
- fulfill specific requirements for this procedure.
  See Specific requirements (Upgrading a fiber span from an OC-3 to an OC-12 line rate) on page 2-256
- ensure you have the required tools. See Tools required (Upgrading a fiber span line rate) on page 2-262
- ensure you have the required materials. See Materials required (Upgrading a fiber span line rate) on page 2-265
- observe all safety requirements described in Safety requirements on page 1-2 and in *Installation*, 323-1059-201
- obtain a user identifier (UID) and a password identifier (PID) with a level 3 or higher user privilege code (UPC)

| Step | Action |
|---|---|
| 1 | Inform your next level of support the following statements:<br>• The OC-12, STS-1 and STS-3c performance threshold values of your OC-12 facility will be reset to default values at the end of this reconfiguration.<br>• After the system reconfiguration, the performance threshold is set for each one of the OC-12, STS-1 and STS-3c parameters of the upgraded OC-12 facility. |
| 2 | Ask your next level of support the following questions:<br>• Should the new OC-12 circuit packs use default performance threshold values?<br>• If not, what are the required performance threshold values to be provisioned for the new OC-12 circuit packs? |

**—continued—**

Procedure 2-9 (continued)
**Upgrading a fiber span from an OC-3 to an OC-12 line rate**

| Step | Action | |
|---|---|---|
| **3** | **If** your next level of support asks you to | **Then** go to |
| | provision performance threshold values after the reconfiguration is completed, but does not provide you with a file containing this data | step 4 |
| | provision performance threshold values after the reconfiguration is completed, and provides you with a file containing this data | step 8 |
| | keep default performance threshold values | step 10 |
| **4** | Create a directory on the PC to keep the file for the performance threshold values that will be reprovisioned after the reconfiguration. | |
| **5** | Retrieve the PM threshold values. See 323-1059-510, Retrieving PM thresholds for OC-3, OC-12, OC-48 and OC-192 facilities on page 1-37.<br>***Note:*** Ensure you have all the OC-3, STS-1, and STS-3c performance threshold parameters for the OC-3 facility, as well as the 15-minute, 1-day, and Untimed periods. All of this information will be used to reprovision the new OC-12 facility after the reconfiguration. | |
| **6** | Save the performance threshold values to a file in the directory created in step 4 on a local PC for all OC-3 optical interfaces, as follows:<br>• On your local PC, open a file with a text editor.<br>• In Site Manager, click on a threshold value and select Copy Table in the Edit menu.<br>• On your local PC, right-click once inside the open file you created.<br>• Select Paste.<br>• Save the text file you have created in your text editor.<br>• Close file. | |
| **7** | Go to step 10. | |
| **8** | Create a directory on the PC to keep the file for the performance threshold values that will be reprovisioned after the reconfiguration. | |
| **9** | Save the performance threshold values file, provided by your next level of support, to the directory created in step 8 on a local PC. | |
| **10** | In the Navigation tree, select the network processor. | |
| **11** | Select Map Topology in the Configuration menu. | |
| **12** | In the Map Topology window, ensure Show slot numbers is enabled in the Options menu by selecting it. | |

**—continued—**

Procedure 2-9 (continued)
**Upgrading a fiber span from an OC-3 to an OC-12 line rate**

| Step | Action |
|---|---|

**13** **If** you are upgrading **Then** refer to the

| | |
|---|---|
| a linear fiber span | linear system fiber span diagram. See Linear system fiber span on page 2-195 |
| a UPSR fiber span | UPSR fiber span diagram. See UPSR fiber span on page 2-184. |

**14** Match the network elements in the Map Topology window to the network elements in your diagram.

**15** Record the required network element names and optical slot numbers from the Map Topology window to the diagram.

***Note:*** The span between Network Element A and Network Element B on your diagram is the span you are currently reconfiguring.

**16** **If** you are upgrading **Then** go to

| | |
|---|---|
| a linear fiber span | step 17 |
| a UPSR fiber span | step 18 |

***Note 1:*** The remainder of this procedure must be followed simultaneously on both sides of the fiber span.

***Note 2:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. Important alarms are listed after each step to help the user to perform this procedure.

**17** **If** you have **Then**

| | |
|---|---|
| already upgraded the working and protection optical interface circuit packs | go to step 39. |
| already upgraded **ONLY** the protection optical interface circuit pack | perform step 18 to step 38 for the working optical interface. |
| **NOT** upgraded any optical interface circuit packs | perform step 18 to step 38 for the protection optical interface. |

**18** Disconnect the transmit and receive fibers from the Tx and Rx connectors of the OC-3 circuit pack connected to the Upgrade Span.

***Note:*** The fiber span may have a traffic hit of less than 60 ms.

**19** Remove the OC-3 circuit pack, connected to the Upgrade Span, from the shelf. See Inserting or removing a circuit pack, in *Installation*, 323-1059-201.

**—continued—**

Procedure 2-9 (continued)
**Upgrading a fiber span from an OC-3 to an OC-12 line rate**

| Step | Action |
|---|---|
| **20** | Place the OC-3 circuit pack in a static protection envelope.<br>***Note:*** The OC-3 Circuit Pack Missing alarm is raised against the slot being reconfigured. |
| **21** | Select this network element in the Navigation tree. |
| **22** | Select Equipment & Facility Provisioning in the Configuration menu. |
| **23** | Under Equipment, select the slot # of the OC-3 circuit pack connected to the Upgrade Span.<br>***Note 1:*** It is very important to ensure the correct network element and optical slot correspond to the fiber span being upgraded.<br>***Note 2:*** In a linear reconfiguration, you must complete this procedure to the protection optics (even slots) on both network elements of a fiber span before you perform this procedure to the working optics (odd slots). |
| **24** | Click Reconfiguration. |
| **25** | Click Yes in the Warning dialog box.<br>***Note 1:*** The Equipment Upgrade in Progress alarm is raised.<br>***Note 2:*** The Equipment Upgrade Required alarm is only raised against a linear reconfiguration for the working optical interface circuit pack at the network element being reconfigured.<br>***Note 3:*** If the Equipment Upgrade Failed alarm is raised, contact your next level of support or your Nortel Networks support group. |
| **26** | Wait up to 5 minutes for the Equipment Upgrade in Progress alarm to clear.<br>***Note 1:*** The Equipment Upgrade Required alarm clears after the working optical interface circuit pack is upgraded.<br>***Note 2:*** The OC-3 Circuit Pack Missing alarm clears.<br>***Note 3:*** The OC-12 Circuit Pack Missing alarm is raised against the slot being reconfigured. |
| **27** | Select Shelf Level View in the Configuration menu. |
| **28** | Click Refresh in the Shelf Level View window to ensure the OC-12 circuit pack is recognized. |
| **29** | Insert an OC-12 circuit pack in the slot connected to the Upgrade Span. See Inserting or removing a circuit pack, in *Installation*, 323-1059-201. |
| **30** | Select Shelf Level View in the Configuration menu. |

**—continued—**

Procedure 2-9 (continued)
**Upgrading a fiber span from an OC-3 to an OC-12 line rate**

| Step | Action |
|---|---|
| **31** | Click Refresh in the Shelf Level View window to ensure the OC-12 circuit pack is recognized.<br>***Note:*** The OC-12 Circuit Pack Missing alarm clears after approximately 5 minutes. |
| **32** | Measure the Transmit (Tx) power of the new OC-12 circuit pack.<br>See:<br>• Testing the power at the optical interface Tx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Launch power minimum value found in the interface specifications table for the optical interface. |
| **33** | Connect the Transmit fiber-optic cable, removed at step 18, to the Tx connector of the OC-12 circuit pack connected to the Upgrade Span. |
| **34** | Stop and wait until you have confirmation from the craftsperson at the remote network element of the Upgrade Span, that step 33 is complete. |
| **35** | Measure the Received (Rx) input power of the Receive fiber for the Upgrade Span.<br>***Note:*** A variable optical attenuator or a fixed attenuator must be installed for each instance where the received optical power level exceeds the overload level.<br>See:<br>• Testing the power at the optical interface Rx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **36** | Connect the Receive fiber-optic cable, removed in step 18, to the Rx connector of the new OC-12 circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |

**—continued—**

Procedure 2-9 (continued)
**Upgrading a fiber span from an OC-3 to an OC-12 line rate**

| Step | Action |
|---|---|
| **37** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **38** | **If** you are upgrading — **Then** go to<br>a UPSR fiber span — step 39<br>a linear system fiber span — step 17 |
| **39** | **If** at step 3, you were required to — **Then** go to<br>provision performance monitoring threshold values after the reconfiguration is completed — step 40<br>keep default performance monitoring threshold values — step 42 |
| **40** | Edit the OC-12 performance monitoring threshold values for the OC-12 facility that has been reconfigured, using the data saved in the PM file, saved in step 6. See 323-1059-510, Editing PM thresholds for facilities on page 1-40. |
| **41** | Perform a final network element data backup.<br>See:<br>• 323-1059-302, Saving provisioning data from a shelf processor to a local PC on page 6-3<br>• 323-1059-302, Saving provisioning data from all shelf processors in a span of control to the network processor on page 6-13<br>• 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19<br>***Note:*** This final backup must be saved on a permanent storage device. |
| **42** | You have completed the upgrade of this fiber span. Repeat the procedure as required for the remaining fiber spans in your network.<br>**—end—** |

# Procedure 2-10
# Upgrading a fiber span from an OC-12 to an OC-48 line rate

Perform this procedure to upgrade the line rate of a fiber span from OC-12 to OC-48 for either a UPSR or a linear 1+1 system.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behavior described in this chapter, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

**CAUTION**
**Risk of traffic loss**
Before performing the following steps, ensure all the optical line traffic protection is available and that there are no active high speed protection switches. Unprotected traffic will be lost throughout the reconfiguration of a fiber span. Once that fiber span is reconfigured, traffic will be restored.

**CAUTION**
**Risk of fiber pinching**
Ensure the removal and the insertion of the circuit packs do not cause any fiber pinching. Keep all the fiber cables away while inserting or removing the new circuit pack.

***Note 1:*** You must execute this procedure simultaneously at both network elements of the fiber span you are upgrading (Network Elements A and B). See UPSR fiber span on page 2-184.

***Note 2:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. Important alarms are listed after each step to help the user to perform this procedure. See Alarms observed during OC-12 to OC-48 line rate upgrade on page 2-273.

**—continued—**

Procedure 2-10 (continued)
**Upgrading a fiber span from an OC-12 to an OC-48 line rate**

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- fulfill general requirements for reconfiguration procedures.
  See General requirements for reconfiguration procedures on page 2-253
- fulfill specific requirements for this procedure.
  See Specific requirements (Upgrading a fiber span from an OC-12 to an OC-48 line rate) on page 2-257
- ensure you have the required tools. See Tools required (Upgrading a fiber span line rate) on page 2-262
- ensure you have the required materials. See Materials required (Upgrading a fiber span line rate) on page 2-265
- observe all safety requirements described in Safety requirements on page 1-2 and in *Installation*, 323-1059-201
- obtain a user identifier (UID) and a password identifier (PID) with a level 3 or higher user privilege code (UPC)

| Step | Action |
|---|---|
| 1 | Inform your next level of support the following statements:<br>• The OC-48, STS-1, STS-3c and STS-12c performance threshold values of your OC-48 facility will be reset to default values at the end of this reconfiguration.<br>• After the system reconfiguration, the performance threshold is set for each one of the OC-48, STS-1, STS-3c and STS-12c parameters of the upgraded OC-48 facility. |
| 2 | Ask your next level of support the following questions:<br>• Should the new OC-48 circuit packs use default performance threshold values?<br>• If not, what are the required performance threshold values to be provisioned for the new OC-48 circuit packs? |

**—continued—**

Procedure 2-10 (continued)
**Upgrading a fiber span from an OC-12 to an OC-48 line rate**

| Step | Action |
|---|---|
| **3** | **If** your next level of support asks you to — **Then** go to<br>provision performance threshold values after the reconfiguration is completed, but does not provide you with a file containing this data — step 4<br>provision performance threshold values after the reconfiguration is completed, and provides you with a file containing this data — step 8<br>keep default performance threshold values — step 10 |
| **4** | Create a directory on the PC to keep the file for the performance threshold values that will be reprovisioned after the reconfiguration. |
| **5** | Retrieve the PM threshold values. See 323-1059-510, Retrieving PM thresholds for OC-3, OC-12, OC-48 and OC-192 facilities on page 1-37.<br>***Note:*** Ensure you have all the OC-12, STS-1, STS-3c and STS-12c performance threshold parameters for the OC-12 facility, as well as the 15-minute, 1-day, and Untimed periods. All of this information will be used to reprovision the new OC-48 facility after the reconfiguration. |
| **6** | Save the performance threshold values to a file in the directory created in step 4 on a local PC for all OC-12 optical interfaces, as follows:<br>• On your local PC, open a file with a text editor.<br>• In Site Manager, click on a threshold value and select Copy Table in the Edit menu.<br>• On your local PC, right-click once inside the open file you created.<br>• Select Paste.<br>• Save the text file you have created in your text editor.<br>• Close file. |
| **7** | Go to step 10. |
| **8** | Create a directory on the PC to keep the file for the performance threshold values that will be reprovisioned after the reconfiguration. |
| **9** | Save the performance threshold values file, provided by your next level of support, to the directory created in step 8 on a local PC. |
| **10** | In the Navigation tree, select the network processor. |
| **11** | Select Map Topology in the Configuration menu. |
| **12** | In the Map Topology window, ensure Show slot numbers is enabled in the Options menu by selecting it. |

**—continued—**

Procedure 2-10 (continued)
**Upgrading a fiber span from an OC-12 to an OC-48 line rate**

| Step | Action |
|---|---|

**13** **If** you are upgrading **Then** refer to the

| | |
|---|---|
| a linear fiber span | linear system fiber span diagram. See Linear system fiber span on page 2-195 |
| a UPSR fiber span | UPSR fiber span diagram. See UPSR fiber span on page 2-184. |

**14** Match the network elements in the Map Topology window to the network elements in your diagram.

**15** Record the required network element names and optical slot numbers from the Map Topology window to the diagram.

***Note:*** The span between Network Element A and Network Element B on your diagram is the span you are currently reconfiguring.

**16**

| **If** you are upgrading | **Then** go to |
|---|---|
| a linear fiber span | step 17 |
| a UPSR fiber span | step 18 |

***Note 1:*** The remainder of this procedure must be followed simultaneously on both sides of the fiber span.

***Note 2:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. Important alarms are listed after each step to help the user to perform this procedure.

**17**

| **If** you have | **Then** |
|---|---|
| already upgraded the working and protection optical interface circuit packs | go to step 47. |
| already upgraded **ONLY** the working optical interface circuit pack | perform step 18 to step 46 for the protection (slot 12) optical interface. |
| **NOT** upgraded any optical interface circuit packs | perform step 18 to step 46 for the working (slot 11) optical interface. |

**18** Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.

***Note:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. Important alarms are listed after each step to help the user to perform this procedure.

**—continued—**

Procedure 2-10 (continued)
**Upgrading a fiber span from an OC-12 to an OC-48 line rate**

| Step | Action |
|---|---|
| **19** | **If** you are currently working on — **Then** go to<br>an optical interface in a UPSR — step 20<br>a working optical interface in a linear configuration — step 22<br>a protection optical interface in a linear configuration — step 23 |
| **20** | Change the optical facility state to out-of-service (OOS). See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25.<br>***Note:*** This fiber span may have a traffic hit of less than 50 ms. |
| **21** | Go to step 23. |
| **22** | Perform a manual switch on slot x of Network Element A to verify the protection line. See 323-1059-311, Operating a manual optical line switch in a 1+1 linear system on page 1-26.<br>***Note:*** This fiber span may have a traffic hit of less than 50 ms.<br>If traffic switches back autonomously, contact your next level of support or your Nortel Networks support group. |
| **23** | Disconnect the transmit and receive fibers from the Tx and Rx connectors of the OC-12 circuit pack connected to the Upgrade Span.<br>***Note:*** The fiber span may have a traffic hit of less than 60 ms. |
| **24** | Remove the OC-12 circuit pack, connected to the Upgrade Span, from the shelf. See Inserting or removing a circuit pack, in *Installation*, 323-1059-201. |
| **25** | Place the OC-12 circuit pack in a static protection envelope.<br>***Note 1:*** The OC-12 Circuit Pack Missing alarm is raised against the slot being reconfigured.<br>***Note 2:*** If the OC-12 circuit pack you removed was being used as a timing reference, the Loss of Shelf Primary/Secondary Timing Reference alarm is raised. |
| **26** | Select this network element in the Navigation tree. |
| **27** | Select Equipment & Facility Provisioning in the Configuration menu. |
| **28** | Under Equipment, select the slot # of the OC-12 circuit pack connected to the Upgrade Span.<br>***Note 1:*** It is very important to ensure the correct network element and optical slot correspond to the fiber span being upgraded.<br>***Note 2:*** In a linear reconfiguration, you must complete this procedure to the working optics (slot 11) on both network elements of a fiber span before you perform this procedure to the protection optics (slot 12). |
| **29** | Click Reconfiguration. |

**—continued—**

Procedure 2-10 (continued)
**Upgrading a fiber span from an OC-12 to an OC-48 line rate**

| Step | Action |
|---|---|
| **30** | Click Yes in the Warning dialog box.<br>***Note 1:*** The Equipment Upgrade in Progress alarm is raised.<br>***Note 2:*** The Equipment Upgrade Required alarm is only raised against a linear reconfiguration for the protection optical interface circuit pack at the network element being reconfigured.<br>***Note 3:*** If the Equipment Upgrade Failed alarm is raised, contact your next level of support or your Nortel Networks support group. |
| **31** | Wait 5 minutes for the Equipment Upgrade In Progress to clear.<br>***Note 1:*** The Equipment Upgrade Required alarm clears after the protection optical interface circuit pack is upgraded.<br>***Note 2:*** The OC-12 Circuit Pack Missing alarm clears .<br>***Note 3:*** The OC-48 Circuit Pack Missing alarm is raised against the slot being reconfigured. |
| **32** | Select Shelf Level View in the Configuration menu. |
| **33** | Click Refresh in the Shelf Level View window to ensure the OC-48 circuit pack is recognized. |
| **34** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **35** | Insert an OC-48 circuit pack in the slot connected to the Upgrade Span. See Inserting or removing a circuit pack, in *Installation*, 323-1059-201. |
| **36** | Select Shelf Level View in the Configuration menu. |
| **37** | Click Refresh in the Shelf Level View window to ensure the OC-48 circuit pack is recognized.<br>***Note 1:*** Wait for the OC-48 Circuit Pack Missing alarm to clear.<br>***Note 2:*** If slots 11 and 12 have not yet been upgraded to OC-48, an Intercard Suspected alarm will be raised. |
| **38** | Measure the Transmit (Tx) power of the new OC-48 circuit pack. See:<br>• Testing the power at the optical interface Tx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Launch power minimum value found in the interface specifications table for the optical interface. |
| **39** | Connect the Transmit fiber-optic cable, removed at step 23, to the Tx connector of the OC-48 circuit pack connected to the Upgrade Span. |
| **40** | Stop and wait until you have confirmation from the craftsperson at the remote network element of the Upgrade Span, that step 39 is complete. |

**—continued—**

Procedure 2-10 (continued)
**Upgrading a fiber span from an OC-12 to an OC-48 line rate**

| Step | Action |
|---|---|
| **41** | Measure the Received (Rx) input power of the Receive fiber for the Upgrade Span.<br>***Note:*** A variable optical attenuator or a fixed attenuator must be installed for each instance where the received optical power level exceeds the overload level. See:<br>• Testing the power at the optical interface Rx port, in *Installation*, 323-1059-201.<br>• Optical interface specifications on page 2-265.<br>**CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the optical interface does not exceed the overload value. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **42** | Connect the Receive fiber-optic cable, removed in step 23, to the Rx connector of the new OC-48 circuit pack. See Attaching optical connectors and fiber-optic cables to the optical interface circuit pack, in *Installation*, 323-1059-201. |
| **43** | **If** your network is a — **Then** go to<br>UPSR — step 44<br>linear configuration — step 45 |
| **44** | Change the optical facility state to in-service (IS). See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **45** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **46** | **If** you are upgrading — **Then** go to<br>a UPSR fiber span — step 47<br>a linear system fiber span — step 17 |
| **47** | **If** at step 3, you were required to — **Then** go to<br>keep default performance monitoring threshold values — step 62<br>provision performance monitoring threshold values after the reconfiguration is completed — step 48 |

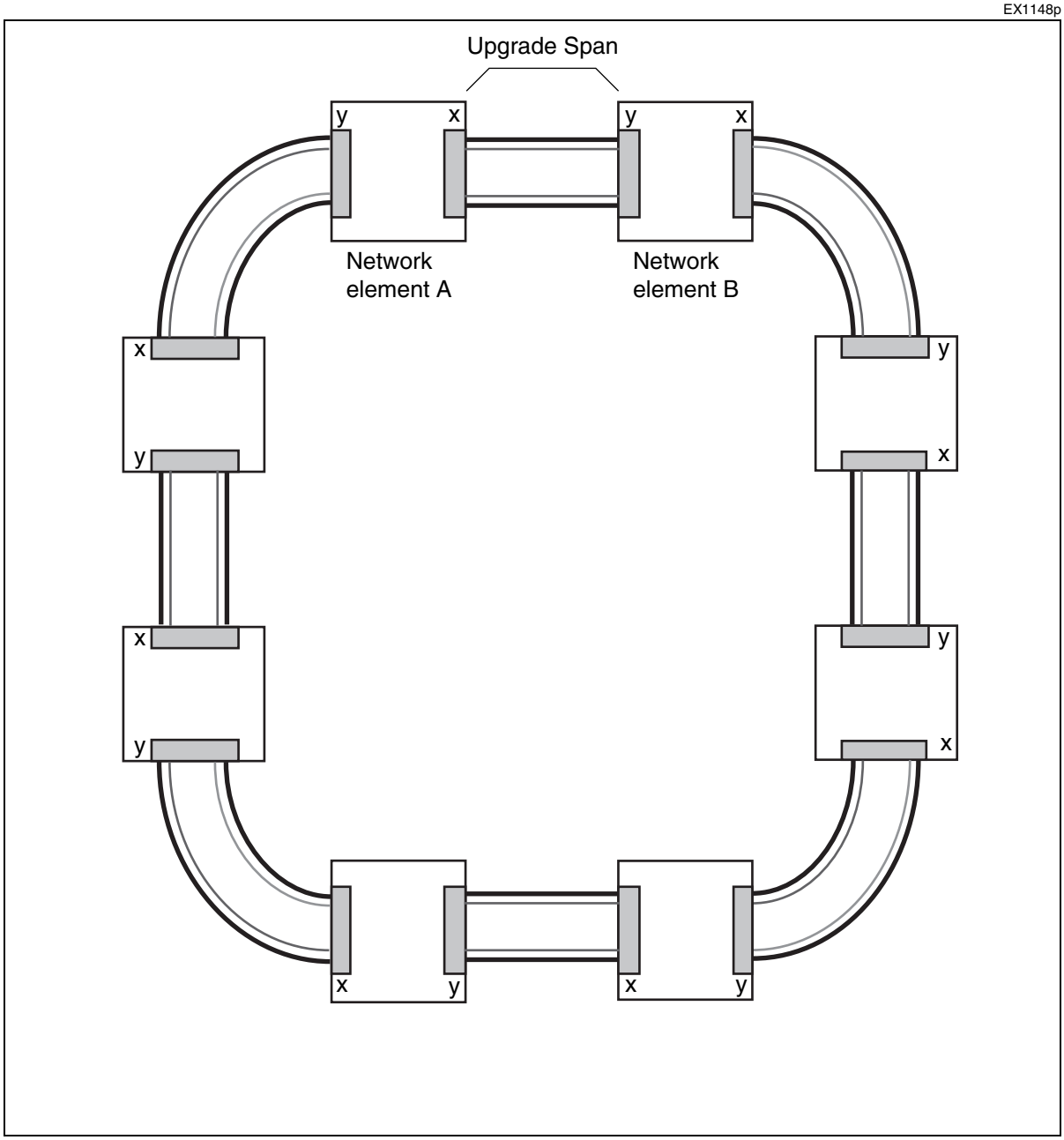
—continued—

Procedure 2-10 (continued)
**Upgrading a fiber span from an OC-12 to an OC-48 line rate**

| Step | Action |
|---|---|
| **48** | Edit the OC-48 performance monitoring threshold values for the OC-48 facility that has been reconfigured, using the data saved in the PM file. See 323-1059-510, Editing PM thresholds for facilities on page 1-40. |
| **49** | **If** / **Then**<br>the optical interface circuit packs at:<br>• Network Element A, slot x, and<br>• Network Element B, slot y<br>are ER or ELR circuit packs — perform step 50 to step 60 for each of these ER or ELR circuit packs<br>neither of the optical interface circuit packs at the locations listed above are ER or ELR circuit packs — go to step 61 |
| **50** | In Site Manager, select the required network element in the navigation tree. |
| **51** | Select Facility PM Thresholds in the Performance menu. |
| **52** | In the Type box, select OC-48. |
| **53** | In the Facility box, select the circuit pack identified in step 61. |
| **54** | In the Location box, select Near end. |
| **55** | In the Direction box, select Receive. |
| **56** | Click Retrieve. |
| **57** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **58** | Click Edit. |
| **59** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **60** | Click OK. |
| **61** | Perform a final network element data backup.<br>See:<br>• 323-1059-302, Saving provisioning data from a shelf processor to a local PC on page 6-3<br>• 323-1059-302, Saving provisioning data from all shelf processors in a span of control to the network processor on page 6-13<br>• 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19<br>***Note:*** This final backup must be saved on a permanent storage device. |
| **62** | You have completed the upgrade of this fiber span. Repeat the procedure as required for the remaining fiber spans in your network that require this line rate upgrade. See your system diagram and UPSR fiber span on page 2-184.<br>**—end—** |

# UPSR fiber span

EX1148p



# Procedure 2-11
# Converting a 1+1 linear point-to-point configuration to a 2-node UPSR

Perform this procedure to convert a 1+1 linear point-to-point network to a 2-node UPSR.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behavior described in this chapter, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

***Note 1:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. Important alarms are listed after each step to help the user to perform this procedure. See Alarms observed during 1+1 linear-to-UPSR / UPSR-to-1+1 linear conversion on page 2-274.

***Note 2:*** If there are PSC or PSD performance monitoring counts present before this reconfiguration occurs, these counts will require manual clearing after the reconfiguration. See 323-1059-510, Clearing facility PM counts on page 1-25.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- fulfill general requirements for reconfiguration procedures. See General requirements for reconfiguration procedures on page 2-253
- ensure you have the required tools. See Tools required (Converting a 1+1 point-to-point linear configuration to a 2-node UPSR) on page 2-262
- ensure you have the required materials. See Materials required (Converting linear-to-UPSR / UPSR-to-linear) on page 2-265
- observe all safety requirements described in Safety requirements on page 1-2
- obtain a user identifier (UID) and a password identifier (PID) with a level 2 or higher user privilege code (UPC)

**—continued—**

Procedure 2-11 (continued)
**Converting a 1+1 linear point-to-point configuration to a 2-node UPSR**

| Step | Action |
|---|---|

***Creating a network diagram***

**1** Make a copy of the network diagram. See Linear system fiber span on page 2-195.

**2** Log into the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1

**3** Log into Network Element A and Network Element B. See 323-1059-302, Procedures for interface login and logout on page 2-1.

**4** Select the network processor in the Navigation Tree.

**5** From the Configuration drop-down menu, select Map Topology.

**6** Select New map from NP from the File drop-down menu of Map Topology.

**7** From the Options menu, select Show slot number.

**8** Customize your network diagram so it matches the network displayed in the Map Topology window.

***Clearing any alarms on the system***

**9** Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.

**10** If there are alarms on the system, clear them before you continue. See 323-1059-543, Detailed procedures for active alarms on page 4-1.

***Changing the protection scheme of the adjacent optical interfaces for this fiber span***

**11** Perform step 12 to step 31 in sequence, first for Network Element A, and then for Network Element B.

**12** Select the network element in the Navigation tree.

**13** From the Configuration drop-down menu, select Equipment & Facility Provisioning.

**14** In the Equipment area of the Equipment & Facility Provisioning window, select the circuit pack that corresponds with slot y of this network element in the network diagram.

**15** In the Facility area, click Edit.

**16** In the Edit facility dialog box, select OOS from the Primary state list.

**CAUTION**
**Risk of service interruption**
If you place a facility out of service, you can cause a loss of traffic.

**17** Click OK.

**18** Click Yes in the warning dialog box.

**—continued—**

Procedure 2-11 (continued)
**Converting a 1+1 linear point-to-point configuration to a 2-node UPSR**

| Step | Action |
|---|---|
| **19** | From the Protection drop-down menu, select Provisioning. |
| **20** | Select the required OCn equipment type from the Equipment type list. |
| **21** | In the Provisioning data table, select the odd slot facility. |
| **22** | Click Edit. |
| **23** | In the Edit protection provisioning dialog box, select the UPSR radio button. |
| **24** | Click OK. |
| **25** | Click Yes in the confirmation dialog box. |
| **26** | From the Configuration drop-down menu, select Equipment & Facility Provisioning. |
| **27** | In the Equipment area of the Equipment & Facility Provisioning window, select the circuit pack that corresponds with slot y in the network diagram. |
| **28** | Click Edit in the Facility area. |
| **29** | In the Edit facility dialog box, select IS from the Primary state list. |
| **30** | Click OK. |
| **31** | If you have just changed the protection scheme for optical interfaces on Network Element A, then perform step 12 to step 31 for Network Element B. |

***Editing nodal cross-connects at Network Element A and Network Element B***

| | |
|---|---|
| **32** | Perform step 33 to step 70 in sequence, first for Network Element A, and then for Network Element B. |
| **33** | Select this network element in the Navigation tree. |
| **34** | From the Configuration drop-down menu, select Nodal Cross-Connects.<br>***Note:*** If this is the initial launch of the Nodal Cross-Connects window, click Yes in the Retrieve Nodal Cross-Connects dialog box. |
| **35** | For each 2WAY connection on this network element for which you will provide UPSR protection, perform step 37 to step 41. |
| **36** | Click Refresh. |
| **37** | In the Nodal Cross-Connects window, select a 2WAY connection. |
| **38** | Click Edit. |
| **39** | Select 2WAYPR from the Type list. |
| **40** | Select the slot y (even slot) optical facility as the Switchmate.<br>***Note:*** You are recommended to use the same time slot assignment for the Switchmate AID and the From AID. |
| **41** | Click OK. |

**—continued—**

Procedure 2-11 (continued)
**Converting a 1+1 linear point-to-point configuration to a 2-node UPSR**

| Step | Action |
|---|---|
| **42** | If there are more 2WAY cross-connects on this network element:<br>• for which you will provide UPSR protection, and<br>• that you have not yet edited,<br>then perform step 36 to step 42 for the next 2WAY cross-connect. |
| **43** | For each 1WAY connection, for which the following conditions apply, perform step 45 to step 51.<br>• you wish to provide UPSR protection for this connection<br>• the From AID for this 1WAY connection is the slot x (odd) optical facility (see Linear system fiber span on page 2-195) |
| **44** | Click Refresh. |
| **45** | In the Nodal Cross-Connects window, select this 1WAY connection. |
| **46** | Click Edit. |
| **47** | Select 1WAYPR from the Type list. |
| **48** | Select the slot y (even slot) optical facility as the Switchmate.<br>***Note:*** You must use the same time slot for the Switchmate AID and the From AID. |
| **49** | Click OK. |
| **50** | Click Refresh in the Nodal Cross-Connects dialog box. |
| **51** | If there are more 1WAY cross-connects on this network element:<br>• for which you wish to provide UPSR protection, and<br>• for which the From AID is the slot x (odd) optical facility (see Linear system fiber span on page 2-195), and<br>• that you have not yet edited,<br>then perform step 44 to step 51 for the next 1WAY cross-connect. |
| **52** | For each 1WAY connection, for which the following conditions apply, perform step 54 to step 69.<br>• you wish to provide UPSR protection for this connection.<br>• the To AID for this 1WAY connection is the slot x (odd) optical facility (see Linear system fiber span on page 2-195) |
| **53** | Click Refresh. |
| **54** | In the Nodal Cross-Connects window, select this 1WAY connection. |
| **55** | Record the Equipment and Facility values listed under From. |
| **56** | Record the time slot assignment values (STS, VTG, and VT) listed under To. |
| **57** | Record the time slot assignment values, if any, listed under From. |
| **58** | In the Nodal Cross-Connects window, click Add. |

**—continued—**

Procedure 2-11 (continued)
**Converting a 1+1 linear point-to-point configuration to a 2-node UPSR**

| Step | Action |
|---|---|

**59** **If** you

| | **Then** go to |
|---|---|
| wish to provision a Connection ID | step 60 |
| do not wish to provision a Connection ID | step 62 |

**60** Click once in the Connection ID text field

**61** Type the Connection ID.

***Note:*** Up to forty (40) characters are allowed in the Connection ID text field.

**62** Select the required signal rate from the Rate list.

**63** Select 1WAY from the Type list.

**64** Under From, enter the equipment and facility values recorded in step 55.

**65** Under From, enter the time slot assignment values recorded in step 57.

**66** Under To, enter the slot y (even) equipment and facility values (see Linear system fiber span on page 2-195).

**67** Under To, enter the time slot assignment values recorded in step 56.

**68** Click OK.

**69** If there are more 1WAY cross-connects on this network element

- for which you wish to provide UPSR protection, and
- for which the To AID is the slot x (odd) optical facility (see Linear system fiber span on page 2-195), and
- that you have not yet edited,

then perform step 53 to step 69 for the next 2WAY cross-connect.

**70** If you have just finished editing cross-connects on Network Element A, then perform step 33 to step 70 on Network Element B.

***Updating the map topology***

**71** Select the network processor in the Navigation Tree.

**72** From the Configuration drop-down menu, select Map Topology.

**73** Select New map from NP from the File drop-down menu of Map Topology.

***Note:*** The topology view may take up to a minute to refresh.

**—end—**

# Procedure 2-12
# Converting a 2-node UPSR to a 1+1 linear point-to-point configuration

Perform this procedure to convert a 2-node UPSR to a 1+1 linear point-to-point network.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behavior described in this chapter, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

***Note 1:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. Important alarms are listed after each step to help the user to perform this procedure. See Alarms observed during 1+1 linear-to-UPSR / UPSR-to-1+1 linear conversion on page 2-274.

***Note 2:*** In this procedure, before you configure your local node to 1+1, you must configure your remote node to 1+1.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- fulfill general requirements for reconfiguration procedures. See General requirements for reconfiguration procedures on page 2-253
- fulfill specific requirements for this procedure. See Specific requirements (Converting a 2-node UPSR to a 1+1 linear point-to-point configuration) on page 2-258
- ensure you have the required tools. See Tools required (Converting a 2-node UPSR to a 1+1 linear point-to-point configuration) on page 2-263
- ensure you have the required materials. See Materials required (Converting linear-to-UPSR / UPSR-to-linear) on page 2-265
- observe all safety requirements described in Safety requirements on page 1-2
- obtain a user identifier (UID) and a password identifier (PID) with a level 2 or higher user privilege code (UPC)

**—continued—**

Procedure 2-12 (continued)
**Converting a 2-node UPSR to a 1+1 linear point-to-point configuration**

| Step | Action |
|---|---|

***Creating a network diagram***

**1** Make a copy of the network diagram. See 2-node UPSR on page 2-194.

**2** Log into the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1

**3** Log into Network Element A and Network Element B. See 323-1059-302, Procedures for interface login and logout on page 2-1.

**4** Select the network processor in the Navigation Tree.

**5** From the Configuration drop-down menu, select Map Topology.

**6** Select New map from NP from the File drop-down menu of Map Topology.

**7** From the Options menu, select Show slot number.

**8** Customize your network diagram so it matches the network displayed in the Map Topology window.

***Matching adjacent optical interfaces (odd to odd) over the fiber span***

**9** Ensure the odd-slot optical interfaces of the near- and far-end network elements are connected to each other.

***Note:*** If an odd-slot optical interface is connected to an even-slot optical interface on the other side of the span, perform a fiber swap to link odd slot to odd slot, and even slot to even slot.

**CAUTION**
**Traffic loss**
Fiber swapping with live traffic will cause a traffic loss for the duration of the swap. Perform the fiber swap as quickly as possible to minimize traffic loss.

***Clearing any alarms on the system***

**10** Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.

**11** If there are alarms on the system, clear them before you continue. See 323-1059-543, Detailed procedures for active alarms on page 4-1.

***Switching traffic to the odd slots of the UPSR***

**12** Put the facility in the even slots of the UPSR out-of-service (OOS). See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25.

***Editing nodal cross-connects at Network Element A and Network Element B***

**13** Perform step 14 to step 41 in sequence, first for Network Element A, and then for Network Element B.

**14** Select the network element in the Navigation Tree.

**—continued—**

Procedure 2-12 (continued)
**Converting a 2-node UPSR to a 1+1 linear point-to-point configuration**

| Step | Action |
|---|---|
| **15** | From the Configuration drop-down menu, select Nodal Cross-Connects.<br>***Note:*** If this is the initial launch of the Nodal Cross-Connects window, click Yes in the Retrieve Nodal Cross-Connects dialog box. |
| **16** | For each 2WAYPR connection with From and Switchmate AIDs that correspond to the optical interfaces involved in this network, perform step 17 to step 29. |
| **17** | Click Refresh. |
| **18** | Select the 2WAYPR connection in the Nodal Cross-Connects window. |
| **19** | **If** the From AID is … **Then** go to:<br>an even slot optical interface circuit pack — step 20<br>an odd slot optical interface circuit pack — step 24 |
| **20** | Click Edit. |
| **21** | In the Edit Cross-Connects dialog box, click Endpoint Swap. |
| **22** | Click Yes in the confirmation dialog box. |
| **23** | Click Refresh |
| **24** | Select the cross-connect to be edited from the list of cross-connects. |
| **25** | Click Edit. |
| **26** | Select 2WAY in the Type list. |
| **27** | Click OK. |
| **28** | Click Yes in the confirmation dialog box. |
| **29** | If there are more 2WAYPR cross-connects on this network element:<br>• with From and Switchmate AIDs that correspond to the optical interfaces involved in this network, and<br>• that you have not yet edited,<br>then perform step 17 to step 29 for the next 2WAYPR cross-connect. |
| **30** | For each 1WAYPR connection with From and Switchmate AIDs that correspond to the optical interfaces involved in this network, perform step 31 to step 41. |
| **31** | **If** the From AID is … **Then** go to:<br>an even slot optical interface circuit pack — step 32<br>an odd slot optical interface circuit pack — step 36 |
| **32** | Click Edit. |
| **33** | In the Edit Cross-Connects dialog box, click Endpoint Swap. |
| **34** | Click Yes in the confirmation dialog box. |

**—continued—**

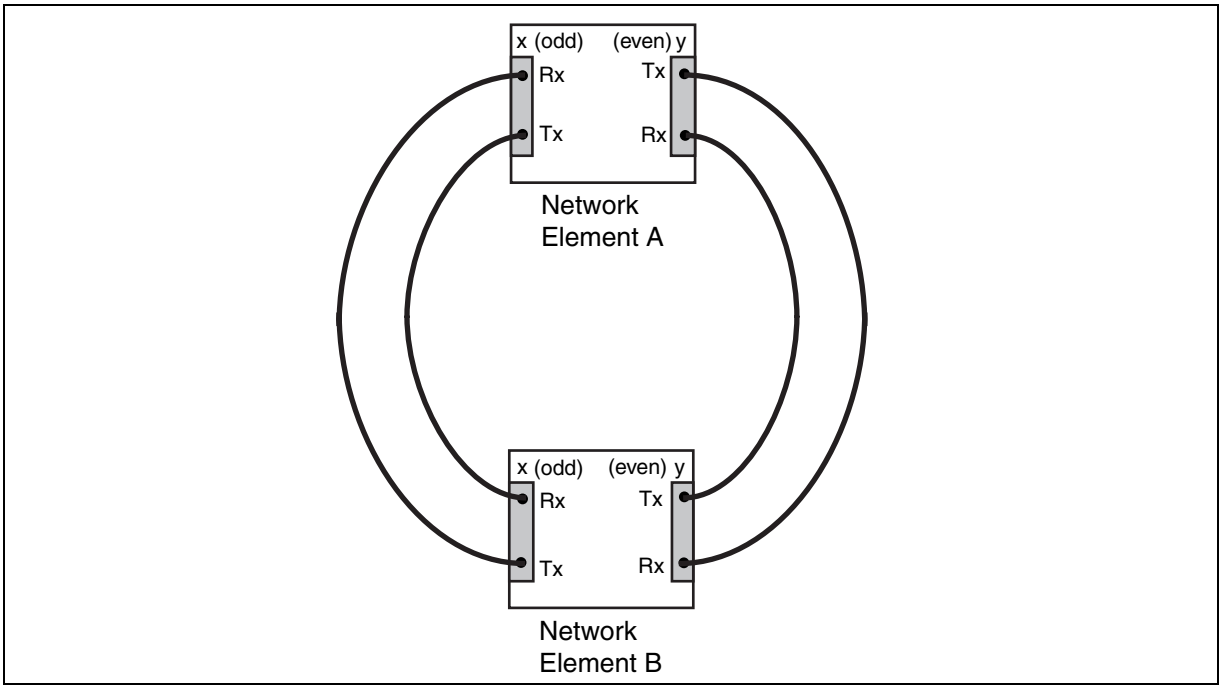
Procedure 2-12 (continued)
**Converting a 2-node UPSR to a 1+1 linear point-to-point configuration**

| Step | Action |
|---|---|
| **35** | Click Refresh. |
| **36** | Select the cross-connect to be edited from the list of cross-connects. |
| **37** | Click Edit. |
| **38** | Select 1WAY in the Type list. |
| **39** | Click OK. |
| **40** | Click Yes in the confirmation dialog box. |
| **41** | If there are more 1WAYPR cross-connects on this network element:<br>• with From and Switchmate AIDs that correspond to the optical interfaces involved in this network, and<br>• that you have not yet edited,<br>then perform step 31 to step 41 for the next 1WAYPR cross-connect. |
| ***Changing the protection scheme of the adjacent optical interfaces for this fiber span*** | |
| **42** | Perform step 43 to step 51 in sequence, first for Network Element A, and then for Network Element B. |
| **43** | From the Protection drop-down menu, select Provisioning. |
| **44** | Select the equipment type for the slot x optical interface Equipment type list. |
| **45** | Select the slot x facility from the table. |
| **46** | Click Edit. |
| **47** | In the Edit Protection Provisioning dialog box, select the 1+1 radio button. |
| **48** | Select the required switch mode. |
| **49** | Click OK. |
| **50** | Click Yes in the confirmation dialog box. |
| **51** | If you have just changed the protection scheme for optical interfaces on Network Element A, then perform step 43 to step 51 for Network Element B. |
| ***Putting the even slots of the linear system in-service*** | |
| **52** | Put the facility in the even slots of the linear system in-service (IS). See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26 |
| ***Updating the map topology*** | |
| **53** | Select the network processor in the Navigation Tree. |
| **54** | From the Configuration drop-down menu, select Map Topology. |
| **55** | Select New map from NP from the File drop-down menu of Map Topology.<br>***Note:*** The topology view may take up to a minute to refresh. |

**—end—**

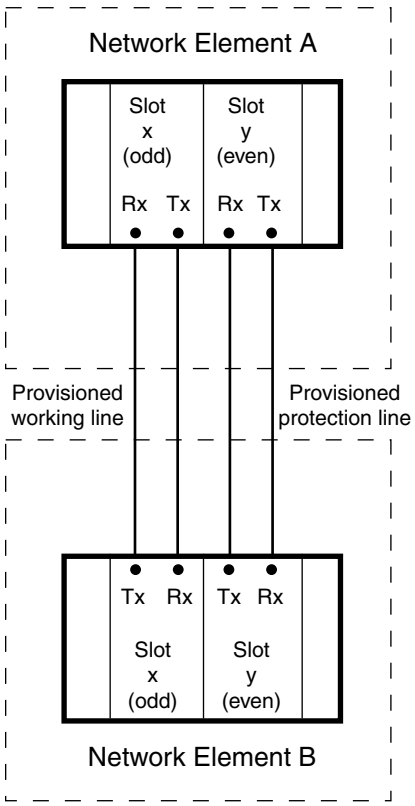
## 2-node UPSR

EX1387t



# Linear system fiber span

EX1149p



# Procedure 2-13
# Converting VT Assigned BLSR connections to Full VT BLSR connections

Perform this procedure to convert VT assigned BLSR end-to-end connections to Full VT BLSR end-to-end connections.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behavior described in this chapter, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

***Note 1:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. Important alarms are listed after each step to help the user to perform this procedure. See Alarms observed during VT-Assigned-to-Full-VT conversion on page 2-275.

***Note 2:*** "VT assigned" type connections are, by design, meant to run on a ring system with end connections rates set to VT1.5 and pass-through connection rates set to STS-1. VT traffic cannot be added/dropped at the pass-through nodes. Site Manager uses the terminology "STS Managed" for this type of connection.

***Note 3:*** "Full VT" type connections are, by design, meant to run on a ring system with end connection and pass-through connection rates set to VT1.5. It allows the add/drop of VT traffic on any STS at any point around the ring. Site Manager uses the terminology "VT Managed" for this type of connection.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- fulfill general requirements for reconfiguration procedures.
  See General requirements for reconfiguration procedures on page 2-253

**—continued—**

Procedure 2-13 (continued)
**Converting VT Assigned BLSR connections to Full VT BLSR connections**

- fulfill specific requirements for this procedure.
  See Specific requirements (Converting VT Assigned BLSR connections to Full VT BLSR connections) on page 2-258
- ensure you have the required materials. See Materials required (Converting VT-Assigned-BLSR-to-Full-VT-BLSR / Full-VT-BLSR-to-VT-Assigned-BLSR) on page 2-265
- observe all safety requirements described in Safety requirements on page 1-2

| Step | Action |
|---|---|

***Planning the reconfiguration and recording system information***

**1** Refer to the example scenario throughout the course of this procedure as a reference guide. See Example scenario of VT-Assigned to Full VT BLSR reconfiguration on page 2-204.

**2** Record the Target Identifier (TID) of the Network Processor in the Network processor TID table on page 2-202.

**3** Retrieve the BLSR configuration information. See 323-1059-320, Retrieving a BLSR configuration on page 6-33.

**4** Record the NE TIDs and configuration of the BLSR ring in the BLSR configuration table on page 2-202.

**5** Record the following in the Reconfiguration Worksheet:

- The network element TIDs for NEA, NEZ, and all pass-through network elements (“NE A =”, “NE Z =”, and “Passthrough NE =” fields)
- The OC-48 slot number (that is, OC48-11 or OC48-12) at NEA and NEZ, for all VT1.5 connections within the STS-1 channel to be reconfigured (“NE A OC48-Slot =” and “NE Z OC48-Slot =” fields)
- STS pass-through timeslot x (defined as the STS number of the VT assigned connections at pass-through NEs)

  ***Note:*** This timeslot must be the same as the STS number of the old time slot.

See Reconfiguration Worksheet (Converting VT assigned to Full VT) on page 2-203.

**6** For each VT1.5 end-to-end connection within the STS-1 channel to be reconfigured, record the following in the Reconfiguration Worksheet:

- Connection ID
- Tributary end point (NEA) and End point (NEZ)
- Old time slot (STS-VTG-VT of OC48-STS-VTG-VT end point AID)

**—continued—**

Procedure 2-13 (continued)
**Converting VT Assigned BLSR connections to Full VT BLSR connections**

| Step | Action |
|---|---|
| **7** | For each new connection to be reconfigured, record the new timeslot you will roll the connection to.<br>***Note:*** This step is required to record the new connection details as they would appear after reconfiguration. Ensure that for each existing connection (Old Time Slot) there is a free VT channel available for the New Time Slot. |
| **8** | Ensure all VT connections in the reconfiguration use the same pass-through STS-1 channel (defined as the Old Time Slot) within the end-to-end path to be reconfigured. |
| ***Creating new VT pass-through connections on a new STS channel at the pass-through nodes*** | |
| **9** | Ensure you are logged in to all network elements in this configuration. |
| **10** | Select the pass-through network element in the Navigation tree. |
| **11** | Select Nodal Cross-Connects from the Configuration menu.<br>***Note:*** If this is the initial launch of the Nodal Cross-Connects window, click Yes in the Retrieve Nodal Cross-Connects dialog box. |
| **12** | Click Yes in the Retrieve Nodal Cross-Connects dialog box. |
| **13** | Click Refresh. |
| **14** | Click Add. |
| **15** | In the Add Cross-Connect dialog box, click once in the Connection ID field. |
| **16** | Type the Connection ID.<br>***Note:*** Up to forty (40) characters are allowed in the Connection ID text field. |
| **17** | Select:<br>• Rate (must be VT1.5)<br>• Cross-connect Type (must be 2WAY)<br>• From AID (Equipment and Facility must be OC48-11, STS-VTG-VT as defined in New Time Slot)<br>• To AID (Equipment and Facility must be OC48-12, STS-VTG-VT as defined in New Time Slot)<br>• BLSR Endpoints (NEA and NEZ as defined in the Reconfiguration Worksheet) |
| **18** | Click Apply. |
| **19** | Put a check mark in the ‘Add’ column for the selected pass-through network element in the Reconfiguration Worksheet. |
| **20** | Repeat step 16 to step 18 for each VT connection. |
| **21** | Close Add Cross-Connect dialog box. |

**—continued—**

Procedure 2-13 (continued)
**Converting VT Assigned BLSR connections to Full VT BLSR connections**

| Step | Action |
|---|---|
| **22** | Repeat step 10 to step 21 for all pass-through NEs within the end-to-end connections.<br>***Note:*** Once the new pass-through connections are added, the STS Rx Unequipped alarm will raise against any new VT channel provisioned. |
| ***Roll VT-assigned end points onto the new VT1.5 channels*** | |
| **23** | On the Navigation tree, select the network element identified in the Reconfiguration Worksheet as NE A.<br>***Note:*** Depending on the facility provisioned and to which step is performed, several alarms are raised temporarily in the network throughout the course of the procedure. Important alarms are listed after each step to help the user to perform this procedure. |
| **24** | Click Refresh in the Nodal Cross-Connects window. |
| **25** | From the Reconfiguration Worksheet, choose the cross-connect to be reconfigured. With the appropriate slot as identified in the 'End Point (NEA)', select the cross-connect from the Nodal Cross-Connects window. |
| **26** | Select the In-service Rollover radio button. |
| **27** | Select the AID of the circuit pack to roll over under the From or To in the Nodal Cross-Connects window identified as OC48-Slot-STS-VTG-VT, where:<br>• OC48-Slot (defined as 'NEA OC48-slot')<br>• STS-VTG-VT (defined as 'Old Time Slot')<br>***Note:*** The selected endpoint is the initial end point. |
| **28** | Select Rolled end point From:<br>• Equipment and Facility (defined as 'NEA OC48-slot')<br>• STS-VTG-VT (defined as 'New Time Slot') |
| **29** | Click Bridge.<br>***Note:*** The following alarms may be observed after completing this step: VT Rx Unequipped, All Provisioned VT Rx AIS, Rollover In-progress, and STS Rx RFI |
| **30** | On the Navigation tree, select the network element identified in the Reconfiguration Worksheet as NE Z. |
| **31** | From the Nodal Cross-Connects window, select the appropriate cross-connect and slot as identified in 'End point (NEZ)' for the network element. |
| **32** | Select the In-service Rollover radio button. |

**—continued—**

Procedure 2-13 (continued)
**Converting VT Assigned BLSR connections to Full VT BLSR connections**

| Step | Action |
|---|---|
| **33** | Select the AID of the circuit pack to roll over under the From or To in the Nodal Cross-Connects window identified as OC48-Slot-STS-VTG-VT, where:<br>• OC48-Slot (defined as 'NEZ OC48-slot')<br>• STS-VTG-VT (defined as 'Old Time Slot') |
| **34** | Select Rolled endpoint From:<br>• Equipment and Facility (defined as 'NEZ OC48-slot')<br>• STS-VTG-VT (defined as 'New Time Slot') |
| **35** | Click Bridge. |
| **36** | Select the Bridged end point from the Nodal Cross-Connects window. |
| **37** | Click Switch. Click Yes in the confirmation dialog box.<br>***Note:*** Traffic switches to new end point of less than 60 ms. |
| **38** | Select the NE A from the Navigation tree. |
| **39** | Select the Bridged end point in NE A from the Nodal Cross-Connects window. |
| **40** | Click Switch. Click Yes in the warning dialog box.<br>***Note:*** Traffic switches to new end point of less than 60 ms. |
| **41** | Select the switched end point from the Nodal Cross-Connects window. |
| **42** | Click Commit. Click Yes in the warning dialog box. |
| **43** | Put a check mark in the 'Rollover, NEA' box for the corresponding connection in the Reconfiguration Worksheet. |
| **44** | Select NE B in the Navigation tree. |
| **45** | Select the switched end point in NE B from the Nodal Cross-Connects window. |
| **46** | Click Commit. Click Yes in the warning dialog box. |
| **47** | Put a check mark in the 'Rollover, NEZ' box for the corresponding connection in the Reconfiguration Worksheet. |
| **48** | Repeat this procedure for all end-to-end connections listed in the Reconfiguration Worksheet.<br>***Note:*** At this point in the procedure the end-to-end connections are rolled to the new channel, Rx Unequipped alarms will clear against the new STS channel(s) and will be raised against the pass-through network elements on the old STS channel from which connections have been rolled. |

**—continued—**

Procedure 2-13 (continued)
**Converting VT Assigned BLSR connections to Full VT BLSR connections**

| Step | Action |
|---|---|

***Delete old STS pass-through connections on the pass-through network elements***

**49** In the Reconfiguration Worksheet, verify for pass-through network elements between NE A and NE Z.

**50**

| **If** the 'Del' columns | **Then** |
|---|---|
| are all checked | you have completed this procedure |
| are not all checked | go to step 51 |

**51** In the Reconfiguration Worksheet, choose a pass-through network element that does not have a check mark in the 'Del' column.

**52** Select this network element in the Navigation tree.

**53** Select Nodal Cross-Connects from the Configuration menu.

**54** Click Refresh.

**55**

**CAUTION**
**Risk of traffic loss**
Ensure cross-connects are not carrying traffic before you delete them. Deleting a cross-connect that is carrying traffic causes traffic loss.

**56** In the Reconfiguration Worksheet, refer to the section called 'STS Pass-through Timeslot'.

**57** Select this cross-connect from the list of cross-connects.

**58** Click Delete.

**59** Click Yes in the warning dialog box.

**60** Put a check mark in the 'Del' column for the pass-through NE in the Reconfiguration Worksheet.

**61** Repeat step 51 to step 60 for all pass-through network elements in the Reconfiguration Worksheet.

**62** Perform a configuration audit on the BLSR. See 323-1059-320, Performing a BLSR audit and retrieving diagnostics on page 6-45.

**—end—**

## Network processor TID table

| NPx # 1 | NPx # 2 |
|---|---|
| | |

## BLSR configuration table

| NE TID | NE APS ID | West facility | West APS ID | East facility | East APS ID |
|---|---|---|---|---|---|
| | | | | | |
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# Reconfiguration Worksheet (Converting VT assigned to Full VT)

| Connection ID | NE A= | NE Z= | NEA OC48-slot= NEZ OC-48-slot= | | | STS passthrough timeslot X= (OC-48-slot x) where slot is 11 or 12 |
|---|---|---|---|---|---|---|
| | End point (NEA) | End point (NEZ) | Old time slot (STS-VTG-VT) | New time slot (STS-VTG-VT) | Rollover | |
| | | | | | NEA | |
| | | | | | NEZ | |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 1= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 2= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 3= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 4= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 5= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 6= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 7= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 8= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 9= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 10= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 11= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 12= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 13= |
| | | | | | Add | |
| | | | | | Del | Passthrough NE 14= |

## Example scenario of VT-Assigned to Full VT BLSR reconfiguration

In this example:

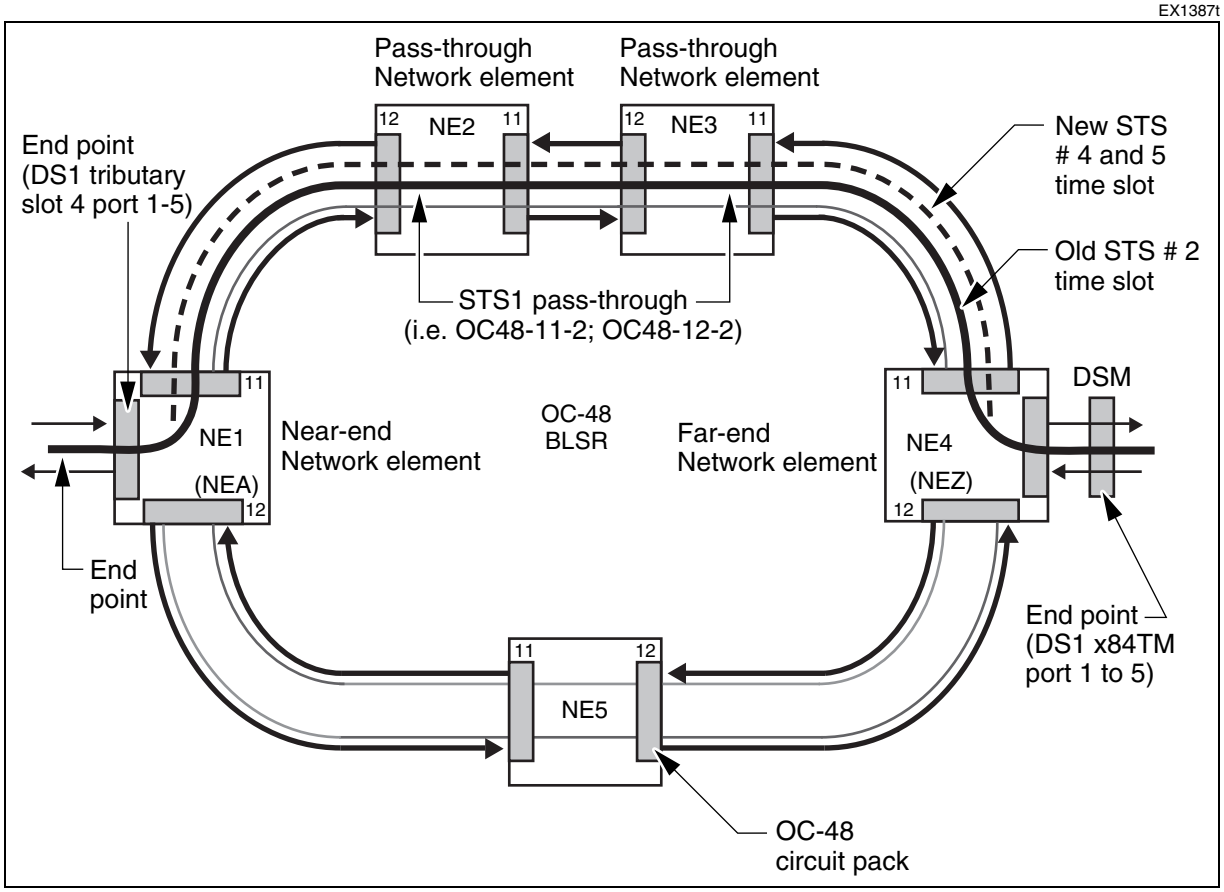
- End NEs are NE1 and NE4 which terminate 5 DS1s at DS1 and DSM tributaries respectively.
- Pass-through NEs are NE2 and NE3 which carries 5 VT1.5 connections through STS-1 channel 2.
- After the reconfiguration, end-to-end traffic will be carried over STS-1 channel 4 and 5 with VT1.5 granularity (that is, the pass-through cross-connects are converted from STS-1 to VT1.5)

See:


- VT-Assigned to Full VT BLSR reconfiguration (example) on page 2-204
- VT-Assigned to Full VT example data on page 2-205


## VT-Assigned to Full VT BLSR reconfiguration (example)

EX1387t



# VT-Assigned to Full VT example data

| Connection ID | NE A = NE 1 | NE Z = NE 4 | NEA OC48-slot= NE 1 OC48-11 NEZ OC48-slot= NE 4 OC48-11 | | Rollover | | STS passthrough timeslot X = OC-48-<11&12>-2 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Passthrough NE 1 = NE 2 | | Passthrough NE 2 = NE 3 | | Passthrough NE 3 = | |
| | End point (NEA) | End point (NEZ) | Old time slot (STS-VTG-VT) | New time slot (STS-VTG-VT) | NEA | NEZ | Add | Del | Add | Del | Add | Del |
| CID1_NE1_NE4 | DS1-4-1 | DS1-1-1 (OC3-7-1) | 2-1-1 | 4-1-1 | | | | | | | | |
| CID2_NE1_NE4 | DS1-4-2 | DS1-1-2 (OC3-7-1) | 2-1-2 | 4-1-2 | | | | | | | | |
| CID3_NE1_NE4 | DS1-4-3 | DS1-1-3 (OC3-7-1) | 2-1-3 | 4-1-3 | | | | | | | | |
| CID4_NE1_NE4 | DS1-4-4 | DS1-1-4 (OC3-7-1) | 2-1-4 | 5-1-1 | | | | | | | | |
| CID5_NE1_NE4 | DS1-4-5 | DS1-1-5 (OC3-7-1) | 2-1-5 | 5-1-2 | | | | | | | | |
| | | | | | | | | | | | | |

# Procedure 2-14
# Converting Full VT BLSR connections to VT Assigned BLSR connections

Perform this procedure to convert Full VT BLSR end-to-end connections to VT assigned BLSR end-to-end connections.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behavior described in this chapter, contact your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

***Note 1:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. Important alarms are listed after each step to help the user to perform this procedure. See Alarms observed during Full-VT-to-VT-Assigned conversion on page 2-275.

***Note 2:*** "VT assigned" type connections are, by design, meant to run on a ring system with end connections rates set to VT1.5 and pass-through connection rates set to STS-1. VT traffic cannot be added/dropped at the pass-through nodes. Site Manager uses the terminology "STS Managed" for this type of connection.

***Note 3:*** "Full VT" type connections are, by design, meant to run on a ring system with end connection and pass-through connection rates set to VT1.5. It allows the add/drop of VT traffic on any STS at any point around the ring. Site Manager uses the terminology "VT Managed" for this type of connection.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- fulfill general requirements for reconfiguration procedures.
  See General requirements for reconfiguration procedures on page 2-253
- fulfill specific requirements for this procedure.
  See Specific requirements (Converting Full VT BLSR connections to VT Assigned BLSR connections) on page 2-259

**—continued—**

Procedure 2-14 (continued)
**Converting Full VT BLSR connections to VT Assigned BLSR connections**

- ensure you have the required materials. See Materials required (Converting VT-Assigned-BLSR-to-Full-VT-BLSR / Full-VT-BLSR-to-VT-Assigned-BLSR) on page 2-265
- observe all safety requirements described in Safety requirements on page 1-2

| Step | Action |
|---|---|

***Planning the reconfiguration and recording system information***

**1** Refer to the example scenario throughout the course of this procedure as a reference guide. See Example scenario of Full VT to VT-Assigned BLSR reconfiguration on page 2-214.

**2** Record the Target Identifier (TID) of the Network Processor in the Network processor TID table on page 2-212.

**3** Retrieve the BLSR configuration information. See 323-1059-320, Retrieving a BLSR configuration on page 6-33.

**4** Record the NE TIDs and configuration of the BLSR ring in the BLSR configuration table on page 2-212.

**5** Record the following in the Reconfiguration Worksheet:

- The network element TIDs for NEA, NEZ, and all pass-through network elements (“NE A =”, “NE B =”, and “Passthrough NE =” fields)
- The OC-48-slot number (that is, OC48-11 or OC48-12) at NEA and NEZ, for all VT1.5 end-to-end connections to be reconfigured (“NE A OC48-Slot =” and “NE Z OC48-Slot =” fields)

See Reconfiguration Worksheet (Converting Full VT to VT assigned) on page 2-213.

**6** For each VT1.5 end-to-end connection to be reconfigured, record in the Reconfiguration Worksheet the following:

- Connection ID
- Tributary end point (NEA) and end point (NEZ)
- Old time slot (STS-VTG-VT of OC48-STS-VTG-VT end point AID)

**7** For each connection to be reconfigured, record in the Reconfiguration Worksheet the following:

- New timeslot you will roll the connection to
- STS pass-through timeslot x (defined as the STS number for new VT assigned traffic at pass-through NEs)

***Note:*** This step is required to record the new connection details as they would appear after reconfiguration. Ensure that for each existing connection (old time slot) there is a free VT channel available for the new time slot.

**—continued—**

Procedure 2-14 (continued)
**Converting Full VT BLSR connections to VT Assigned BLSR connections**

| Step | Action |
|---|---|
| **8** | From the Reconfiguration Worksheet, calculate the total amount of bandwidth required for each connection rate (VT1.5) and convert the value into STS-1.<br>***Note:*** This step is to ensure that the STS grooming can handle the bandwidth requirements before proceeding with the reconfiguration. If the total bandwidth is less than or equal to 28 VT1.5s (STS-1 rate) and there is an available STS-1 on the same path as the VT1.5 end-to-end connections of the BLSR, then the reconfiguration may be performed. |
| ***Creating new STS-1 pass-through connections at the pass-through nodes*** | |
| **9** | Ensure you are logged in to all network elements in this configuration. |
| **10** | Select the pass-through network element in the Navigation tree. |
| **11** | Select Nodal Cross-Connects from the Configuration menu.<br>***Note:*** If this is the initial launch of the Nodal Cross-Connects window, click Yes in the Retrieve Nodal Cross-Connects dialog box. |
| **12** | Click Yes in the Retrieve Nodal Cross-Connects dialog box. |
| **13** | Click Refresh. |
| **14** | Click Add. |
| **15** | In the Add Cross-Connect dialog box, click once in the Connection ID field. |
| **16** | Type the Connection ID.<br>***Note:*** Up to forty (40) characters are allowed in the Connection ID text field. |
| **17** | Select:<br>• Rate (must be STS1)<br>• Cross-connect Type (must be 2WAY)<br>• From AID (Equipment and Facility must be OC48-11, STS as defined in STS pass-through timeslot x)<br>• To AID (Equipment and Facility must be OC48-12, STS as defined in STS pass-through time slot x)<br>• BLSR Endpoints (NEA and NEZ as defined in the Reconfiguration Worksheet) |
| **18** | Click OK. |
| **19** | Put a check mark in the ‘Add’ column for the selected pass-through network element in the Reconfiguration Worksheet. |
| **20** | Repeat step 10 to step 19 for each pass-through network element within the end-to-end connection.<br>***Note:*** Once the new pass-through connections are added, the STS Rx Unequipped alarm will raise against the new STS channel provisioned at these network elements. |
| **21** | Close Add Cross-Connect dialog box. |

**—continued—**

Procedure 2-14 (continued)
**Converting Full VT BLSR connections to VT Assigned BLSR connections**

| Step | Action |
|---|---|

***Roll Full VT end points onto the new STS channel***

**22** On the Navigation tree, select the network element identified in the Reconfiguration Worksheet as NE A.

***Note:*** Depending on the facility provisioned and to which step is performed, several alarms are raised temporarily in the network throughout the course of the procedure. Important alarms are listed after each step to help the user to perform this procedure.

**23** Click Refresh in the Nodal Cross-Connects window.

**24** From the Reconfiguration Worksheet, choose the cross-connect to be reconfigured. With the appropriate slot as identified in the 'End Point (NEA)', select the cross-connect from the Nodal Cross-Connects window.

**25** Select the In-service Rollover radio button.

**26** Select the AID of the circuit pack to roll over under the From or To in the Nodal Cross-Connects window identified as OC48-Slot-STS-VTG-VT, where:

- OC48-Slot (defined as 'NEA OC48-slot')
- STS-VTG-VT (defined as 'Old Time Slot')

***Note:*** The selected endpoint is the initial end point.

**27** Select Rolled end point From:

- Equipment and Facility (defined as 'NEA OC48-slot')
- STS-VTG-VT (defined as 'New Time Slot')

**28** Click Bridge.

***Note:*** The following alarms will be raised after completing this step: STS Rx Unequipped, Rollover In-progress, and STS Rx RFI

**29** On the Navigation tree, select the network element identified in the Reconfiguration Worksheet as NE Z.

**30** From the Nodal Cross-Connects window, select the appropriate cross-connect and slot as identified in 'End point (NEZ)' for the network element.

**31** Select the In-service Rollover radio button.

**32** Select the AID of the circuit pack to roll over under the From or To in the Nodal Cross-Connects window identified as OC48-Slot-STS-VTG-VT, where:

- OC48-Slot (defined as 'NEZ OC48-slot')
- STS-VTG-VT (defined as 'Old Time Slot')

**—continued—**

Procedure 2-14 (continued)
**Converting Full VT BLSR connections to VT Assigned BLSR connections**

| Step | Action |
|---|---|
| **33** | Select Rolled endpoint From:<br>• Equipment and Facility (defined as 'NEZ OC48-slot')<br>• STS-VTG-VT (defined as 'New Time Slot') |
| **34** | Click Bridge. |
| **35** | Select the Bridged end point from the Nodal Cross-Connects window. |
| **36** | Click Switch. Click Yes in the confirmation dialog box.<br>***Note:*** Traffic switches to new end points are less than 60 ms. |
| **37** | Select NE A from the Navigation tree. |
| **38** | Select the Bridged end point in NE A from the Nodal Cross-Connects window. |
| **39** | Click Switch. Click Yes in the warning dialog box.<br>***Note:*** Traffic switches to new end points are less than 60 ms. |
| **40** | Select the switched endpoint from the Nodal Cross-Connects window. |
| **41** | Click Commit. Click Yes in the warning dialog box. |
| **42** | Put a check mark in the 'Rollover, NEA' box for the corresponding connection in the Reconfiguration Worksheet. |
| **43** | Select NE B in the Navigation tree. |
| **44** | Select the switched end point in NE B from the Nodal Cross-Connects window. |
| **45** | Click Commit. Click Yes in the warning dialog box. |
| **46** | Put a check mark in the 'Rollover, NEZ' box for the corresponding connection in the Reconfiguration Worksheet. |
| **47** | Repeat this procedure for all end-to-end connections listed in the Reconfiguration Worksheet.<br>***Note:*** At this point in the procedure the end-to-end connections are rolled to the new channel, Rx Unequipped alarms will clear against the new STS channel and will be raised against the pass-through network elements on the old STS channel(s) from which connections have been rolled. |

***Delete old VT1.5 pass-through connections on the pass-through network elements***

| | | |
|---|---|---|
| **48** | In the Reconfiguration Worksheet, verify for pass-through network elements between NE A and NE Z. See Reconfiguration Worksheet (Converting Full VT to VT assigned) on page 2-213. | |
| **49** | **If** the 'Del' columns | **Then** |
| | are all checked | you have completed this procedure |
| | are not all checked | go to step 51 |

**—continued—**

Procedure 2-14 (continued)
**Converting Full VT BLSR connections to VT Assigned BLSR connections**

| Step | Action |
|---|---|
| **50** | In the Reconfiguration Worksheet, choose a pass-through network element that does not have a check mark in the 'Del' column. |
| **51** | Select this network element in the Navigation tree. |
| **52** | Select Nodal Cross-Connects from the Configuration menu. |
| **53** | Click Refresh. |
| **54** | **CAUTION**<br>**Risk of traffic loss**<br>Ensure cross-connects are not carrying traffic before you delete them. Deleting a cross-connect that is carrying traffic causes traffic loss. |
| **55** | In the Reconfiguration Worksheet, refer to the column 'Old time slot (STS-VTG-VT)'. |
| **56** | In the Nodal Cross-Connects window, select each cross-connect listed in the Reconfiguration Worksheet without a check mark in the 'Del' column.<br>***Note:*** Correctly identify each cross-connect in Site Manager by matching the From and To AIDs in the Nodal Cross-Connects window with the time slot assignments in the 'Old time slot' column of the Reconfiguration Worksheet. |
| **57** | Click Delete. |
| **58** | Click Yes in the warning dialog box. |
| **59** | Put a check mark in the 'Del' column for the pass-through connections which were deleted in the Reconfiguration Worksheet. |
| **60** | Repeat step 50 to step 59 for all VT1.5 connections on the selected pass-through network element. |
| **61** | Repeat step 48 to step 60 for all pass-through network elements in the Reconfiguration Worksheet. |
| **62** | Perform a configuration audit on the BLSR. See 323-1059-320, Performing a BLSR audit and retrieving diagnostics on page 6-45. |

**—end—**

## Network processor TID table

| NPx # 1 | NPx # 2 |
|---|---|
| | |

## BLSR configuration table

| NE TID | NE APS ID | West facility | West APS ID | East facility | East APS ID |
|---|---|---|---|---|---|
| | | | | | |
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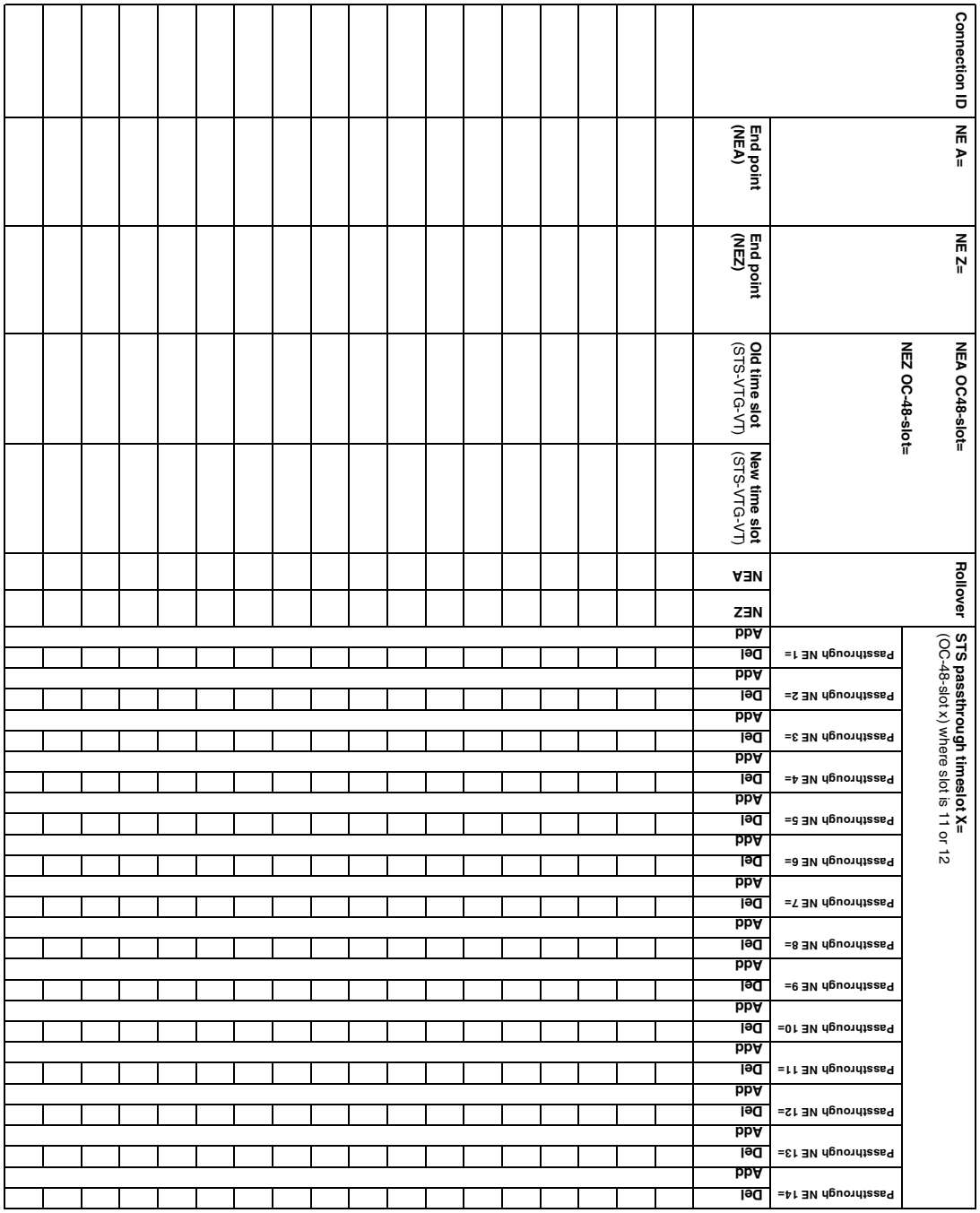
# Reconfiguration Worksheet (Converting Full VT to VT assigned)



## Example scenario of Full VT to VT-Assigned BLSR reconfiguration

In this example:

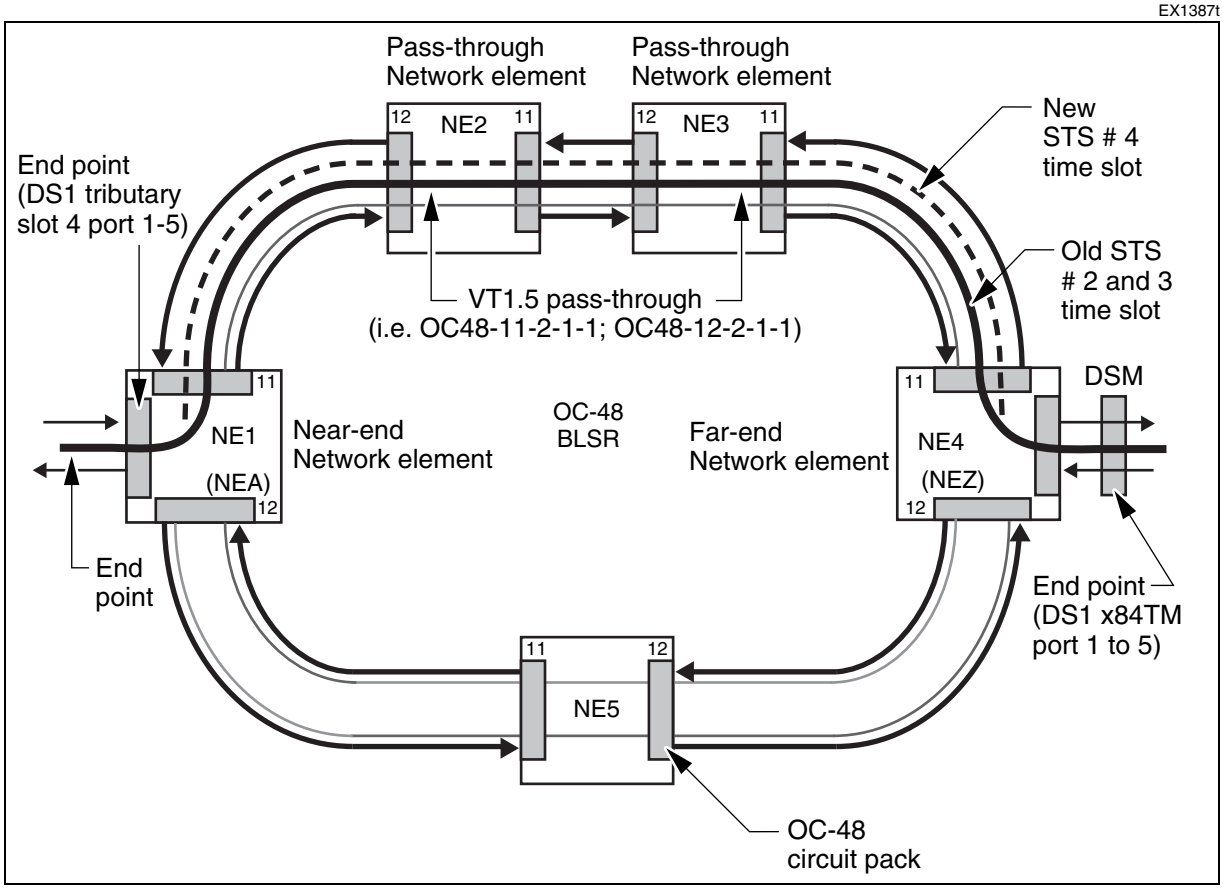
- End NEs are NE1 and NE4 which terminate 5 DS1s at DS1 and DSM tributaries respectively.
- Pass-through NEs are NE2 and NE3 which carries 5 VT1.5 connections through STS-1 channel 2 and 3.
- After the reconfiguration, end-to-end traffic will be carried over STS-1 channel 4 (that is, the pass-through cross-connects are converted from VT1.5 to STS-1)

See:


- Full VT to VT-Assigned BLSR reconfiguration (example) on page 2-214
- Full VT to VT-Assigned example data on page 2-215


## Full VT to VT-Assigned BLSR reconfiguration (example)

EX1387t



# Full VT to VT-Assigned example data

| Connection ID | NE A = NE 1 | NE Z = NE 4 | NEA OC48-slot= NE 1 OC48-11 NEZ OC48-slot= NE 4 OC48-11 | | Rollover | | STS passthrough timeslot X = OC-48-<11&12>-4 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Passthrough NE 1 = NE 2 | | Passthrough NE 2 = NE 3 | | Passthrough NE 3 = | |
| | End point (NEA) | End point (NEZ) | Old time slot (STS-VTG-VT) | New time slot (STS-VTG-VT) | NEA | NEZ | Add | Del | Add | Del | Add | Del |
| CID1_NE1_NE4 | DS1-4-1 | DS1-1-1 (OC3-7-1) | 2-1-1 | 4-1-1 | | | | | | | | |
| CID2_NE1_NE4 | DS1-4-2 | DS1-1-2 (OC3-7-1) | 2-1-2 | 4-1-2 | | | | | | | | |
| CID3_NE1_NE4 | DS1-4-3 | DS1-1-3 (OC3-7-1) | 2-1-3 | 4-1-3 | | | | | | | | |
| CID4_NE1_NE4 | DS1-4-4 | DS1-1-4 (OC3-7-1) | 3-1-1 | 4-1-4 | | | | | | | | |
| CID5_NE1_NE4 | DS1-4-5 | DS1-1-5 (OC3-7-1) | 3-1-2 | 4-2-1 | | | | | | | | |
| | | | | | | | | | | | | |

# Procedure 2-15
# Moving a synchronization boundary

Use this procedure to move a synchronization boundary within a network.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- observe all safety requirements described in Safety requirements on page 1-2
- ensure you have a level 4 or higher UPC
- ensure you are logged into all of the network elements in the UPSR or BLSR. See 323-1059-302, Procedures for interface login and logout on page 2-1
- obtain a user identifier (UID) and a password identifier (PID) with a level 4 or higher user privilege code (UPC)

| Step | Action |
|---|---|
| 1 | In the network diagram, locate the current location of the synchronization boundary. See Determining the location of a synchronization boundary on page 2-218. |
| 2 | **If** you are / **Then** go to:<br>adding a network element to a UPSR — step 3<br>adding a network element to a BLSR — step 5<br>removing a network element to a UPSR — step 6<br>removing a network element to a BLSR — step 7 |
| 3 | See Synchronization map with synchronization boundary (Adding a network element to a UPSR) on page 2-83. |
| 4 | Go to step 8. |
| 5 | See Synchronization map with synchronization boundary (Adding a network element to a BLSR) on page 2-96.<br>Go to step 8. |
| 6 | See Synchronization map with synchronization boundary (Removing a network element from a UPSR) on page 2-157.<br>Go to step 8. |
| 7 | See Synchronization map with synchronization boundary (Removing a network element from a BLSR) on page 2-168. |

—continued—

Procedure 2-15 (continued)
**Moving a synchronization boundary**

| Step | Action |
|---|---|
| **8** | Draw a dotted line at the intended location of the synchronization boundary. |
| **9** | Label the intended synchronization boundary on the network diagram. |
| **10** | Label the network elements between the current and intended synchronization boundaries in numerical order, starting with #1 as the network element closest to the current synchronization boundary.<br><br>***Note:*** You must number the network elements on the synchronization stream between the current and intended synchronization boundaries without going through the head-end. |
| **11** | Identify network element #1. |
| **12** | Select this network element in the Navigation Tree. |
| **13** | Select Synchronization in the Configuration menu to open the Synchronization window. |
| **14** | Click Switch Reference. Click Yes. |
| **15** | Click Refresh in the Synchronization window. |
| **16** | Perform step 12 to step 15 on the next adjacent network element, numerically (for example, if you were at Network Element # 1, the next network element would be Network Element # 2), until the synchronization boundary is in the intended location. |

**—end—**

# Procedure 2-16
# Determining the location of a synchronization boundary

Use this procedure to determine the location of a synchronization boundary within a network.

***Note 1:*** This is not a stand-alone procedure. Use this procedure only if you are referenced to it from another procedure.

***Note 2:*** The terms 'upstream' and 'downstream' in the context of synchronization flow, refer to the relative positions of network elements, depending on:

— which network elements depend on them for timing, and

— which network elements they depend on for their own timing

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- observe all safety requirements described in Safety requirements on page 1-2
- ensure you are logged into all of the network elements in the UPSR or BLSR. See 323-1059-302, Procedures for interface login and logout on page 2-1
- obtain a user identifier (UID) and a password identifier (PID) with a level 4 or higher user privilege code (UPC)

| Step | Action |
|---|---|
| 1 | In the Navigation tree, select the network processor. |
| 2 | Select Map Topology in the Configuration menu. |
| 3 | In the Map Topology window, enable Show Slot Numbers in the Options menu by selecting it. |
| 4 | Match and record the network elements and the optical slot numbers in the Map Topology window to the network elements in your diagram. |

**—continued—**

Procedure 2-16 (continued)
**Determining the location of a synchronization boundary**

| Step | Action |
|---|---|
| **5** | **If** you / **Then** go to<br>**do not** know which network element is the synchronization head-end — step 6<br>**do** know which network element is the synchronization head-end — step 10 |
| **6** | Perform step 7 to step 9 for all network elements in the Navigation tree, starting with the first one in the list, until the synchronization head-end is located. |
| **7** | Select Synchronization in the Configuration menu. |
| **8** | **If** under Timing Mode and 6.3 MHz Clock, the provisioned timing mode is set to / **Then**<br>Internal Timing — this network element is the synchronization head-end. Go to step 9.<br>External Timing — this network element is the synchronization head-end. Go to step 9.<br>Line Timing — this network element is not the synchronization head-end. Select the next network element in the Navigation tree. Go to step 7. |
| **9** | In your network diagram, record this network element as the synchronization head-end. |
| **10** | In the Navigation tree, select one of the network elements adjacent to the head-end network element. |

**—continued—**

Procedure 2-16 (continued)
**Determining the location of a synchronization boundary**

| Step | Action | |
|---|---|---|
| **11** | Select Synchronization in the Configuration menu. | |
| **12** | **If** under Timing Reference, the 'Active & Working' source | **Then** go to |
| | **is** the OC-48 optical interface linked by fiber to the head-end network element (TID noted at step 13) | step 13 |
| | **is not** the OC-48 optical interface linked by fiber to the head-end network element (TID noted at step 13) | step 16 |
| **13** | Make a note of the present network element TID. | |
| **14** | In the Navigation tree, select the next downstream network element. | |
| **15** | Go to step 11. | |
| **16** | In your network diagram, draw a dotted line between this network element and the network element immediately downstream, and label this line the Synchronization Boundary. For examples of a network diagram with a synchronization boundary already drawn, see:<br>• Synchronization map with synchronization boundary (Adding a network element to a UPSR) on page 2-83<br>• Synchronization map with synchronization boundary (Adding a network element to a BLSR) on page 2-96<br>• Synchronization map with synchronization boundary (Removing a network element from a UPSR) on page 2-157<br>• Synchronization map with synchronization boundary (Removing a network element from a BLSR) on page 2-168 | |

**—end—**

# Procedure 2-17
# Relocating the network processor

Use this procedure to relocate a network processor from one shelf to another in a network.

> ***Note:*** This is not a stand-alone procedure. Use this procedure only if you are referenced to it from another procedure.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- obtain a user identifier (UID) and a password identifier (PID) with a level 3 or higher user privilege code (UPC)
- ensure you have a network diagram

| Step | Action |
|---|---|
| **1** | Delete all the facilities on the network processor.<br>See 323-1059-520, Procedures for network processor facilities on page 3-1. |
| **2** | Remove the network processor from the shelf. See Inserting or removing a circuit pack, in *Installation*, 323-1059-201. |
| **3** | Install the network processor on another shelf in the network. See Installing core circuit packs, in *Installation*, 323-1059-201. |
| **4** | Provision the IP address on the network processor. See 323-1059-520, Editing a COLAN facility on page 3-3.<br>***Note:*** If you have lost Ethernet connection, you must reconnect the PC to the RS-232 port on the SPx to provision the IP address. |
| **5** | Provision the span of control of the network processor. See 323-1059-520, Adding a network element to the span of control of a network processor on page 4-3.<br>***Note:*** If you have lost Ethernet connection, log back into the network processor using the new IP address. See 323-1059-302, Procedures for interface login and logout on page 2-1. |

**—end—**

# Procedure 2-18
# Editing a BLSR configuration (adding a network element)

Use this procedure to edit a BLSR configuration when adding a network element to the ring.

> ***Note:*** This is not a stand-alone procedure. Use this procedure only if you are referenced to it from another procedure.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- obtain a user identifier (UID) and a password identifier (PID) with a level 3 or higher user privilege code (UPC)
- ensure you have a network diagram

| Step | Action |
|---|---|
| **1** | Select the network processor in the Navigation tree. |
| **2** | Select BLSR Ring Management from the Configuration drop-down menu. |
| **3** | Click the Rings Configuration tab in the BLSR Configuration window. |
| **4** | Select the network processor in the NE field. |
| **5** | Select the ring name in the Ring field. |
| **6** | Select the Temporary radio button. |
| **7** | Click Refresh. |

***Adding Network Element A, B, and C to the BLSR configuration***

| | |
|---|---|
| **8** | Click Add. |
| **9** | Select the ring being modified in the Ring field. |
| **10** | Select Network Element A's TID in the NE field. |
| **11** | Consult the Final BLSR configuration data table on page 2-249 for step 12 to step 30. |
| **12** | Select the east facility of Network Element A in the East Facility field. |
| **13** | Select the west facility of Network Element A in the West Facility field. |
| **14** | Select the APS ID for Network Element A in the NE APS ID field.<br>***Note:*** On Network Element A, the APS ID after the reconfiguration must be the same as the APS ID for Network Element A before the reconfiguration. |

**—continued—**

Procedure 2-18 (continued)
**Editing a BLSR configuration (adding a network element)**

| Step | Action |
|---|---|
| **15** | Select the corresponding east and west APS IDs in the East and West APS ID fields. |
| **16** | Click Apply. |
| **17** | Select the ring being modified in the Ring field. |
| **18** | Select Network Element B's TID in the NE field. |
| **19** | Select the east facility of Network Element B in the East Facility field. |
| **20** | Select the west facility of Network Element B in the West Facility field. |
| **21** | Select the APS ID for Network Element B in the NE APS ID field.<br>***Note:*** On Network Element B, the APS ID after the reconfiguration must be the same as the APS ID for Network Element B before the reconfiguration. |
| **22** | Select the corresponding east and west APS IDs in the East and West APS ID fields. |
| **23** | Click Apply. |
| **24** | Select the ring being modified in the Ring field. |
| **25** | Select Network Element C's TID in the NE field. |
| **26** | Select the east facility of Network Element C in the East Facility field. |
| **27** | Select the west facility of Network Element C in the West Facility field. |
| **28** | Select an APS ID for Network Element C in the NE APS ID field. |
| **29** | Select the corresponding east and west APS IDs in the East and West APS ID fields. |
| **30** | Click Ok. |

**—continued—**

Procedure 2-18 (continued)
**Editing a BLSR configuration (adding a network element)**

| Step | Action |
|---|---|

***Commissioning the new BLSR configuration***

**31** Click the Rings Commissioning tab in the BLSR Configuration window.

**32** Select the network processor in the NE field.

**33** Select ring name in the Ring field.

**34** Select the Temporary radio button.

**35** Click Check, to validate the new BLSR configuration.

***Note:*** If the message “Verify Ring Success” does not appear, contact your next level of support or your Nortel Networks support group.

**36** Click Load, to load the new BLSR configuration to the network processor and the shelf processors in the ring.

***Note:*** If the message “Load Ring Success” does not appear, contact your next level of support or your Nortel Networks support group.

**37** Click Invoke, to invoke the new BLSR configuration to the network processor and the shelf processors in the ring.

***Note:*** If the message “Invoke Ring Success” does not appear, contact your next level of support or your Nortel Networks support group.

**38** Click Commit, to commit the new BLSR configuration to the network processor and the shelf processors in the ring.

***Note:*** If the message “Commit Ring Success” does not appear, contact your next level of support or your Nortel Networks support group.

**—end—**

# Procedure 2-19
# Editing a BLSR configuration (removing a network element)

Use this procedure to edit a BLSR configuration when removing a network element from the ring.

***Note:*** This is not a stand-alone procedure. Use this procedure only if you are referenced to it from another procedure.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- obtain a user identifier (UID) and a password identifier (PID) with a level 3 or higher user privilege code (UPC)
- ensure you have a network diagram

| Step | Action |
|---|---|
| 1 | Select the network processor in the Navigation tree. |
| 2 | Select BLSR Ring Management from the Configuration drop-down menu. |
| 3 | Click the Rings Configuration tab in the BLSR Configuration window. |
| 4 | Select the network processor in the NE field. |
| 5 | Select the ring name in the Ring field. |
| 6 | Select the Temporary radio button. |
| 7 | Click Refresh. |
| ***Deleting Network Element A, B, and C from the BLSR configurtion*** | |
| 8 | Select the entry with Network Element A's TID in the NE Name column. |
| 9 | Click Delete. |
| 10 | Select the entry with Network Element B's TID in the NE Name column. |
| 11 | Click Delete. |
| 12 | Select the entry with Network Element C's TID in the NE Name column. |
| 13 | Click Delete. |

**—continued—**

Procedure 2-19 (continued)
**Editing a BLSR configuration (removing a network element)**

| Step | Action |
|---|---|

***Checking, loading, invoking and committing the new BLSR configuration to the network processor and shelf processors***

**14** Click the Rings Commissioning tab in the BLSR Configuration window.

**15** Select the network processor in the NE field.

**16** Select ring name in the Ring field.

**17** Select the Temporary radio button.

**18** Click Check, to validate the new BLSR configuration.

***Note:*** If the message “Verify Ring Success” does not appear, contact your next level of support or your Nortel Networks support group.

**19** Click Load, to load the new BLSR configuration to the network processor and the shelf processors in the ring.

***Note:*** If the message “Load Ring Success” does not appear, contact your next level of support or your Nortel Networks support group.

**20** Click Invoke, to invoke the new BLSR configuration to the network processor and the shelf processors in the ring.

***Note:*** If the message “Invoke Ring Success” does not appear, contact your next level of support or your Nortel Networks support group.

**21** Click Commit, to commit the new BLSR configuration to the network processor and the shelf processors in the ring.

***Note:*** If the message “Commit Ring Success” does not appear, contact your next level of support or your Nortel Networks support group.

**—end—**

# Procedure 2-20
# Recording information (Adding a network element to a UPSR)

Use this procedure to retrieve and record network element information relevant to the procedure Adding a network element to a UPSR on page 2-74.

***Note 1:*** This is not a stand-alone procedure. Use this procedure only if you are referenced to it from another procedure.

***Note 2:*** If at any time during this procedure you don't have access to the information required, log in to all the network elements of the UPSR to retrieve this information. See 323-1059-302, Procedures for interface login and logout on page 2-1.

## Requirements

To perform this procedure, you must ensure you have all the required documentation referenced in this procedure.

| Step | Action |
|---|---|
| 1 | Make a copy of each of the following tables or graphics:<br>• Network diagram (Adding a network element to a UPSR) on page 2-82<br>• Synchronization map with synchronization boundary (Adding a network element to a UPSR) on page 2-83<br>• Initial section trace parameters table on page 2-249<br>• Final section trace parameters table on page 2-249<br>• Network Element A cross-connects on page 2-250<br>• Network Element B cross-connects on page 2-251<br>• Network Element C cross-connects on page 2-252 |
| 2 | For each of the network elements in your network, enter the following details on your network diagram:<br>• the target identifier (TID) for each network element<br>• the slot number of each optical interface |

**—continued—**

Procedure 2-20 (continued)
**Recording information (Adding a network element to a UPSR)**

| Step | Action |
|---|---|
| **3** | Retrieve the following synchronization data for each network element in the network and record them on the network diagram:<br>• timing mode<br>• source, state, and quality of timing references<br>See 323-1051-310, Retrieving synchronization data for a network element on page 1-2.<br>***Note:*** If a network element is Internally timed or Externally timed, record it as a head-end network element on the network diagram. |
| **4** | On the network diagram, mark the synchronization boundary and the synchronization stream direction for both streams.<br>See:<br>• Synchronization map with synchronization boundary (Adding a network element to a UPSR) on page 2-83, for an example.<br>• *Planning and Ordering Guide*, NTRN10AM, for more information. |
| **5** | Retrieve all section trace parameters for the optical interface<br>• in slot x of Network Element A.<br>• in slot y of Network Element B.<br>See 323-1059-520, Retrieving section trace messages on page 2-2. |
| **6** | Record the section trace parameters, retrieved in step 5 in the Initial section trace parameters table on page 2-249. |
| **7** | Copy the transmitted value of Network Element A, slot x from the Initial section trace parameters table on page 2-249, into the cell of the Expected Values for Network Element C, slot y in the Final section trace parameters table on page 2-249. |
| **8** | Copy the expected value of Network Element A, slot x from the Initial section trace parameters table on page 2-249 into the cell of the Transmitted Values for Network Element C, slot y in the Final section trace parameters table on page 2-249. |
| **9** | Copy the transmitted value of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Expected Values for Network Element C, slot x in the Final section trace parameters table on page 2-249. |

**—continued—**

Procedure 2-20 (continued)
**Recording information (Adding a network element to a UPSR)**

| Step | Action |
|---|---|
| **10** | Copy the expected value of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Transmitted Values for Network Element C, slot x in the Final section trace parameters table on page 2-249. |
| **11** | Copy the Section Trace Fail mode of Network Element A, slot x from the Initial section trace parameters table on page 2-249, into the cell of the Section Trace Fail mode of Network Element C, slot y in the Final section trace parameters table on page 2-249. |
| **12** | Copy the Section Trace Format of Network Element A, slot x from the Initial section trace parameters table on page 2-249 into the cell of the Section Trace Format of Network Element C, slot y in the Final section trace parameters table on page 2-249. |
| **13** | Copy the Section Trace Fail mode of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Section Trace Fail mode of Network Element C, slot x in the Final section trace parameters table on page 2-249. |
| **14** | Copy the Section Trace Format of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Section Trace Format of Network Element C, slot x in the Final section trace parameters table on page 2-249. |
| **15** | Enter the facility of Network Element C, slot x, in the Final section trace parameters table on page 2-249. |
| **16** | Enter the facility of Network Element C, slot y, in the Final section trace parameters table on page 2-249. |
| **17** | Copy the Network Element A, slot x row from Initial section trace parameters table on page 2-249 into the Network Element A, slot x row in Final section trace parameters table on page 2-249. |
| **18** | Copy the Network Element B, slot y row from Initial section trace parameters table on page 2-249 into the Network Element B, slot y row in Final section trace parameters table on page 2-249. |
| **19** | Retrieve all nodal cross-connects from Network Element A and Network Element B. See 323-1059-320, Retrieving cross-connects on page 6-3. |

**—continued—**

Procedure 2-20 (continued)
**Recording information (Adding a network element to a UPSR)**

| Step | Action |
|---|---|
| **20** | In the Network Element A cross-connects table and Network Element B cross-connects table, record the following cross-connect information for Network Element A and Network Element B:<br>• From<br>• To<br>• Switch mate<br>• Connection ID<br>• Rate<br>• Type |
| **21** | Verify cross-connect consistency across Network Element A and Network Element B.<br>***Note 1:*** For every cross-connect to slot x of Network Element A (VT1.5, STS-1, STS-3c, or STS-12c), ensure there is a cross-connect for slot y of Network Element B with the same time slot assignment.<br>***Note 2:*** An add/drop cross-connect at Network Element A, slot x can be matched by either an add/drop cross-connect or a pass-through cross-connect at Network Element B, slot y.<br>***Note 3:*** If there is a discrepancy between the cross-connect tables, contact your next level of support or your Nortel Networks support group.<br>***Note 4:*** For OPE traffic, a pass-through cross-connect can either be an IPTRING cross-connect or a 2WAY cross-connect, but a Packet Edge circuit pack can only be attached to an IPTRING cross-connect.<br>***Note 5:*** For IPTRING cross-connects, each cross-connect actually displays in Site Manager as 2 rows in the cross-connect window. |
| **22** | In the Network Element A cross-connects table, put a check mark beside all cross-connects where slot x is in one of the following columns:<br>• From<br>• To<br>• Switch mate |

**—continued—**

Procedure 2-20 (continued)
**Recording information (Adding a network element to a UPSR)**

| Step | Action |
|---|---|
| **23** | For each check-marked cross-connect in the Network Element A cross-connects table, fill in a pass-through cross-connect in the Network Element C cross-connects table with the following considerations:<br>• All cross-connects are of the type 1WAY, 2WAY, or IPTRING.<br>• For IPTRING cross-connects, the slot parameter of the From column (1st row) corresponds to slot y of Network Element C in the network diagram.<br>• For IPTRING cross-connects, the slot parameter of the From column (2nd row) corresponds to slot x of Network Element C in the network diagram.<br>• For traffic of type 1WAY or 2WAY, the slot parameter of the From column corresponds to slot y of Network Element C in the network diagram.<br>• For traffic of type 1WAY or 2WAY, the slot parameter of the To column corresponds to slot x of Network Element C in the network diagram.<br>• For IPTRING cross-connects, the slot parameter of the To column (1st and 2nd rows) corresponds to IPTRING-x, where x is identical to the resilient packet ring (RPR) number of the Network Element A cross-connect table.<br>• The STS, VT Group, and VT values are identical to those in the Network Element A cross-connects table.<br>• The Rate values are identical to those in the Network element A cross-connects table.<br>• For Packet Edge traffic, the pass-through cross-connect can be an IPTRING cross-connect or 2WAY cross-connect. If you know that you are going to add a Packet Edge circuit pack, provision an IPTRING pass-through cross-connect to avoid the need to delete a 2WAY cross-connect and reprovision an IPTRING cross-connect in future. |
| **24** | Go to step 3 of Adding a network element to a UPSR on page 2-74.<br>**—end—** |

# Procedure 2-21
# Recording information (Adding a network element to a BLSR)

Use this procedure to retrieve and record network element information relevant to the procedures:

- Adding a network element to a BLSR on page 2-84
- Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM on page 3-61

***Note 1:*** This is not a stand-alone procedure. Use this procedure only if you are referenced to it from another procedure.

***Note 2:*** If at any time during this procedure you don't have access to the information required, log in to all the network elements of the BLSR to retrieve this information. See 323-1059-302, Procedures for interface login and logout on page 2-1.

## Requirements

To perform this procedure, you must ensure you have all the required documentation referenced in this procedure.

| Step | Action |
|---|---|
| 1 | Make a copy of each of the following tables or graphics:<br>• Network diagram (Adding a network element to a BLSR) on page 2-95<br>• Synchronization map with synchronization boundary (Adding a network element to a BLSR) on page 2-96<br>• Initial BLSR configuration data table on page 2-249<br>• Final BLSR configuration data table on page 2-249<br>• Initial section trace parameters table on page 2-249<br>• Final section trace parameters table on page 2-249<br>• Network Element A cross-connects on page 2-250<br>• Network Element B cross-connects on page 2-251<br>• Network Element C cross-connects on page 2-252 |
| 2 | For each of the network elements in your network, enter the following details on your network diagram:<br>• the target identifier (TID) for each network element<br>• the slot number of each optical interface |

**—continued—**

Procedure 2-21 (continued)
**Recording information (Adding a network element to a BLSR)**

| Step | Action |
|---|---|
| **3** | Retrieve the following synchronization data for each network element in the network and record them on the network diagram:<br>• timing mode<br>• source, state, and quality of timing references<br>See 323-1051-310, Retrieving synchronization data for a network element on page 1-2.<br>***Note 1:*** If a network element is Internally timed or Externally timed, record it as the head-end network element on the network diagram.<br>***Note 2:*** If the new network element will be the new synchronization head-end, record this on the network diagram. |
| **4** | On the network diagram, mark the synchronization boundary and the synchronization stream direction for both streams.<br>See:<br>• Determining the location of a synchronization boundary on page 2-218<br>• Synchronization map with synchronization boundary (Adding a network element to a BLSR) on page 2-96, for an example.<br>• *Planning and Ordering Guide*, NTRN10AM, for more information. |
| **5** | For Network Element A and B, retrieve the following BLSR data.<br>• NE name<br>• NE APS ID<br>• East Facility<br>• East APS ID<br>• West Facility<br>• West APS ID<br>See 323-1059-320, Retrieving a BLSR configuration on page 6-33. |
| **6** | Record the data retrieved in step 5 in the Initial BLSR configuration data table on page 2-249. |
| **7** | On your network diagram, record the APS IDs of Network Elements A and B. See Network diagram (Adding a network element to a BLSR) on page 2-95. |
| **8** | On your network diagram, assign a new APS ID to Network Element C. |
| **9** | Determine from the Initial BLSR configuration data table on page 2-249 if Network Element B is Network Element A's West APS ID or East APS ID. |

**—continued—**

Procedure 2-21 (continued)
**Recording information (Adding a network element to a BLSR)**

| Step | Action |
|---|---|
| **10** | Copy the data from the Initial BLSR configuration data table on page 2-249 to the Final BLSR configuration data table on page 2-249 with the exception of:<br>• the East or West APS ID field of Network Element A (whichever field corresponds to the APS ID of Network Element B, as determined in step 9)<br>• the East or West APS ID field of Network Element B (whichever field corresponds to the APS ID of Network Element A, as determined in step 9) |
| **11** | On the Final BLSR configuration data table on page 2-249, on the line for Network Element A, record the APS ID of Network Element C under East or West APS ID (whichever field was left blank in step 10). |
| **12** | On the Final BLSR configuration data table on page 2-249, on the line for Network Element B, record the APS ID of Network Element C under East or West APS ID (whichever field was left blank in step 10). |
| **13** | On the Final BLSR configuration data table on page 2-249, on the line for Network Element C, record:<br>• the NE name of Network Element C<br>• the NE APS ID of Network Element C (as determined in step 7)<br>• the slot y optical facility AID of Network Element C under East Facility or West Facility (whichever optical facility is directly linked by fiber to Network Element A)<br>• the slot x optical facility AID of Network Element C under East Facility or West Facility (whichever optical facility is directly linked by fiber to Network Element B)<br>• the APS ID of Network Element A under East or West APS ID (whichever node will be directly connected by fiber to the slot y optical facility of Network Element C)<br>• the APS ID of Network Element B under East or West APS ID (whichever node will be directly connected by fiber to the slot x optical facility of Network Element C)<br>See Network diagram (Adding a network element to a BLSR) on page 2-95. |
| **14** | Retrieve all section trace parameters for the optical interface<br>• in slot x of Network Element A.<br>• in slot y of Network Element B.<br>See 323-1059-520, Retrieving section trace messages on page 2-2. |

**—continued—**

Procedure 2-21 (continued)
**Recording information (Adding a network element to a BLSR)**

| Step | Action |
|---|---|
| **15** | **If** the section trace feature **Then**<br>is used in slot x of Network Element A and slot y of Network Element B — step 16<br>is not used in slot x of Network Element A and slot y of Network Element B — step 29 |
| **16** | Record the section trace parameters, retrieved in step 14 in the Initial section trace parameters table on page 2-249. |
| **17** | Copy the transmitted value of Network Element A, slot x from the Initial section trace parameters table on page 2-249, into the cell of the Expected Values for Network Element C, slot y in the Final section trace parameters table on page 2-249. |
| **18** | Copy the expected value of Network Element A, slot x from the Initial section trace parameters table on page 2-249 into the cell of the Transmitted Values for Network Element C, slot y in the Final section trace parameters table on page 2-249. |
| **19** | Copy the transmitted value of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Expected Values for Network Element C, slot x in the Final section trace parameters table on page 2-249. |
| **20** | Copy the expected value of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Transmitted Values for Network Element C, slot x in the Final section trace parameters table on page 2-249. |
| **21** | Copy the Section Trace Fail mode of Network Element A, slot x from the Initial section trace parameters table on page 2-249, into the cell of the Section Trace Fail mode of Network Element C, slot y in the Final section trace parameters table on page 2-249. |
| **22** | Copy the Section Trace Format of Network Element A, slot x from the Initial section trace parameters table on page 2-249 into the cell of the Section Trace Format of Network Element C, slot y in the Final section trace parameters table on page 2-249. |
| **23** | Copy the Section Trace Fail mode of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Section Trace Fail mode of Network Element C, slot x in the Final section trace parameters table on page 2-249. |

**—continued—**

Procedure 2-21 (continued)
**Recording information (Adding a network element to a BLSR)**

| Step | Action |
|---|---|
| **24** | Copy the Section Trace Format of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Section Trace Format of Network Element C, slot x in the Final section trace parameters table on page 2-249. |
| **25** | Enter the facility of Network Element C, slot x, in the Final section trace parameters table on page 2-249. |
| **26** | Enter the facility of Network Element C, slot y, in the Final section trace parameters table on page 2-249. |
| **27** | Copy the Network Element A, slot x row from Initial section trace parameters table on page 2-249 into the Network Element A, slot x row in Final section trace parameters table on page 2-249. |
| **28** | Copy the Network Element B, slot y row from Initial section trace parameters table on page 2-249 into the Network Element B, slot y row in Final section trace parameters table on page 2-249. |
| **29** | Retrieve all cross-connects from Network Element A and Network Element B. See 323-1059-320, Retrieving cross-connects on page 6-3. |
| **30** | In the Network Element A cross-connects table and Network Element B cross-connects table, record the following cross-connect information for Network Element A and Network Element B:<br>• From<br>• To<br>• Connection ID<br>• Rate<br>• Type<br>• End NE A<br>• End NE Z |
| **31** | In the Network Element A cross-connects table, put a check mark beside all cross-connects where slot x is in one of the following columns:<br>• From<br>• To |

**—continued—**

Procedure 2-21 (continued)
**Recording information (Adding a network element to a BLSR)**

| Step | Action |
|---|---|
| **32** | For each check-marked cross-connect in the Network Element A cross-connects table, fill in a pass-through cross-connect in the Network Element C cross-connect table, with the following considerations:<br>• All cross-connects are of the type 1WAY, 2WAY, or IPTRING.<br>• For IPTRING cross-connects, the slot parameter of the From column (1st row) corresponds to slot y of Network Element C in the network diagram.<br>• For IPTRING cross-connects, the slot parameter of the From column (2nd row) corresponds to slot x of Network Element C in the network diagram.<br>• For IPTRING cross-connects, the slot parameter of the To column (1st and 2nd rows) corresponds to IPTRING-x, where x is identical to the resilient packet ring (RPR) number of the Network Element A cross-connect table.<br>• For OPTera Packet Edge traffic, the pass-through cross-connect can be an IPTRING cross-connect or 2WAY cross-connect. If you know that you are going to add a Packet Edge circuit pack, provision an IPTRING pass-through cross-connect to avoid the need to delete a 2WAY cross-connect and reprovision an IPTRING cross-connect in future.<br>• For traffic of type 1WAY or 2WAY, the slot parameter of the From column corresponds to slot y of Network Element C in the network diagram.<br>• For traffic of type 1WAY or 2WAY, the slot parameter of the To column corresponds to slot x of Network Element C in the network diagram.<br>• The STS, VT Group, and VT values are identical to those in the Network Element A cross-connects table (except for VT1.5 cross-connects at Network Element A).<br>• The Rate values are identical to those in the Network element A cross-connects table (except for VT1.5 cross-connects at Network Element A).<br>• The End NE A and End NE Z values are identical to those in the Network Element A cross-connects on page 2-250.<br>**—continued—** |

Procedure 2-21 (continued)
**Recording information (Adding a network element to a BLSR)**

| Step | Action |
|---|---|
| | • For VT1.5 connections on Network Element A passing through Network Element C:<br>— Log in to Network Element B and determine whether the end-to-end connection is a VT Assigned BLSR connection, a Full VT BLSR connection, or is not yet defined.<br>— If the end-to-end connection is a VT Assigned BLSR connection, the connection rate on Network Element C is STS-1, and the STS-1 time slot on Network Element C is the same as the time slot for the same signal on Network Element B.<br>— If the end-to-end connection is a Full VT BLSR connection or is not yet defined, the connection rate on Network Element C is VT1.5, and the VT1.5 time slot on Network Element C is the same as the time slot for the same signal on Network Element A and Network Element B.<br>See Network Element A cross-connects on page 2-250. |
| **33** | **If** you are performing the procedure — **Then** return to |
| | Adding a network element to a BLSR — step 3 of that procedure |
| | Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM — step 4 of that procedure |

**—end—**

# Procedure 2-22
# Recording information (Removing a network element from a UPSR)

Use this procedure to retrieve and record network element information relevant to the procedure Removing a network element from a UPSR on page 2-150.

***Note 1:*** This is not a stand-alone procedure. Use this procedure only if you are referenced to it from another procedure.

***Note 2:*** If at any time during this procedure you don't have access to the information required, log in to all the network elements of the UPSR to retrieve this information. See 323-1059-302, Procedures for interface login and logout on page 2-1.

## Requirements

To perform this procedure, you must ensure you have all the required documentation referenced in this procedure.

| Step | Action |
|---|---|
| 1 | Make a copy of each of the following tables or graphics:<br>• Network diagram (Removing a network element from a UPSR) on page 2-156<br>• Synchronization map with synchronization boundary (Removing a network element from a UPSR) on page 2-157<br>• Initial section trace parameters table on page 2-249<br>• Final section trace parameters table on page 2-249<br>• Network Element A cross-connects on page 2-250<br>• Network Element B cross-connects on page 2-251<br>• Network Element C cross-connects on page 2-252 |
| 2 | For each of the network elements in your network, enter the following details on your network diagram:<br>• the target identifier (TID) for each network element<br>• the slot number of each optical interface |

**—continued—**

Procedure 2-22 (continued)
**Recording information (Removing a network element from a UPSR)**

| Step | Action |
|---|---|
| **3** | Retrieve the following synchronization data for each network element in the network and record them in the network diagram:<br>• timing mode<br>• source, state, and quality of timing references<br>See 323-1051-310, Retrieving synchronization data for a network element on page 1-2.<br>***Note:*** If a network element is Internally timed or Externally timed, record it as a head-end network element on the network diagram. |
| **4** | On the network diagram, mark the synchronization boundary and the synchronization stream direction for both streams. See:<br>• Synchronization map with synchronization boundary (Removing a network element from a UPSR) on page 2-157, for an example.<br>• *Planning and Ordering Guide*, NTRN10AM, for more information. |
| **5** | Retrieve all section trace parameters for the optical interface<br>• in slot x of Network Element A<br>• in slot y of Network Element B<br>• in slot x and y of Network Element C (the network element to be removed)<br>See 323-1059-520, Retrieving section trace messages on page 2-2. |
| **6** | Record the section trace parameters, retrieved in step 5 in the Initial section trace parameters table on page 2-249. |
| **7** | Copy the Transmitted Value of Network Element A, slot x from the Initial section trace parameters table on page 2-249, into the cell of the Expected Values of Network Element B, slot y in the Final section trace parameters table on page 2-249. |
| **8** | Copy the Transmitted Value of Network Element A, slot x from the Initial section trace parameters table on page 2-249, into the cell of the Transmitted Values of Network Element A, slot x in the Final section trace parameters table on page 2-249. |
| **9** | Copy the Transmitted Value of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Expected Values of Network Element A, slot x in the Final section trace parameters table on page 2-249. |
| **10** | Copy the Transmitted Value of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Transmitted Values of Network Element B, slot y in the Final section trace parameters table on page 2-249. |

**—continued—**

Procedure 2-22 (continued)
**Recording information (Removing a network element from a UPSR)**

| Step | Action |
|---|---|
| **11** | Copy the Section Trace Fail Mode of Network Element A, slot x from the Initial section trace parameters table on page 2-249, into:<br>• the cell of the Section Trace Fail Mode of Network Element B, slot y in the Final section trace parameters table on page 2-249<br>• the cell of the Section Trace Fail Mode of Network Element A, slot x in the Final section trace parameters table on page 2-249 |
| **12** | Copy the Section Trace Format of Network Element A, slot x from the Initial section trace parameters table on page 2-249, into:<br>• the cell of the Section Trace Format of Network Element B, slot y in the Final section trace parameters table on page 2-249<br>• the cell of the Section Trace Format of Network Element A, slot x in the Final section trace parameters table on page 2-249 |
| **13** | Enter the facility of Network Element A, slot x, in the Final section trace parameters table on page 2-249. |
| **14** | Enter the facility of Network Element B, slot y, in the Final section trace parameters table on page 2-249. |
| **15** | Retrieve all nodal cross-connects from Network Elements A, Network Element B and Network Element C. See 323-1059-320, Retrieving cross-connects on page 6-3. |
| **16** | In the Network Element A cross-connects table, Network Element B cross-connects table, and Network Element C cross-connects table, record the following cross-connect information for Network Element A, Network Element B and Network Element C:<br>• Connection ID<br>• From<br>• To<br>• Rate<br>• Type<br>• Switch mate |

**—continued—**

Procedure 2-22 (continued)
**Recording information (Removing a network element from a UPSR)**

| Step | Action |
|---|---|
| **17** | Verify cross-connect consistency across Network Element A and Network Element B.<br><br>For every cross-connect to slot x of Network Element A (VT or STS), ensure there is a cross-connect for slot y of Network Element B with the same time slot assignment.<br><br>An add/drop cross-connect at Network Element A, slot x can be matched by either an add/drop cross-connect or a pass-through cross-connect at Network Element B, slot y.<br><br>***Note 1:*** If there is a discrepancy between the cross-connect tables, contact your next level of support or your Nortel Networks support group.<br><br>***Note 2:*** For Packet Edge traffic, a pass-through cross-connect can either be an IPTRING cross-connect or a 2WAY cross-connect, but a Packet Edge circuit pack can only be attached to an IPTRING cross-connect.<br><br>***Note 3:*** For IPTRING cross-connects, each cross-connect actually displays in Site Manager as 2 rows in the cross-connect window. |
| **18** | In the Network Element A cross-connects table, put a check mark beside all cross-connects where slot x is in one of the following columns:<br><br>• From<br>• To<br>• Switch mate |
| **19** | In the Network Element B cross-connects table, put a check mark beside all cross-connects where slot y is in one of the following columns:<br><br>• From<br>• To<br>• Switch mate |
| **20** | In the Network Element C cross-connects table, put a check mark beside all 1WAY and 2WAY cross-connects for which any of the following conditions apply:<br><br>• The slot parameter of the From column is the same as the slot parameter of the To column.<br>• The STS value of the From column is different from the STS value of the To column.<br>• The VT Group value of the From column is different from the VT Group value of the To column.<br>• The VT value of the From column is different from the VT value of the To column. |

**—continued—**

Procedure 2-22 (continued)
**Recording information (Removing a network element from a UPSR)**

| Step | Action |
|---|---|
| **21** | In the Network Element C cross-connects table, put a check-mark beside all IPTRING (pass-through) cross-connects for which any of the following conditions apply:<br>• In the From column, the slot parameter of the 1st row is the same as the slot parameter of the 2nd row.<br>• In the From column, the STS value of the 1st row is different from the STS value of the 2nd row. |
| **22** | If there are any check marks on the Network Element C cross-connects table, Network Element C has unauthorized (time slot interchange) pass-through cross-connects. Contact your next level of support or your Nortel Networks support group. |
| **23** | Go to step 3 of Removing a network element from a UPSR on page 2-150. |

**—end—**

# Procedure 2-23
# Recording information (Removing a network element from a BLSR)

Use this procedure to retrieve and record network element information relevant to the following procedures:

- Removing a network element from a BLSR on page 2-158
- Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM on page 3-72

***Note 1:*** This is not a stand-alone procedure. Use this procedure only if you are referenced to it from another procedure.

***Note 2:*** If at any time during this procedure you don't have access to the information required, log in to all the network elements of the BLSR to retrieve this information. See 323-1059-302, Procedures for interface login and logout on page 2-1.

## Requirements

To perform this procedure, you must ensure you have all the required documentation referenced in this procedure.

| Step | Action |
|---|---|
| 1 | Make a copy of each of the following tables or graphics:<br>• Network diagram (Removing a network element from a BLSR) on page 2-167<br>• Synchronization map with synchronization boundary (Removing a network element from a BLSR) on page 2-168<br>• Initial BLSR configuration data table on page 2-249<br>• Final BLSR configuration data table on page 2-249<br>• Initial section trace parameters table on page 2-249<br>• Final section trace parameters table on page 2-249<br>• Network Element A cross-connects on page 2-250<br>• Network Element B cross-connects on page 2-251<br>• Network Element C cross-connects on page 2-252 |
| 2 | For each of the network elements in your network, enter the following details on your network diagram:<br>• the target identifier (TID) for each network element<br>• the slot number of each optical interface |

**—continued—**

Procedure 2-23 (continued)
**Recording information (Removing a network element from a BLSR)**

| Step | Action |
|---|---|
| **3** | Retrieve the following synchronization data for each network element in the network and record them in the network diagram:<br>• timing mode<br>• source, state, and quality of timing references<br>See 323-1051-310, Retrieving synchronization data for a network element on page 1-2.<br>***Note:*** If a network element is Internally timed or Externally timed, record it as the head-end network element on the network diagram. |
| **4** | On the network diagram, mark the synchronization boundary and the synchronization stream direction for both streams.<br>See:<br>• Determining the location of a synchronization boundary on page 2-218<br>• Synchronization map with synchronization boundary (Removing a network element from a BLSR) on page 2-168, for an example.<br>• *Planning and Ordering Guide*, NTRN10AM, for more information. |
| **5** | For Network Element A and B, retrieve the following BLSR data:<br>• NE name<br>• NE APS ID<br>• East Facility<br>• East APS ID<br>• West Facility<br>• West APS ID<br>See 323-1059-320, Retrieving a BLSR configuration on page 6-33. |
| **6** | Record the data retrieved in step 5 in the Initial BLSR configuration data table on page 2-249. |
| **7** | On your network diagram, record the APS IDs of Network Elements A and B. See Network diagram (Removing a network element from a BLSR) on page 2-167. |
| **8** | Determine from the Initial BLSR configuration data table on page 2-249:<br>• if Network Element C is Network Element A's East APS ID or West APS ID<br>• if Network Element C is Network Element B's East APS ID or West APS ID |

**—continued—**

Procedure 2-23 (continued)
**Recording information (Removing a network element from a BLSR)**

| Step | Action |
|---|---|
| **9** | For Network Elements A and B, copy the data from the Initial BLSR configuration data table on page 2-249 to the Final BLSR configuration data table on page 2-249 with the exception of:<br>• the East APS ID or West APS ID field of Network Element A (whichever field corresponds to the APS ID of Network Element C, determined in step 8).<br>• the East APS ID or West APS ID field of Network Element B (whichever field corresponds to the APS ID of Network Element C, determined in step 8). |
| **10** | On the Final BLSR configuration data table on page 2-249, on the line for Network Element A, record the APS ID of Network Element B under the East APS ID or West APS ID (whichever field was left blank in step 9). |
| **11** | On the Final BLSR configuration data table on page 2-249, on the line for Network Element B, record the APS ID of Network Element A under the East APS ID or West APS ID (whichever field was left blank in step 9). |
| **12** | Retrieve all section trace parameters for the optical interface<br>• in slot x of Network Element A<br>• in slot y of Network Element B<br>• in slot x and y of Network Element C<br>See 323-1059-520, Retrieving section trace messages on page 2-2. |
| **13** | **If** the section trace feature — **Then** go to<br>**is** used — step 14<br>**is not** used — step 31 |
| **14** | Record the section trace parameters, retrieved in step 12 in the Initial section trace parameters table on page 2-249. |
| **15** | Compare:<br>• the transmitted value of Network Element A, slot x to the Expected Values of Network Element B, slot y<br>• the transmitted value of Network Element B, slot y to the Expected Values of Network Element A, slot x<br>See Initial section trace parameters table on page 2-249. |

**—continued—**

Procedure 2-23 (continued)
**Recording information (Removing a network element from a BLSR)**

| Step | Action | |
|---|---|---|
| **16** | **If** | **Then** |
| | there is a discrepancy between these values | contact your next level of support or your Nortel Networks support group |
| | there is no discrepancy between these values | go to step 17 |
| **17** | Copy the Transmitted Value of Network Element A, slot x from the Initial section trace parameters table on page 2-249, into the cell of the Expected Values of Network Element B, slot y in the Final section trace parameters table on page 2-249. | |
| **18** | Copy the Transmitted Value of Network Element A, slot x from the Initial section trace parameters table on page 2-249, into the cell of the Transmitted Values of Network Element A, slot x in the Final section trace parameters table on page 2-249. | |
| **19** | Copy the Transmitted Value of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Expected Values of Network Element A, slot x in the Final section trace parameters table on page 2-249. | |
| **20** | Copy the Transmitted Value of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Transmitted Values of Network Element B, slot y in the Final section trace parameters table on page 2-249. | |
| **21** | Compare the Section Trace Fail Mode of Network Element A, slot x to the Section Trace Fail Mode of Network Element B, slot y. See Initial section trace parameters table on page 2-249. | |
| **22** | **If** | **Then** |
| | there is a discrepancy between these values | contact your next level of support or your Nortel Networks support group |
| | there is no discrepancy between these values | go to step 23 |
| **23** | Copy the Section Trace Fail Mode of Network Element A, slot x from the Initial section trace parameters table on page 2-249, into the cell of the Section Trace Fail Mode of Network Element B, slot y in the Final section trace parameters table on page 2-249. | |
| **24** | Copy the Section Trace Fail Mode of Network Element B, slot y from the Initial section trace parameters table on page 2-249, into the cell of the Section Trace Fail Mode of Network Element A, slot x in the Final section trace parameters table on page 2-249. | |

**—continued—**

Procedure 2-23 (continued)
**Recording information (Removing a network element from a BLSR)**

| Step | Action | |
|---|---|---|
| **25** | Compare the Section Trace Format of Network Element A, slot x to the Section Trace Format of Network Element B, slot y. See Initial section trace parameters table on page 2-249. | |
| **26** | **If** | **Then** |
| | there is a discrepancy between these values | contact your next level of support or your Nortel Networks support group |
| | there is no discrepancy between these values | go to step 27 |
| **27** | Copy the Section Trace Format of Network Element A, slot x from the Initial section trace parameters table on page 2-249, to the Section Trace Format of Network Element B, slot y in the Final section trace parameters table on page 2-249. | |
| **28** | Copy the Section Trace Format of Network Element B, slot y from the Initial section trace parameters table on page 2-249, to the Section Trace Format of Network Element A, slot x in the Final section trace parameters table on page 2-249. | |
| **29** | Enter the facility of Network Element A, slot x, in the Final section trace parameters table on page 2-249. | |
| **30** | Enter the facility of Network Element B, slot y, in the Final section trace parameters table on page 2-249. | |
| **31** | **If** you are performing the procedure | **Then** return to |
| | Removing a network element from a BLSR | step 3 of that procedure |
| | Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM | step 3 of that procedure |

**—end—**

## Initial section trace parameters table

| Network element, slot | Facility | Fail mode | Format | Expected Rx | Transmitted |
|---|---|---|---|---|---|
| NE A, slot x | | | | | |
| NE B, slot y | | | | | |
| NE C, slot x | | | | | |
| NE C, slot y | | | | | |

## Final section trace parameters table

| Network element, slot | Facility | Fail Mode | Format | Expected Rx | Transmitted |
|---|---|---|---|---|---|
| NE A, slot x | | | | | |
| NE B, slot y | | | | | |
| NE C, slot x | | | | | |
| NE C, slot y | | | | | |

## Initial BLSR configuration data table

| NE name | NE APS ID | West Facility | West APS ID | East Facility | East APS ID |
|---|---|---|---|---|---|
| (A) | | | | | |
| (B) | | | | | |
| (C) | | | | | |

## Final BLSR configuration data table

| NE name | NE APS ID | West Facility | West APS ID | East Facility | East APS ID |
|---|---|---|---|---|---|
| (A) | | | | | |
| (B) | | | | | |
| (C) | | | | | |

## Network Element A cross-connects

| Connection ID | From | To | Rate | Type | End NE A | End NE Z | Switch Mate |
|---|---|---|---|---|---|---|---|
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## Network Element B cross-connects

| Connection ID | From | To | Rate | Type | End NE A | End NE Z | Switch Mate |
|---|---|---|---|---|---|---|---|
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## Network Element C cross-connects

| Connection ID | From | To | Rate | Type | End NE A | End NE Z | Switch Mate |
|---|---|---|---|---|---|---|---|
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## General requirements for reconfiguration procedures

You must

- complete every step of the procedure once you start it
- ensure all personnel performing a reconfiguration procedure are familiar with the OPTera Metro 3500 MultiService Platform and are experienced users of Site Manager
- ensure all surveillance personnel are informed about the reconfiguration before it is started

  ***Note:*** Except for reconfiguration personnel, all other users must log out of the system.

- ensure all reconfiguration personnel have the timeout (TMOUT) option on their user accounts set to N.
- ensure all reconfiguration personnel are located at the affected site(s)
- ensure the system does not have active protection switches
- ensure no alarms exist in any network element in the configuration and if there are alarms, clear the alarms before starting
- ensure the synchronization of the system is stable and there are no timing loops
- have a thorough understanding of the procedures

## Specific requirements (Adding an ADM network element to a linear network)

You must

- ensure the new network element to be added has been installed, commissioned and tested
- ensure the new equipment conforms to the minimum hardware baseline requirements and is running the same software release as the rest of the system
- ensure you can locally log into the new network element or have remote modem access to the serial port of the new network element

  ***Note:*** SDCC is not available until traffic is switched to the working paths of the left and right adjacent nework elements

- ensure the cabling from an external clock to the new network element is in place (if required)
- ensure the target identifier (TID) for the new network element is unique in the network
- ensure you plan all the addition tasks in advance

## Specific requirements (Adding a new terminal network element to a linear network)

You must

- ensure the system does not have active high speed or low speed switches
- ensure the new network element meets the minimum hardware baseline requirements
- ensure the new network element is installed and powered up
- ensure there are no circuit packs inserted in slots 2 to 17 of the new network element
- ensure the terminal network element to be converted to a linear ADM network element has a free optical slot pair. See Note 3 on page 2-53 for information on supported slots.
- ensure the target identifier (TID) for the new network element is unique in the network
- ensure the TID and the date and time of the new network element are set
- ensure you perform a system test before the reconfiguration. See *System Testing*, 323-1059-222.
- connect by RS-232 to the new terminal network element. See *Security and Administration*, 323-1059-302.
- identify four separate fibers and their terminations to connect the left adjacent network element and the new terminal network element. The new fibers must be installed before the reconfiguration.

## Specific requirements (Adding a network element to a UPSR)

You must

- ensure the new network element to be added has been installed, commissioned and tested
- ensure the new equipment conforms to the minimum hardware baseline requirements and is running the same software release as the rest of the system
- ensure the cabling from an external clock to the new network element is in place (if required)
- ensure the target identifier (TID) for the new network element is unique in the network
- ensure you plan all the addition tasks in advance

## Specific requirements (Adding a network element to a BLSR)

You must

- ensure the new network element to be added has been installed, commissioned and tested
- ensure the new equipment conforms to the minimum hardware baseline requirements and is running the same software release as the rest of the system
- ensure the cabling from an external clock to the new network element is in place (if required)
- ensure the target identifier (TID) for the new network element is unique in the network
- ensure you plan all the addition tasks in advance

## Specific requirements (Removing an ADM network element from a linear network)

You must

- ensure the network element to be deleted is not equipped with a network processor (NP)
- ensure the system does not have active high speed or low speed switches
- ensure the network element to be deleted allows pass-through traffic on the same STS channel, VT group, and VTs. Traffic loss will occur otherwise. See *Bandwidth Management*, 323-1059-320 to provision a pass-through cross-connect.
- ensure that all traffic originating or terminating at the network element to be deleted is removed before the reconfiguration
- ensure the network element to be deleted is not the head-end timing reference network element for the system. If the network element is the head-end timing reference network element, adjust the synchronization of the network before the reconfiguration. See *Provisioning Synchronization*, 323-1059-310.
- ensure the network element to be deleted is not providing BITS output to the BITS clock or to other digital equipment that accepts a BITS signal
- ensure you delete all of the end-to-end DS1, DS3, DS3/VT, EC-1, STS-3c, STS-12c, or STS-24c services that use DS1, DS3, and EC-1 ports on the network element to be deleted before the reconfiguration. See *Provisioning Equipment and Facilities*, 323-1059-350 to delete services.
- ensure the new fiber-optic cables that connect the left adjacent network element to the right adjacent network element are available (but not connected to the left or right adjacent network elements) before the reconfiguration

## Specific requirements (Removing a terminal network element from a linear network)

You must

- ensure the network element to be deleted is not equipped with a network processor (NP)
- ensure the system does not have active high speed or low speed switches
- ensure that all traffic originating or terminating at the network element to be deleted is removed before the reconfiguration
- ensure the network element to be deleted is not the head-end timing reference network element for the system. If the network element is the head-end timing reference network element, adjust the synchronization of the network before the reconfiguration. See *Provisioning Synchronization*, 323-1059-310.
- ensure the network element to be deleted is not providing BITS output to the BITS clock or to other digital equipment that accepts a BITS signal

## Specific requirements (Removing a network element from a UPSR)

You must

- ensure the network element to be removed is not equipped with a network processor
- ensure the network element to be removed carries only pass-through traffic, otherwise, a traffic loss will occur and alarms will be raised
- ensure there is no time slot interchange traffic
- ensure the network element to be removed does not provide BITS output to the BITS clock or to other digital equipment that accepts a BITS signal
- ensure you plan all the removal tasks in advance

## Specific requirements (Removing a network element from a BLSR)

You must

- ensure the network element to be removed does not carry any add/drop traffic, otherwise, a traffic loss will occur and alarms will be raised
- ensure the network element to be removed does not provide BITS output to the BITS clock or to other digital equipment that accepts a BITS signal
- ensure you plan all the removal tasks in advance

## Specific requirements (Upgrading a fiber span from an OC-3 to an OC-12 line rate)

You must

- ensure the new equipment being added is up-to-date and follows the minimum hardware baseline requirements

- ensure all line-timed network elements in the fiber span have protected timing references. If the OC-3 circuit pack to be reconfigured to OC-12 line rate is used as a timing reference, this timing reference will be lost temporarily during the reconfiguration.
- ensure both network elements of the fiber span you are upgrading have VTX-48/VTX-48e or STX-192 circuit packs
- ensure there are no Packet Edge connections (indicated as IPTRING) provisioned on either of the network elements of the fiber span you are upgrading. If Packet Edge connections are present, they must be deleted before you start this procedure. You can add these connections when the procedure is completed.
- ensure that all OPE circuit packs on the network elements of this span are detached from their iPT Rings before you begin this procedure
- ensure that all iPT rings on the network elements of this span are deleted before you begin this procedure
- ensure you are logged into both network elements of the fiber span you are upgrading. See 323-1059-302, Procedures for interface login and logout on page 2-1
- not make provisioning changes once you start this procedure. High speed protection switching is not available on the fiber span to be reconfigured.
- save the provisioning data of both network elements of the fiber span to be upgraded before starting the reconfiguration. The network element provisioning data can be saved either to an NPx or a PC.

## Specific requirements (Upgrading a fiber span from an OC-12 to an OC-48 line rate)

You must

- ensure the new equipment being added is up-to-date and follows the minimum hardware baseline requirements
- ensure the OC-12 equipment and facilities are in service before beginning the procedure
- ensure the new OC-48 circuit packs meet the link budget requirements of the existing OC-12 system
- ensure all line-timed network elements in the fiber span have protected timing references. If the OC-12 circuit pack to be reconfigured to OC-48 line rate is used as a timing reference, this timing reference will be lost temporarily during the reconfiguration.
- ensure both network elements of the fiber span you are upgrading have VTX-48e or STX-192 circuit packs.

- ensure there are no Packet Edge connections (indicated as IPTRING) provisioned on either of the network elements of the fiber span you are upgrading. If Packet Edge connections are present, they must be deleted before you start this procedure. You can add these connections when the procedure is completed.
- ensure that all OPE circuit packs on the network elements of this span are detached from their iPT Rings before you begin this procedure
- ensure that all iPT Rings on the network elements of this span are deleted before you begin this procedure
- ensure you are logged into both network elements of the fiber span you are upgrading. See 323-1059-302, Procedures for interface login and logout on page 2-1
- not make provisioning changes once you start this procedure. High speed protection switching is not available on the fiber span to be reconfigured.
- save the provisioning data of both network elements of the fiber span to be upgraded before starting the reconfiguration. The network element provisioning data can be saved either to an network processor or a PC.

## Specific requirements (Converting a 2-node UPSR to a 1+1 linear point-to-point configuration)

You must

- ensure there are no 1WAY or 2WAY cross-connects on the even slot optical interface circuit packs on either Network Element A or Network Element B
- ensure there are no Resilient Packet Ring connections provisioned on the UPSR

## Specific requirements (Converting VT Assigned BLSR connections to Full VT BLSR connections)

You must

- ensure you have a user identifier (UID) and password identifier (PID) with a level 3 or higher user privilege code (UPC)
- ensure the existing ring system is running Release 11.0 software
- ensure the network elements involved in this reconfiguration are in the same ring map
- ensure all VT connections in this reconfiguration:
  - have the same add/drop network element
  - use the same STS pass-through time slot
  - use the same route in the BLSR configuration
  - include at least one pass-through network element

- ensure there is a spare, working VT1.5 channel (between the two end points) for each converted connection
- ensure the protection channel (STS channels 25-48) matched to the spare working VT1.5 channel (which will be used for the new traffic reconfiguration) does not have Resilient Packet Ring (RPR) connections on it.

## Specific requirements (Converting Full VT BLSR connections to VT Assigned BLSR connections)

You must

- ensure you have a user identifier (UID) and password identifier (PID) with a level 3 or higher user privilege code (UPC)
- ensure the existing ring system is running Release 11.0 software
- ensure the network elements involved in this reconfiguration are in the same ring map
- ensure all VT connections in this reconfiguration:
  - have the same add/drop network element
  - use the same route in the BLSR configuration
  - include at least one pass-through network element
- ensure there is a spare, working STS-1 channel (between the two end points) for each converted connection
- ensure the protection channel (STS channels 25-48) matched to the spare working STS channel (which will be used for the new traffic reconfiguration) does not have Resilient Packet Ring (RPR) connections on it.

## Tools required (Adding an ADM network element to a linear network)

Ensure you have the following tools available before starting the reconfiguration:

| Tool description | Number required |
|---|---|
| ESD protection | 1 (per person) |
| Fiber cleaning kit | 3 (see Note) |
| Optical power meter and necessary optical patch cord to measure transmit output power or received input power | 3 (see Note) |
| 1/4 in. flathead screwdriver | 3 (see Note) |
| ***Note:*** This equipment is required at Network Elements A, B, and C. | |

## Tools required (Adding a new terminal network element to a linear network)

Ensure you have the following tools available before starting the reconfiguration:

| Tool description | Number required |
|---|---|
| ESD protection | 1 (per person) |
| Fiber cleaning kit | 2 (see Note) |
| Optical power meter and necessary optical patch cord to measure transmit output power | 2 (see Note) |
| 1/4 in. flathead screwdriver | 2 (see Note) |
| ***Note:*** This equipment is required at the site of the new terminal network element and at the adjacent network element. | |

## Tools required (Adding a network element to a UPSR / BLSR)

Ensure you have the following tools available before starting the reconfiguration:

| Tool description | Number required |
|---|---|
| ESD protection | 1 (per person) |
| Fiber cleaning kit | 3 (see Note) |
| Optical power meter and necessary optical patch cord to measure transmit output power or received input power | 3 (see Note) |
| 1/4 in. flathead screwdriver | 3 (see Note) |
| ***Note:*** This equipment is required at Network Elements A, B, and C. | |

## Tools required (Removing an ADM network element from a linear network)

Ensure you have the following tools available before starting the reconfiguration:

| Tool description | Number required |
|---|---|
| ESD protection | 1 (per person) |
| Fiber cleaning kit | 2 (see Note) |
| Optical power meter and necessary optical patch cord to measure transmit output power | 2 (see Note) |
| 1/4 in. flathead screwdriver | 2 (see Note) |
| ***Note:*** This equipment is required at the left and right adjacent network elements. | |

## Tools required (Removing a terminal network element from a linear network)

Ensure you have the following tools available before starting the reconfiguration:

| Tool description | Number required |
|---|---|
| ESD protection | 1 (per person) |
| Fiber cleaning kit | 2 (see Note) |
| Optical power meter and necessary optical patch cord to measure transmit output power | 2 (see Note) |
| 1/4 in. flathead screwdriver | 2 (see Note) |
| ***Note:*** This equipment is required at the left and right adjacent network elements. | |

## Tools required (Removing a network element from a UPSR / BLSR)

Ensure you have the following tools available before starting the reconfiguration:

| Tool description | Number required |
|---|---|
| ESD protection | 1 (per person) |
| Fiber cleaning kit | 3 (see Note |
| Optical power meter and necessary optical patch cord to measure transmit output power or received input power | 3 (see Note) |
| 1/4 in. flathead screwdriver | 3 (see Note) |
| ***Note:*** This equipment is required at Network Elements A, B, and C. | |

## Tools required (Upgrading a fiber span line rate)

Ensure you have the following tools available before starting the reconfiguration:

| Tool description | Number required |
|---|---|
| ESD protection | 1 (per person) |
| Fiber cleaning kit | 2 (see Note) |
| Optical power meter and necessary optical patch cord to measure transmit output power or received input power | 2 (see Note) |
| 1/4 in. flathead screwdriver | 2 (see Note) |
| ***Note:*** This equipment is required at network elements A and B. | |

## Tools required (Converting a 1+1 point-to-point linear configuration to a 2-node UPSR)

Ensure you have the following tools available before starting the reconfiguration:

| Tool description | Number required |
|---|---|
| ESD protection | 1 (per person) |
| ***Note:*** This equipment is required at network elements A and B. | |

## Tools required (Converting a 2-node UPSR to a 1+1 linear point-to-point configuration)

Ensure you have the following tools available before starting the reconfiguration:

| Tool description | Number required |
|---|---|
| ESD protection | 1 (per person) |
| ***Note:*** This equipment is required at network elements A and B. | |

## Materials required (Adding an ADM network element to a linear network)

Ensure you have the following materials before starting the reconfiguration.

| Materials description | Number required |
|---|---|
| All circuit packs with the shelf processor already upgraded with the current release software and with two VTX or two STX-192 circuit packs | 1 (see Note 1) |
| Terminals | 2 |
| Patch cords | 4 (see Note 2) |
| Variable Optical Attenuator (VOA) | 4 |
| Site Manager Release 6.0 application kit (NTNM14EA) (one required at network elements A, B, and C). | 3 |
| ***Note 1:*** This equipment is required at the site of the new ring node.<br>***Note 2:*** These patch cords are required for cabling the new ring node to the fiber patch panel. | |

## Materials required (Adding a new terminal network element to a linear network)

Ensure you have the following materials before starting the reconfiguration.

| Materials description | Number required |
|---|---|
| OPTera Metro 3500 Release 12.0 Standard NTP Library (NTN465GF) | 1 |
| Site Manager Release 6.0 application kit (NTNM14EA) | 2 (see Note 1) |
| Patch cords | 4 (see Note 2) |
| Variable Optical Attenuator (VOA) | 4 |
| ***Note 1:*** One kit is required at the new network element and one at the adjacent network elements.<br>***Note 2:*** These patch cords are required for cabling the new network element to the fiber patch panel. | |

## Materials required (Adding a network element to a UPSR / BLSR)

Ensure you have the following materials before starting the reconfiguration.

| Materials description | Number required |
|---|---|
| All circuit packs with the shelf processor already upgraded with the current release software and with two VTX or two STX-192 circuit packs | 1 (see Note 1) |
| Terminals | 2 |
| Patch cords | 4 (see Note 2) |
| Variable Optical Attenuator (VOA) | 4 |
| Site Manager Release 6.0 application kit (NTNM14EA) (one required at network elements A, B, and C). | 3 |
| ***Note 1:*** This equipment is required at the site of the new ring node.<br>***Note 2:*** These patch cords are required for cabling the new ring node to the fiber patch panel. | |

## Materials required (Removing an ADM network element from a linear network)

Ensure you have the following materials before starting the reconfiguration.

| Materials description | Number required |
|---|---|
| OPTera Metro 3500 Release 12.0 Standard NTP Library (NTN465GF) | 1 |
| Site Manager Release 6.0 application kit (NTNM14EA) | 1 |

## Materials required (Removing a terminal network element from a linear network)

Ensure you have the following materials before starting the reconfiguration.

| Materials description | Number required |
|---|---|
| OPTera Metro 3500 Release 12.0 Standard NTP Library (NTN465GF) | 1 |
| Site Manager Release 6.0 application kit (NTNM14EA) | 1 |

## Materials required (Removing a network element from a UPSR / BLSR)

Ensure you have the following materials before starting the reconfiguration.

| Materials description | Number required |
|---|---|
| Variable Optical Attenuator (VOA) | 2 |
| Site Manager Release 6.0 application kit (NTNM14EA) (one required at network elements A, B, and C). | 3 |

## Materials required (Upgrading a fiber span line rate)

Ensure you have the following materials before starting the reconfiguration.

| Materials description | Number required |
|---|---|
| Variable Optical Attenuator (VOA) | 2 (UPSR span)<br>4 (Linear span) |
| Site Manager Release 6.0 application kit (NTNM14EA) (one required at network elements A and B). | 2 |

## Materials required (Converting linear-to-UPSR / UPSR-to-linear)

Ensure you have the following materials before starting the reconfiguration.

| Materials description | Number required |
|---|---|
| Site Manager Release 6.0 application kit (NTNM14EA) | 1 |

## Materials required (Converting VT-Assigned-BLSR-to-Full-VT-BLSR / Full-VT-BLSR-to-VT-Assigned-BLSR)

Ensure you have the following materials before starting the reconfiguration.

| Materials description | Number required |
|---|---|
| Site Manager Release 6.0 application kit (NTNM14EA) | 1 |
| OPTera Metro 3500 Release 12.0 Standard NTP Library (NTN465GF) | 1 |

## Optical interface specifications

| Optical interface circuit pack | Launch power (minimum) | Launch power (maximum) | Receive sensitivity (minimum) | Receive Overload |
|---|---|---|---|---|
| OC-3 LR<br>NTN401AA | -5 dBm | 0 dBm | -34 dBm | 0 dBm |
| OC-3 IC<br>NTN401DA | -17 dBm | -11 dBm | -23 dBm | 0 dBm |
| OC-3x4 | -15 dBm | -8 dBm | -28 dBm | -8 dBm |
| OC-12 IC<br>NTN404DA<br>NTN404MA | -17 dBm | -11 dBm | -23 dBm | -11 dBm |
| OC-12 IR<br>NTN404BA<br>NTN404KA | -15 dBm | -8 dBm | -28 dBm | -8 dBm |

| Optical interface circuit pack | Launch power (minimum) | Launch power (maximum) | Receive sensitivity (minimum) | Receive Overload |
|---|---|---|---|---|
| OC-12 LR<br>NTN404AA<br>NTN404JA | -3 dBm | 2 dBm | -32 dBm | -8 dBm |
| OC-12 ER<br>NTN404CA<br>NTN404LA | -3 dBm | 2 dBm | -33 dBm | -8 dBm |
| OC-12x4 STS | -15 dBm | -8 dBm | -28 dBm | -8 dBm |
| OC-48 SR<br>NTN440EA, NTN440EH | -7.15 dBm | -2.35 dBm | -19.0 dBm | -3 dBm |
| OC-48 IR<br>NTN440BA | -4.8 dBm | 0 dBm | -19.0 dBm | -3 dBm |
| OC-48 LR<br>NTN440DA | 0.2 dBm | 4.5 dBm | -29.0 dBm | -9 dBm |
| OC-48 ELR<br>NTN440FA | 0.2 dBm | 4.5 dBm | -29.0 dBm | -9 dBm |
| OC-48 DWDM | 0.2 dBm | 4.5 dBm | -29.0 dBm | -9 dBm |
| OC-48 STS SR<br>NTN440HA | -10 dBm | -3 dBm | -18 dBm | -3 dBm |
| OC-48 STS IR<br>NTN440KA | -5 dBm | 0 dBm | -18 dBm | 0 dBm |
| OC-48 STS LR<br>NTN440LA | -2 dBm | 3 dBm | -28 dBm | -9 dBm |
| OC-192 IR<br>NTN445CB | -1 dBm | 2 dBm | -14 dBm | -1 dBm |
| OC-192 LR<br>NTN445DA | 1.85 dBm | 4.15 dBm | -20 dBm | -5 dBm |
| OC-192 DWDM | 1.85 dBm | 4.15 dBm | -20 dBm | -5 dBm |

## Alarms observed during UPSR DWDM Converting and UPSR Adding / Removing NE reconfiguration

| Alarms | Severity | Network Element |
|---|---|---|
| Link Down 2/1 | MJ, SA | Local/Remote network elements (Note 2, Note 4) |
| Link Down 2/2 | MJ, SA | Local/Remote network elements (Note 2, Note 4) |
| Loss of Shelf Pri. Timing Ref. | MN, NSA | Local/Remote network elements (Note 2) |
| Loss of Shelf Sec. Timing Ref. | MN, NSA | Local/Remote network elements (Note 2) |
| OC-3 Rx RFI | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| OC-12 Rx RFI | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| OC-48 Rx RFI | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| OC-3 Rx Line AIS | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| OC-12 Rx Line AIS | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| OC-48 Rx Line AIS | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| STS Rx AIS | MN, NSA | Remote network elements (Note 2) |
| STS3c Rx AIS | MN, NSA | Remote network elements (Note 2) |
| STS12c Rx AIS | MN, NSA | Remote network elements (Note 2) |
| VT Rx AIS (All Provisioned VTs Rx AIS) | MN, NSA | Remote network elements (Note 2) |
| SDCC Link Failure | MN, NSA | Local/Remote network elements |
| STS Rx Unequipped | MN, NSA<br>MJ, NSA | Remote network elements (Note 2)<br>Remote network elements (Note 4) |
| STS3c Rx Unequipped | MN, NSA<br>MJ, NSA | Remote network elements (Note 2)<br>Remote network elements (Note 4) |

| Alarms | Severity | Network Element |
|---|---|---|
| STS12c Rx Unequipped | MN, NSA<br>MJ, NSA | Remote network elements (Note 2)<br>Remote network elements (Note 4) |
| VT Rx Unequipped | MN, NSA | Remote network elements (Note 2) |

***Note 1:*** This table does not describe alarms raised at the network element prior to the reconfiguration or after the reconfiguration.

***Note 2:*** Alarms can appear for other network elements.

***Note 3:*** Some alarms can be raised momentarily.

***Note 4:*** Reconfiguration includes temporary, internal transitions from the removal and addition of traffic, resulting in MJ, SA or CR, SA alarms. Traffic is not affected since active traffic is path protected. These alarms clear by themselves after the reconfiguration is completed.

## Alarms observed during BLSR DWDM Converting and BLSR Adding / Removing NE reconfiguration

| Alarms | Severity | Network Element |
|---|---|---|
| BLSR Configuration in Progress | MN, NSA | Local/Remote network elements |
| Force Switch Complete | MN, NSA | Local/Remote network elements |
| Link Down 2/1 | MJ, SA | Local/Remote network elements (Note 2, Note 4) |
| Link Down 2/2 | MJ, SA | Local/Remote network elements (Note 2, Note 4) |
| Loss of Shelf Pri. Timing Ref. | MN, NSA | Local/Remote network elements (Note 2) |
| Loss of Shelf Sec. Timing Ref. | MN, NSA | Local/Remote network elements (Note 2) |
| Manual Switch Complete | MN, NSA | Local/Remote network elements |
| Node ID Mismatch | MN, NSA | Local/Remote network elements |
| OC-3 Rx RFI | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| OC-12 Rx RFI | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| OC-48 Rx RFI | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| OC-3 Rx Line AIS | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| OC-12 Rx Line AIS | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| OC-48 Rx Line AIS | MN, NSA<br>CR, SA | Local/Remote network elements (Note 4)<br>Local/Remote network elements (Note 4) |
| Remote Alarms | MN, NSA | Local/Remote network elements |
| STS Rx AIS | MN, NSA | Remote network elements (Note 2) |
| STS3c Rx AIS | MN, NSA | Remote network elements (Note 2) |
| STS12c Rx AIS | MN, NSA | Remote network elements (Note 2) |
| VT Rx AIS (All Provisioned VTs Rx AIS) | MN, NSA | Remote network elements (Note 2) |

| Alarms | Severity | Network Element |
|---|---|---|
| SDCC Link Failure | MN, NSA | Local/Remote network elements |
| STS Rx Unequipped | MN, NSA<br>MJ, NSA | Remote network elements (Note 2)<br>Remote network elements (Note 4) |
| STS3c Rx Unequipped | MN, NSA<br>MJ, NSA | Remote network elements (Note 2)<br>Remote network elements (Note 4) |
| STS12c Rx Unequipped | MN, NSA<br>MJ, NSA | Remote network elements (Note 2)<br>Remote network elements (Note 4) |
| VT Rx Unequipped | MN, NSA | Remote network elements (Note 2) |

***Note 1:*** This table does not describe alarms raised at the network element prior to the reconfiguration or after the reconfiguration.

***Note 2:*** Alarms can appear for other network elements.

***Note 3:*** Some alarms can be raised momentarily.

***Note 4:*** Reconfiguration includes temporary, internal transitions from the removal and addition of traffic, resulting in MJ, SA or CR, SA alarms. Traffic is not affected since active traffic is path protected. These alarms clear by themselves after the reconfiguration is completed.

## Alarms observed during OC-3 to OC-12 line rate upgrade

| Alarms | Severity | Network Element |
|---|---|---|
| Equipment Upgrade in Progress | MN, NSA | Local/Remote network elements |
| Equipment Upgrade Required | MN, NSA | Local/Remote network elements (Notes 1, 2) |
| Loss of Shelf Pri. Timing Ref. | MN, NSA | Local/Remote network elements (Note 3) |
| Loss of Shelf Sec. Timing Ref. | MN, NSA | Local/Remote network elements (Note 3) |
| OC-3 Rx RFI, OC-12 Rx RFI | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| Circuit Pack Missing | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| APS Channel Match Fail | MN, NSA | Local/Remote network elements (Note 1) |
| OC-3 Rx Line AIS | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| OC-3 Rx Loss of Signal | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| OC-12 Rx Line AIS | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| OC-12 Rx Loss of Signal | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| STS Rx AIS | MN, NSA | Remote network elements (Note 3) |
| STS3c Rx AIS | MN, NSA | Remote network elements (Note 3) |
| VT Rx AIS<br>(All Provisioned VTs Rx AIS) | MN, NSA | Remote network elements (Note 3) |
| SDCC Link Failure | MN, NSA | Local/Remote network elements |
| STS Rx Unequipped | MN, NSA<br>MJ, NSA | Remote network elements (Note 3)<br>Remote network elements (Note 5) |

| Alarms | Severity | Network Element |
|---|---|---|
| STS3c Rx Unequipped | MN, NSA | Remote network elements (Note 3) |
| | MJ, NSA | Remote network elements (Note 5) |
| VT Rx Unequipped | MN, NSA | Remote network elements (Note 3) |

***Note 1:*** This alarm is only raised in linear system reconfigurations

***Note 2:*** This alarm is only raised in a linear system against the working optical interface circuit pack when the protection circuit pack is being reconfigured. This alarm clears after the working optical interface circuit pack is successfully upgraded.

***Note 3:*** Alarms can appear for other network elements.

***Note 4:*** Some alarms can be raised momentarily.

***Note 5:*** Reconfiguration includes temporary, internal transitions from the removal and addition of traffic, resulting in MJ, SA or CR, SA alarms. Traffic is not affected since active traffic is linear 1+1 or path protected. These alarms clear by themselves after the upgrade to OC-12 line rate is completed.

## Alarms observed during OC-12 to OC-48 line rate upgrade

| Alarms | Severity | Network Element |
|---|---|---|
| Equipment Upgrade in Progress | MN, NSA | Local/Remote network elements |
| Equipment Upgrade Required | MN, NSA | Local/Remote network elements (Notes 1, 2) |
| Intercard Suspected | MN, NSA | Local/Remote network elements |
| Loss of Shelf Pri. Timing Ref. | MN, NSA | Local/Remote network elements (Note 3) |
| Loss of Shelf Sec. Timing Ref. | MN, NSA | Local/Remote network elements (Note 3) |
| OC-12 Rx RFI, OC-48 Rx RFI | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| Circuit Pack Missing | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| APS Channel Match Fail | MN, NSA | Local/Remote network elements (Note 1) |
| OC-12 Rx Line AIS | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| OC-12 Rx Loss of Signal | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| OC-48 Rx Line AIS | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| OC-48 Rx Loss of Signal | MN, NSA<br>CR, SA | Local/Remote network elements (Note 5)<br>Local/Remote network elements (Note 5) |
| STS Rx AIS | MN, NSA | Remote network elements (Note 3) |
| STS3c Rx AIS | MN, NSA | Remote network elements (Note 3) |
| STS12c Rx AIS | MN, NSA | Remote network elements (Note 3) |
| VT Rx AIS (All Provisioned VTs Rx AIS) | MN, NSA | Remote network elements (Note 3) |
| SDCC Link Failure | MN, NSA | Local/Remote network elements |
| STS Rx Unequipped | MN, NSA<br>MJ, NSA | Remote network elements (Note 3)<br>Remote network elements (Note 5) |
| STS3c Rx Unequipped | MN, NSA<br>MJ, NSA | Remote network elements (Note 3)<br>Remote network elements (Note 5) |

| Alarms | Severity | Network Element |
|---|---|---|
| STS12c Rx Unequipped | MN, NSA<br>MJ, NSA | Remote network elements (Note 3)<br>Remote network elements (Note 5) |
| VT Rx Unequipped | MN, NSA | Remote network elements (Note 3) |

***Note 1:*** This alarm is only raised in linear system reconfigurations

***Note 2:*** This alarm is only raised in a linear system against the protection optical interface circuit pack when the working circuit pack is being reconfigured. This alarm clears after the protection optical interface circuit pack is successfully upgraded.

***Note 3:*** Alarms can appear for other network elements.

***Note 4:*** Some alarms can be raised momentarily.

***Note 5:*** Reconfiguration includes temporary, internal transitions from the removal and addition of traffic, resulting in MJ, SA or CR, SA alarms. Traffic is not affected since active traffic is linear 1+1 or path protected. These alarms clear by themselves after the upgrade to OC-48 line rate is completed.

## Alarms observed during 1+1 linear-to-UPSR / UPSR-to-1+1 linear conversion

| Alarms | Severity | Network Element |
|---|---|---|
| SDCC Link Failure | MN, NSA | Local/Remote network elements |
| STS Rx Unequipped | MN, NSA<br>MJ, SA | Local/Remote network elements (Note 1)<br>Remote network elements (Note 2) |
| STS3c Rx Unequipped | MN, NSA<br>MJ, SA | Local/Remote network elements (Note 1)<br>Remote network elements (Note 2) |
| STS12c Rx Unequipped | MN, NSA<br>MJ, SA | Local/Remote network elements (Note 1)<br>Remote network elements (Note 2) |
| OC-48 Rx Line AIS | MN, NSA | Remote network elements |
| VT Rx Unequipped | MN, NSA | Remote network elements (Note 1) |
| Loss of Shelf Pri./Sec. Timing Ref. | MN, NSA | Local/Remote network elements |

***Note 1:*** Alarms can appear for other network elements.

***Note 2:*** Reconfiguration includes temporary, internal transitions from the removal and addition of traffic, resulting in MJ, SA or CR, SA alarms. Traffic is not affected since active traffic is linear 1+1 or path protected. These alarms clear by themselves after the 1+1 linear to UPSR conversion is completed.

***Note 3:*** Some alarms can be raised momentarily.

## Alarms observed during VT-Assigned-to-Full-VT conversion

| Alarms | Severity | Network Element |
|---|---|---|
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| | | |

## Alarms observed during Full-VT-to-VT-Assigned conversion

| Alarms | Severity | Network Element |
|---|---|---|
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# Reconfigurations for DWDM systems

## Procedures for DWDM system reconfigurations

Adding an OMX to an in-service DWDM network on page 3-2

**Reconfigurations for UPSRs over DWDM**

Converting an OC-48 UPSR span to an OC-48 UPSR span over DWDM on page 3-9

Adding an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM on page 3-19

Removing an OPTera Metro 3500 network element from an OC-48 UPSR over DWDM on page 3-32

**Reconfigurations for linear configurations over DWDM**

Converting an OC-48 linear point-to-point network to an OC-48 linear point-to-point network over DWDM on page 3-42

**Reconfigurations for BLSRs over DWDM**

Converting an OC-48 BLSR span to an OC-48 BLSR span over DWDM on page 3-51

Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM on page 3-61

Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM on page 3-72

# Procedure 3-1
# Adding an OMX to an in-service DWDM network

Use this procedure to add an OMX to an in-service DWDM network.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, call your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

To perform this procedure, you must

- ensure there is physically diverse routing of protection channels for all logical configurations that cross the Site 3 span. See:
  - — Partial DWDM ring configuration (without band and channel pass-through OMX installed at Site 3) on page 3-7
  - — Partial DWDM ring configuration (with band and channel pass-through OMX installed at Site 3) on page 3-8
- fulfill general requirements for reconfiguration procedures. See Requirements for DWDM reconfiguration procedures on page 3-90
- ensure you have up-to-date network maps of all the logical UPSR, logical BLSR, and logical point-to-point configurations in your physical network
- ensure you have the required tools. See Tools required on page 3-91
- ensure you have the required materials. See Materials required on page 3-91
- observe all safety requirements described in Safety requirements on page 1-2
- ensure there is a craftsperson at the site affected by the reconfiguration

**—continued—**

Procedure 3-1 (continued)
**Adding an OMX to an in-service DWDM network**

| Step | Action |
|---|---|
| **1** | Make a copy of the logical UPSR diagram for each UPSR in the DWDM network. See Logical network diagram on page 3-82. |
| **2** | Add or remove network elements to/from each diagram depending on the number of network elements in your UPSR networks. |
| **3** | Label the network elements represented in your diagrams. |
| **4** | Make a copy of the logical BLSR diagram for each BLSR in the DWDM network. See Network diagram (Adding a network element to a BLSR) on page 2-95. |
| **5** | Add or remove network elements to/from each diagram depending on the number of network elements in your BLSR networks. |
| **6** | Label the network elements represented in your diagrams. |
| **7** | Ensure you have a network map for each logical point-to-point configuration in the DWDM network. |
| **8** | For each logical point-to-point configuration in the DWDM network, identify the channel that crosses Site 3 (the DWDM span to which you will add the Site 3 OMX). |
| **9** | From the diagrams, determine the span in which you will add an OMX. |
| **10** | Log in to all the network elements in the UPSRs, BLSRs, and 1+1 linear configurations. See 323-1059-302, Procedures for interface login and logout on page 2-1.<br><br>***Note:*** If you cannot see all the network elements of the UPSRs, BLSRs, and 1+1 linear networks in the Navigation tree, add the network elements to the network processor span of control. See 323-1059-520, Adding a network element to the span of control of a network processor on page 4-3. |
| **11** | Disable the automatic network element timeout feature on all network elements. See 323-1059-302, Changing a user account and user privilege levels on page 3-10. |
| **12** | Consult the partial DWDM ring configuration (without pass-through) diagram for step 13 to step 20. See Partial DWDM ring configuration (without band and channel pass-through OMX installed at Site 3) on page 3-7. |
| **13** | Calculate link budgets for the DWDM network. See 323-1059-180, Link budgets for meshed rings. |
| **14** | Install the new OMX + Fiber Manager 4CH equipment drawer at Site 3. See 323-1059-201, Installing the OMX + Fiber Manager 4CH (NT0H32AE-HE) equipment drawer.<br><br>***Note:*** Ensure the new OMX equipment drawers at Site 3 are of the required band. |

**—continued—**

Procedure 3-1 (continued)
**Adding an OMX to an in-service DWDM network**

| Step | Action |
|---|---|
| **15** | For each logical point-to-point channel identified in step 8, perform a manual optical line switch to test the protection line. See 323-1059-311, Operating a manual optical line switch in a 1+1 linear system on page 1-26. |
| **16** | Remove all traffic from each of the logical point-to-point channels identified in step 8. See 323-1059-311, Operating a forced optical line switch in a 1+1 linear system on page 1-27. |
| **17** | Remove all traffic from the logical UPSR spans identified in step 9. See Removing traffic from a UPSR span on page 3-81. |
| **18** | Remove all traffic from the logical BLSR spans identified in step 9.<br>**a.** Perform a forced switch on the adjacent optical facilities. See 323-1059-311, Operating a forced switch in a BLSR on page 1-32.<br>**b.** Change the adjacent optical facilities state to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25.<br>***Note:*** At this point, the span to which you will add an OMX does not carry traffic. |
| **19** | At Site 1, disconnect the fibers from the OTS-in and OTS-out ports of the OMX linked to Site 2. |
| **20** | At Site 2, disconnect the fibers from the OTS-in and OTS-out ports of the OMX linked to Site 1. |
| **21** | Consult the partial DWDM ring configuration (with pass-through) diagram for step 22 to step 31. See Partial DWDM ring configuration (with band and channel pass-through OMX installed at Site 3) on page 3-8. |
| **22** | At Site 3, connect one of the new Site 1/Site 3 fibers to the OTS-in port on the Site 3 clockwise-bound OMX (labelled in diagram). |
| **23** | At Site 3, connect the second new Site 1/Site 3 fibers to the OTS-out port on the Site 3 clockwise-bound OMX. |
| **24** | At Site 1, connect the fiber identified in step 22 to the OTS-out port on the Site 1 counter-clockwise-bound OMX. |
| **25** | At Site 1, connect the fiber identified in step 23 to the OTS-in port on the Site 1 counter-clockwise-bound OMX. |
| **26** | At Site 3, connect one of the new Site 2/Site 3 fibers to the OTS-in port on the Site 3 counter-clockwise-bound OMX. |
| **27** | At Site 3, connect the second new Site 2/Site 3 fibers to the OTS-out port on the Site 3 counter-clockwise-bound OMX. |

**—continued—**

Procedure 3-1 (continued)
**Adding an OMX to an in-service DWDM network**

| Step | Action |
|---|---|
| **28** | At Site 2, connect the fiber identified in step 26 to the OTS-out port on the Site 2 clockwise-bound OMX. |
| **29** | At Site 2, connect the fiber identified in step 27 to the OTS-in port on the Site 2 clockwise-bound OMX. |
| **30** | At Site 3, configure a band pass-through:<br>**a.** Connect an optical patch cord from the THRU-in of the clockwise-bound OMX to the THRU-out of the counter-clowise-bound OMX module. See Band pass-through OMX on page 3-30.<br>**b.** Connect an optical patch cord from the THRU-out of the clockwise-bound OMX to the THRU-in of the counter-clockwise-bound OMX. See Band pass-through OMX on page 3-30. |
| **31** | At Site 3, configure a channel pass-through for each channel (1 to 4) within the Site 3 OMX's band:<br>**a.** Connect an optical patch cord from the ADD of the clockwise-bound OMX to the DROP of the counter-clockwise-bound OMX. See Band and channel pass-through OMX (example) on page 3-30.<br>**b.** Connect an optical patch cord from the ADD of the counter-clockwise-bound OMX to the DROP of the clockwise-bound OMX. See Band and channel pass-through OMX (example) on page 3-30.<br>***Note:*** Repeat this step for every channel (1 to 4). |
| **32** | Restore traffic to one of the logical UPSR spans identified in step 9 to verify span performance. See Restoring traffic to a UPSR span on page 3-83.<br>If traffic switches back autonomously to the protection path, contact your next level of support or your Nortel Networks support group. |
| **33** | Restore all traffic to each of the logical UPSR spans identified in step 9. See Restoring traffic to a UPSR span on page 3-83. |
| **34** | Restore all traffic to each of the logical point-to-point channels identified in step 8. See Releasing an optical line switch on page 1-30. |
| **35** | Restore all traffic to the logical BLSR spans identified in step 9.<br>**a.** For each logical BLSR span identified in step 9, change the adjacent optical facility state to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26.<br>**b.** Release the forced switch on the adjacent optical facilities. See 323-1059-311, Releasing an optical line switch on page 1-30. |

**—continued—**

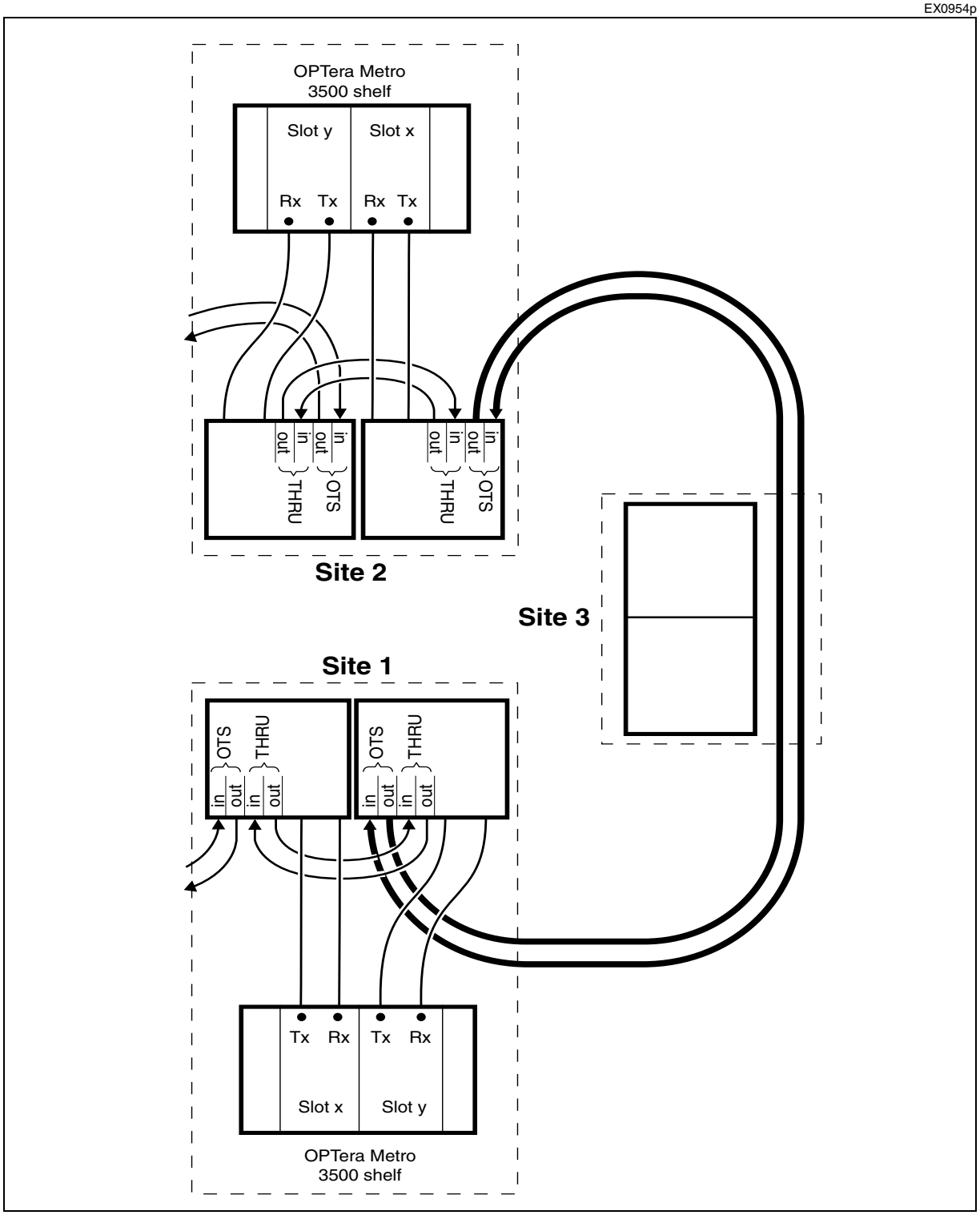
Procedure 3-1 (continued)
**Adding an OMX to an in-service DWDM network**

| Step | Action | |
|---|---|---|
| **36** | **If** | **Then** |
| | any of the optical interface circuit packs (on all sites using the physical ring) are extended reach (ER) circuit packs | perform step 37 to step 48 for each of the ER circuit packs |
| | none of the optical interface circuit packs using the physical ring are ER circuit packs | go to step 49 |
| **37** | Ensure you are logged into the network element equipped with the ER circuit pack. See Procedures for interface login and logout on page 2-1. | |
| **38** | In Site Manager, select this network element in the navigation tree. | |
| **39** | Select Facility PM Thresholds in the Performance menu. | |
| **40** | In the Type box, select OC-48. | |
| **41** | In the Facility box, select the ER circuit pack. | |
| **42** | In the Location box, select Near end. | |
| **43** | In the Direction box, select Receive. | |
| **44** | Click Retrieve. | |
| **45** | In the Monitor Type column of the PM Thresholds list, select OPR. | |
| **46** | Click Edit. | |
| **47** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. | |
| **48** | Click OK. | |
| **49** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. | |

**—end—**

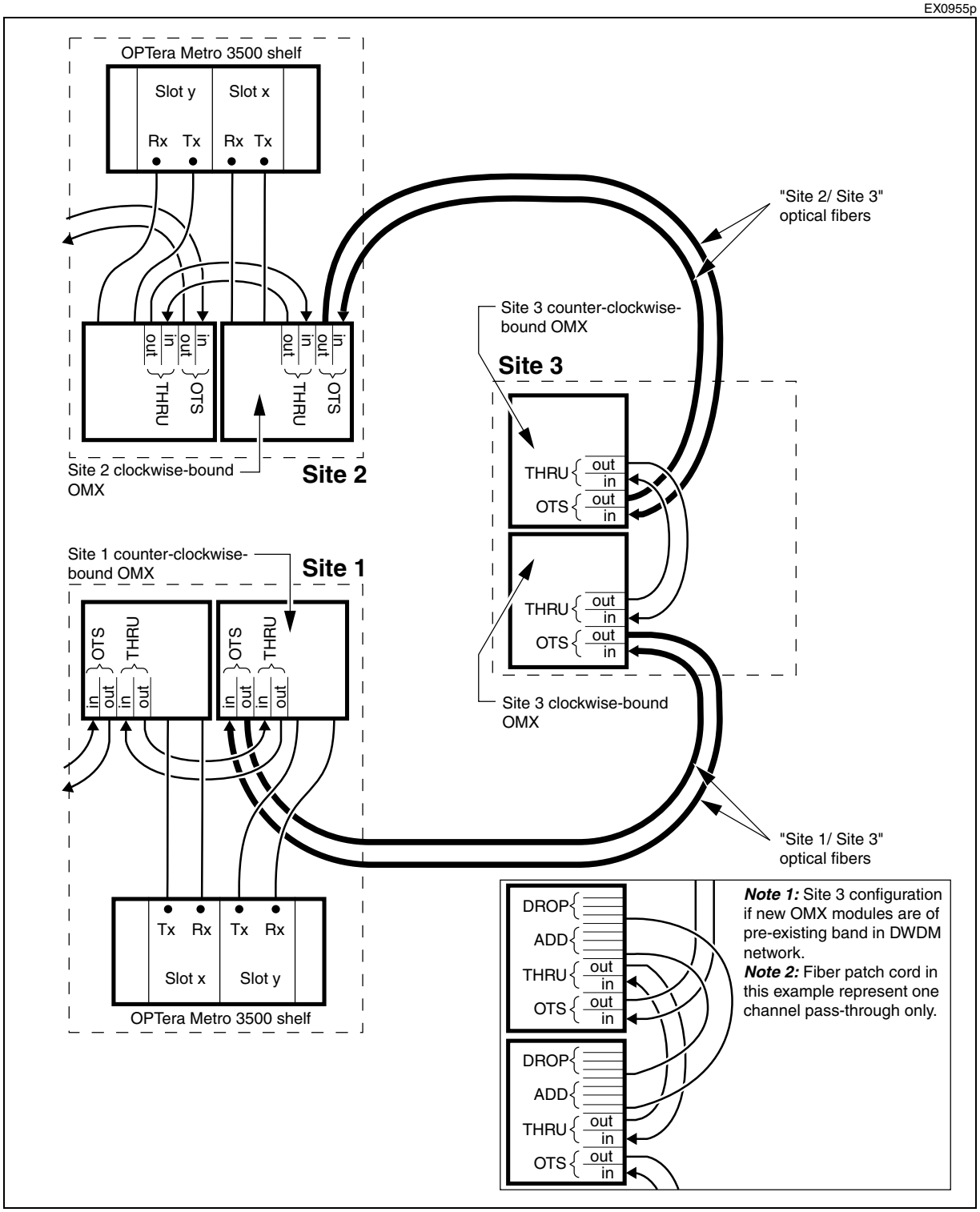
# Partial DWDM ring configuration (without band and channel pass-through OMX installed at Site 3)

EX0954p



# Partial DWDM ring configuration (with band and channel pass-through OMX installed at Site 3)

EX0955p



# Procedure 3-2
# Converting an OC-48 UPSR span to an OC-48 UPSR span over DWDM

Use this procedure to convert an existing unidirectional path switched ring (UPSR) span to a UPSR span over dense wavelength division multiplexing (DWDM).

***Note 1:*** You must perform this procedure for each separate UPSR span if you want to convert the entire UPSR system.

***Note 2:*** This procedure applies only if all the nodes in the UPSR are OPTera Metro 3500 network elements. If one of the adjacent nodes is not an OPTera Metro 3500 network element, contact your next level of support or your Nortel Networks support group.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, call your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

To perform this procedure, you must

- fulfill general requirements for DWDM reconfiguration procedures. See Requirements for DWDM reconfiguration procedures on page 3-90
- ensure you have an up-to-date map of your network
- fulfill specific requirements for this procedure. See Specific requirements for converting an OPTera Metro 3500 OC-48 ring to a DWDM ring on page 3-92.
- ensure you have the required tools. See Tools required on page 3-91
- ensure you have the required materials. See Materials required on page 3-91
- observe all safety requirements described in Safety requirements on page 1-2
- ensure there is a craftsperson at Site 1 and Site 2

—continued—

Procedure 3-2 (continued)
**Converting an OC-48 UPSR span to an OC-48 UPSR span over DWDM**

| Step | Action |
|---|---|
| **1** | Make a copy of the logical network diagram. See Logical network diagram (Converting UPSR span to UPSR over DWDM) on page 3-15. |
| **2** | Add or remove network elements to/from the diagram depending on the number of network elements in your network. |
| **3** | Label the network elements represented in your diagram.<br>***Note:*** The span you will refit for DWDM is between Network Element A and Network Element B. |
| **4** | Identify the location of the head-end network element and the synchronization boundary. See:<br>• Determining the location of a synchronization boundary on page 2-218<br>• Synchronization map with synchronization boundary (UPSR) (example) on page 3-18 |
| **5** | If the synchronization boundary is not between Network Element A and Network Element B, move the synchronization boundary to that span.<br>See Moving a synchronization boundary on page 2-216. |
| **6** | Log into all network elements in the network processor span of control. See 323-1059-302, Procedures for interface login and logout on page 2-1.<br>***Note:*** If you cannot see all the network elements of the UPSR in the Navigation tree, add the network element to the network processor span of control.<br>See 323-1059-520, Adding a network element to the span of control of a network processor on page 4-3. |
| **7** | Disable the automatic network element timeout feature on all network elements. See 323-1059-302, Changing a user account and user privilege levels on page 3-10. |
| **8** | Clear all alarms in all the network elements of the UPSR. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **9** | If a DWDM network is not currently installed and ready for OPTera Metro 3500 access, install the DWDM network. See 323-1059-180, *DWDM Application Overview*. |
| **10** | If the required OMX equipment drawers are installed already at Site 1 and Site 2, go to step 12. |
| **11** | For each site without the required OMX, install the OMX. See 323-1059-201, Installing the OMX + Fiber Manager 4CH (NT0H32AE-HE).<br>***Note:*** Ensure the new OMX is of the required band. |

**—continued—**

Procedure 3-2 (continued)
**Converting an OC-48 UPSR span to an OC-48 UPSR span over DWDM**

| Step | Action |
|---|---|
| **12** | Consult the logical network diagram for step 13 to step 24. See Logical network diagram (Converting UPSR span to UPSR over DWDM) on page 3-15. |
| **13** | Match the network elements in the UPSR span you wish to refit to the network elements at Site 1 and Site 2 in the diagram. |
| **14** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br><br>***Note:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during UPSR DWDM Converting and UPSR Adding / Removing NE reconfiguration on page 2-267. |
| **15** | Perform a manual path switch on slot x of Network Element A to verify the protection line. See 323-1059-311, Operating a manual path switch in a UPSR on page 1-22.<br><br>***Note:*** This fiber span may have a traffic hit of less than 50ms.<br><br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **16** | Release the manual path switch on slot x of Network Element A. See 323-1059-311, Releasing a path switch in a UPSR on page 1-25. |
| **17** | Perform a manual path switch on slot y of Network Element B to verify the protection line. See 323-1059-311, Operating a manual path switch in a UPSR on page 1-22.<br><br>***Note:*** This fiber span may have a traffic hit of less than 50ms.<br><br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **18** | Release the manual path switch on slot y of Network Element B. See 323-1059-311, Releasing a path switch in a UPSR on page 1-25. |
| **19** | Perform a forced path switch on slot y of Network Element B. See 323-1059-311, Operating a forced path switch in a UPSR on page 1-23. |
| **20** | Perform a forced path switch on slot x of Network Element A. See 323-1059-311, Operating a forced path switch in a UPSR on page 1-23. |
| **21** | Change the slot x optical facility state at Network Element A to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **22** | Change the slot y optical facility state at Network Element B to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **23** | Disconnect the fibers from the OC-48 circuit packs in slot y of the OPTera Metro 3500 shelf at Site 1. |

**—continued—**

Procedure 3-2 (continued)
**Converting an OC-48 UPSR span to an OC-48 UPSR span over DWDM**

| Step | Action |
|---|---|
| **24** | Disconnect the fibers from the OC-48 circuit packs in slot x of the OPTera Metro 3500 shelf at Site 2. |
| **25** | Consult the logical network diagram for step 26 to step 30. See Logical network diagram (Converting UPSR span to UPSR over DWDM) on page 3-15. |
| **26** | At Site 1, connect the OTS-out port of the counter-clockwise-bound OMX to the OTS-in port of the clockwise-bound OMX at Site 2 (labelled in diagram). |
| **27** | At Site 1, connect the OTS-in port of the counter-clockwise-bound OMX to the OTS-out port of the clockwise-bound OMX at Site 2 (labelled in diagram). |
| **28** | Replace the OC-48 circuit pack in slot y of OPTera Metro 3500 shelf at Site 1 with the required DWDM OC-48 circuit pack. |
| **29** | Replace the OC-48 circuit pack in slot x of OPTera Metro 3500 shelf at Site 2 with the required DWDM OC-48 circuit pack.<br><br>***Note:*** The DWDM circuit pack at Site 2 must be of the same wavelength as the DWDM circuit pack at Site 1. |
| **30** | Perform basic optical tests.<br><br>See:<br>• 323-1059-222, Testing the power at the optical interface Tx port on page 2-8.<br>• Optical interface specifications on page 2-265.<br><br>***Note:*** The value obtained from the test must comply with the Launch power sensitivity (min) value found in the interface specifications table for the optical interface. |
| **31** | Consult the final cabling assignment diagram for step 32 to step 39. See Final optical fiber cabling assignment (example) on page 3-17. |
| **32** | At Site 1, connect fiber between the Tx of the DWDM OC-48 circuit pack in slot y, and the required ADD port on the counter-clockwise-bound OMX. |
| **33** | At Site 2, connect fiber between the Tx of the DWDM OC-48 circuit pack in slot x, and the required ADD port on the clockwise-bound OMX. |

**—continued—**

Procedure 3-2 (continued)
**Converting an OC-48 UPSR span to an OC-48 UPSR span over DWDM**

| Step | Action |
|---|---|
| **34** | **CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the OC-48 optical interface does not exceed the overload value of -9 dBm for DWDM OC-48 circuit packs. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **35** | Perform basic optical tests. See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Receive sensitivity (min) value for the found in the interface specifications table for the optical interface. |
| **36** | At Site 1, connect fiber between the Rx of the DWDM OC-48 circuit pack in slot y, and the required DROP port on the counter-clockwise-bound OMX. |
| **37** | At Site 2, connect fiber between the Rx of the DWDM OC-48 circuit pack in slot x, and the required DROP port on the clockwise-bound OMX. |
| **38** | At both sites, ensure that an optical patch cord is connected from the THRU-in on the clockwise-bound OMX to the THRU-out on the counter-clockwise-bound OMX. |
| **39** | At both sites, ensure that an optical patch cord is connected from the THRU-in on the counter-clockwise-bound OMX to the THRU-out on the clockwise-bound OMX. |
| **40** | Consult the logical network diagram for step 41 to step 47. See Logical network diagram (Converting UPSR span to UPSR over DWDM) on page 3-15. |
| **41** | Change the slot x optical facility state at network element A to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **42** | Change the slot y optical facility state at network element B to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **43** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **44** | Release the forced switch on slot x of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30. |

**—continued—**

Procedure 3-2 (continued)
**Converting an OC-48 UPSR span to an OC-48 UPSR span over DWDM**

| Step | Action |
|---|---|
| **45** | Release the forced switch on slot y of Network Element B. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **46** | Perform a manual path switch on slot x of Network Element A to verify the protection line. See 323-1059-311, Operating a manual path switch in a UPSR on page 1-22.<br>***Note:*** This fiber span may have a traffic hit of less than 50ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **47** | Release the manual switch on slot x of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30. |

**48**

| If | Then |
|---|---|
| this is the last span to be converted to DWDM | go to step 49 |
| this is not the last span to be converted to DWDM | you have completed this procedure |

**49**

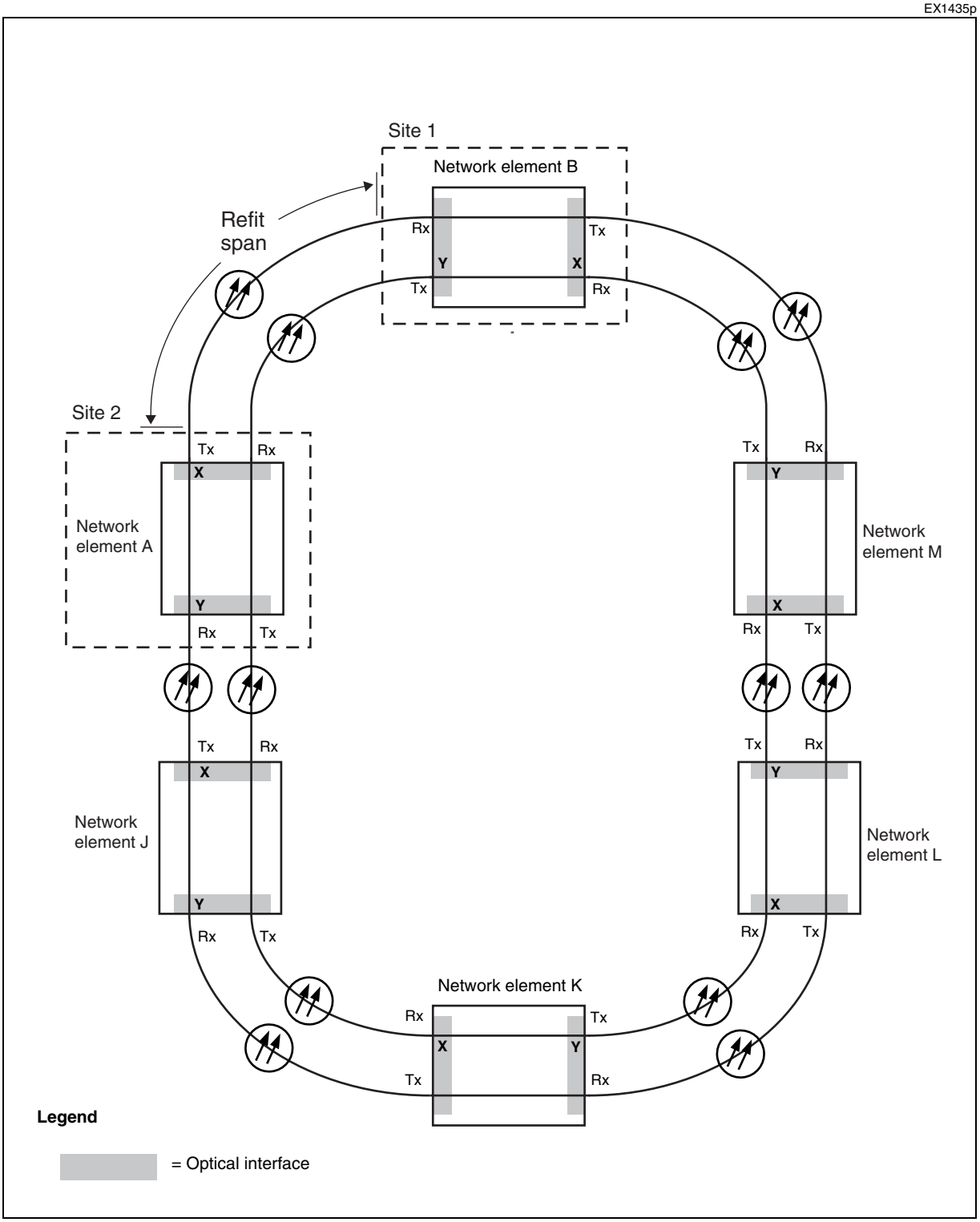
| If | Then |
|---|---|
| any of the optical interface circuit packs (on all sites using the physical ring) are extended reach (ER) circuit packs | perform step 50 to step 61 for each ER circuit pack |
| none of the optical interface circuit packs using the physical ring are ER circuit packs | you have completed this procedure |

| | |
|---|---|
| **50** | Ensure you are logged into the network element equipped with the ER circuit pack. See Procedures for interface login and logout on page 2-1. |
| **51** | In Site Manager, select this network element in the navigation tree. |
| **52** | Select Facility PM Thresholds in the Performance menu. |
| **53** | In the Type box, select OC-48. |
| **54** | In the Facility box, select the ER circuit pack. |
| **55** | In the Location box, select Near end. |
| **56** | In the Direction box, select Receive. |
| **57** | Click Retrieve. |
| **58** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **59** | Click Edit. |
| **60** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **61** | Click OK. |

**—end—**

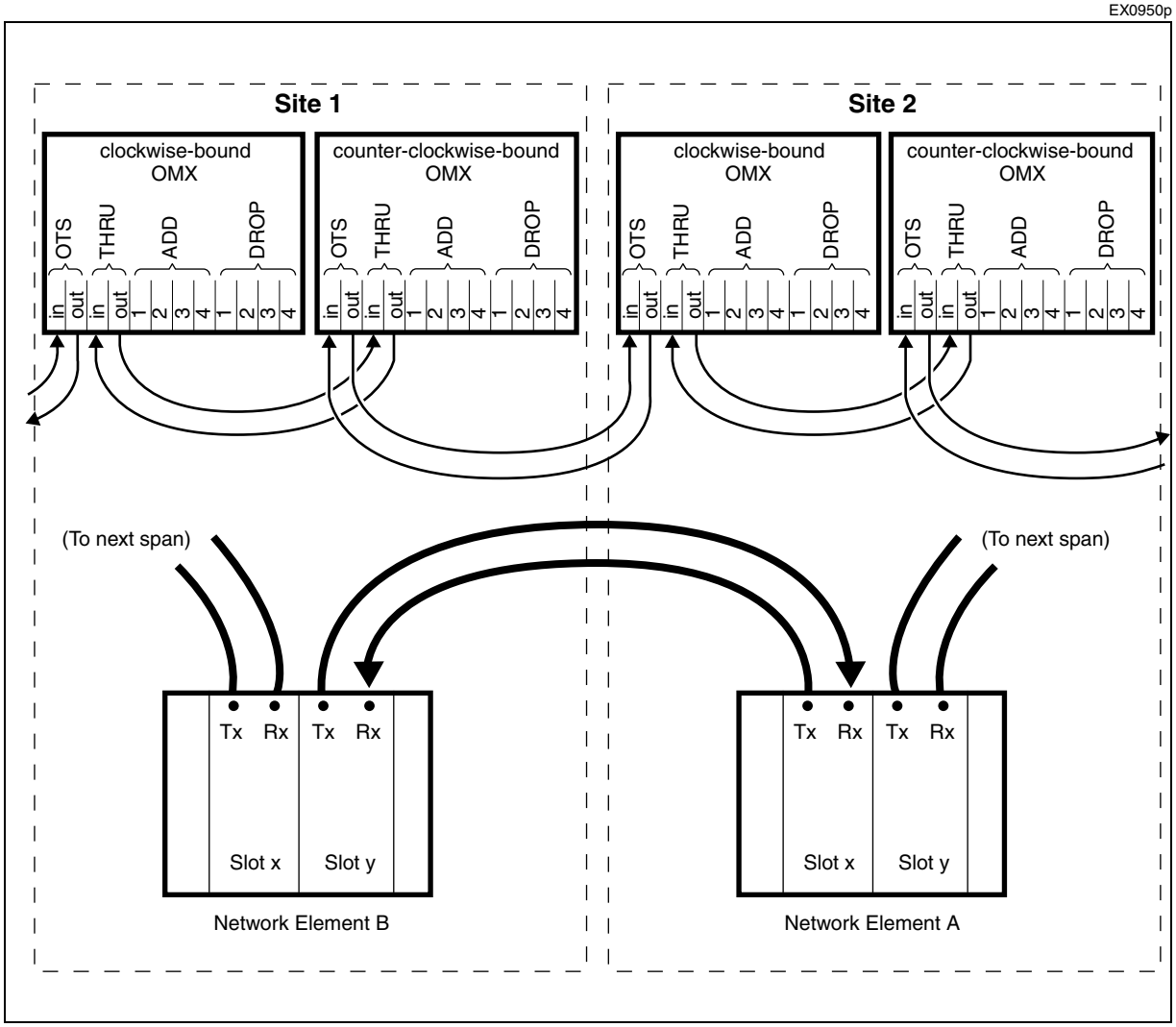
# Logical network diagram (Converting UPSR span to UPSR over DWDM)

EX1435p



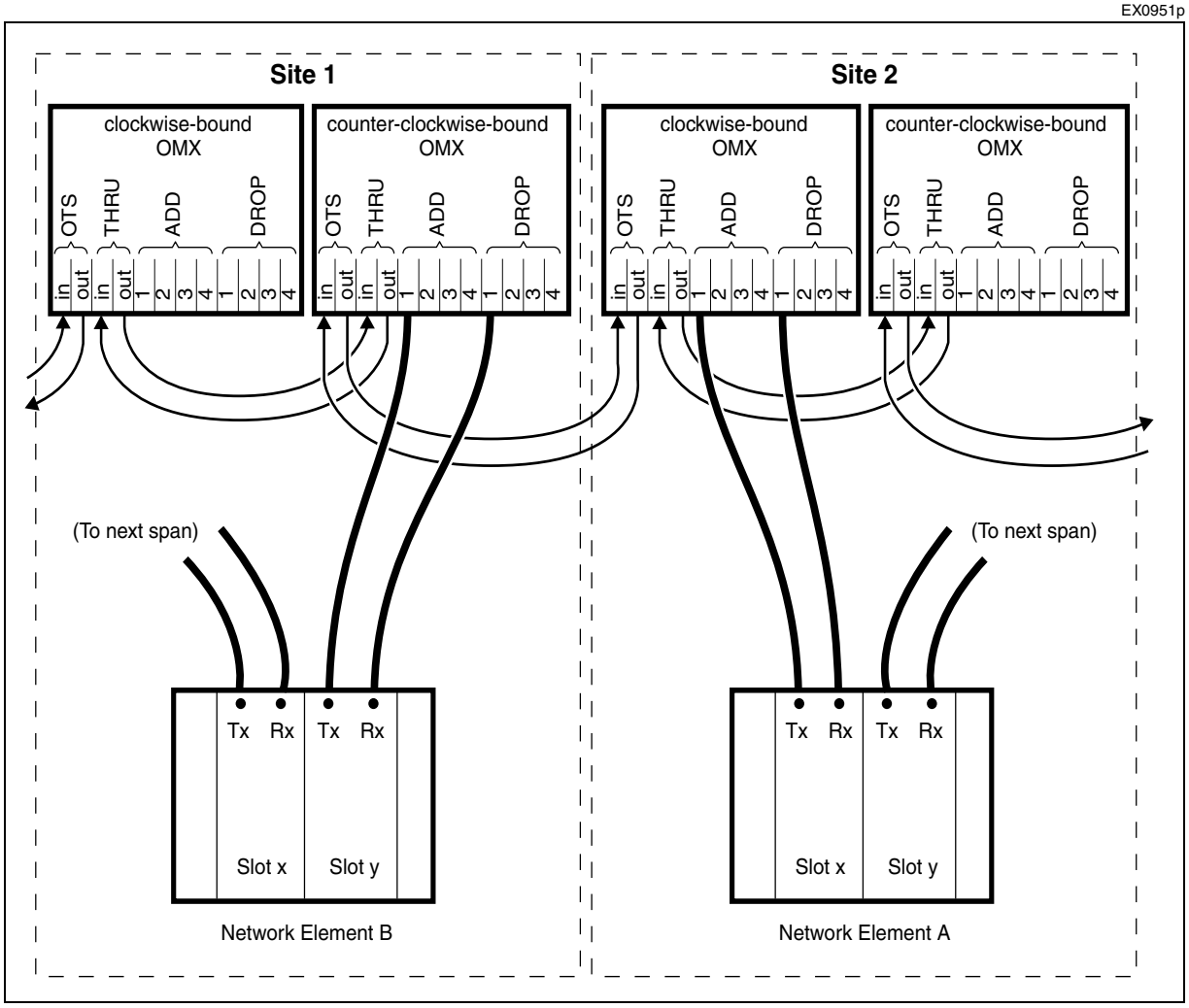
## Initial optical fiber cabling assignment

EX0950p



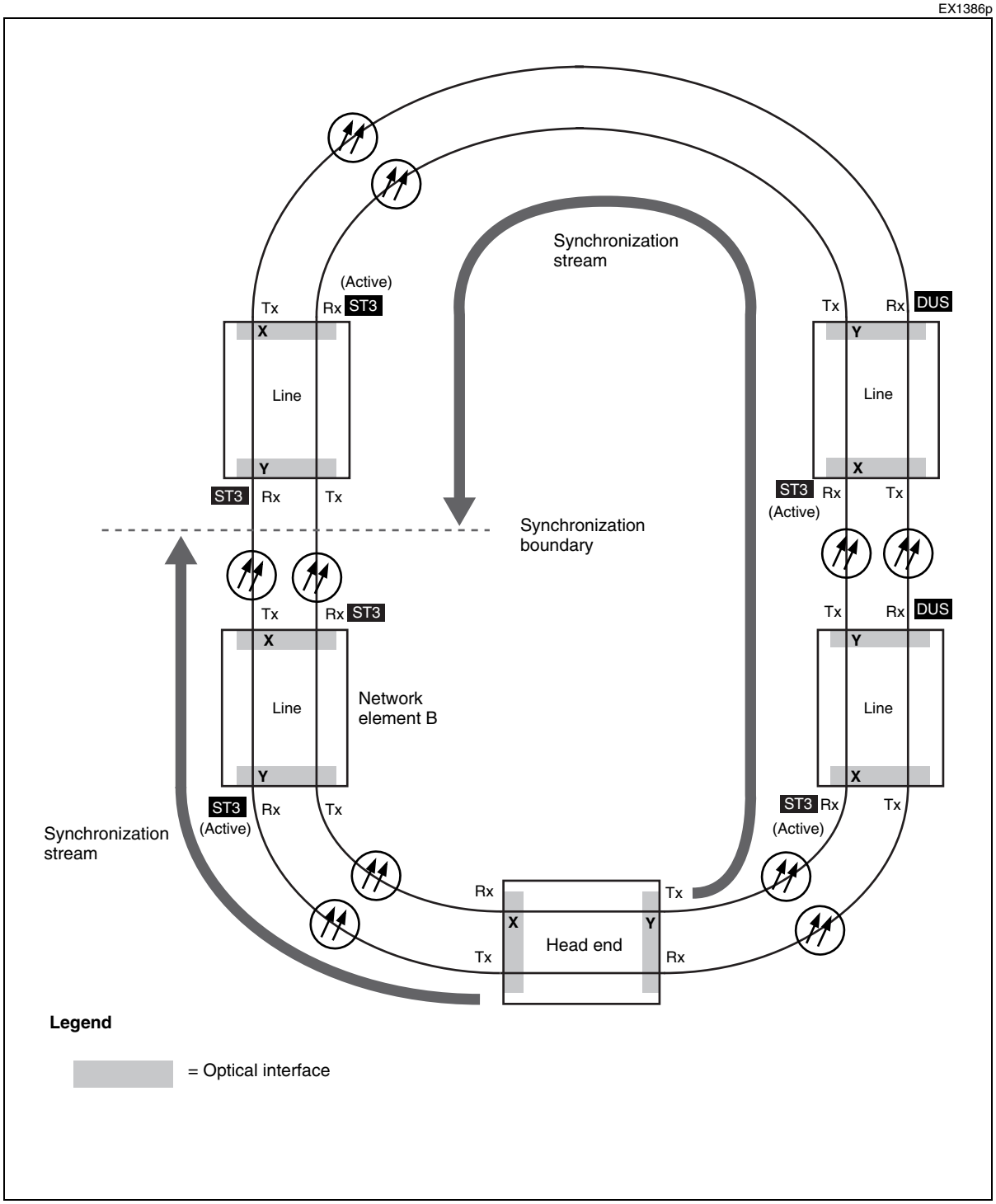
# Final optical fiber cabling assignment (example)

EX0951p



# Synchronization map with synchronization boundary (UPSR) (example)

EX1386p



# Procedure 3-3
# Adding an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM

Use this procedure to add an OPTera Metro 3500 network element to an existing UPSR over a DWDM network, using any one of the following scenarios:

- Adding a new network element to an existing logical UPSR without having to open the physical OMX ring (the required OMX equipment drawers and ports are available at the new network element site). See Figure A, Site B.
- Adding a new network element to an existing logical UPSR and you have to open the physical OMX ring (the required OMX equipment drawers are not available at the new network element site). See Figure A, Site C or Site D.

  ***Note:*** This procedure applies only if all the network elements in the UPSR are OPTera Metro 3500 network elements. If one or more of the network elements is not an OPTera Metro 3500 network element, contact your next level of support or your Nortel Networks support group.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, call your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

Before you begin this procedure, review the following.

## Conditions required

Before you begin this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- fulfill general requirements for DWDM reconfiguration procedures. See Requirements for DWDM reconfiguration procedures on page 3-90.
- ensure you have an up-to-date map of your network
- fulfill specific requirements for this procedure. See Specific requirements for adding a network element to a DWDM ring on page 3-93
- ensure you have the required tools. See Tools required on page 3-91

—continued—

Procedure 3-3 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM**

- ensure you have the required materials. See Materials required on page 3-91
- observe all safety requirements described in Safety requirements on page 1-2
- ensure that the maximum loss (optical link budget) between the new network element and adjacent network elements is supported
- ensure that the optical link budget of every used band is within specifications if new OMX equipment drawers are added
- ensure that the new network element OC-48 interfaces are using the proper wavelength. As an example, slot x at NE103 and slot y at NE101 must use the same wavelength. Slot y at NE103 and slot y at NE102 must use the same wavelength.

  ***Note:*** If the corresponding OMX ports are available, it is possible to change this section's wavelength by replacing both OC-48 interface ends with interfaces with a new wavelength.

| Step | Action |
|---|---|
| 1 | Make a copy of the network diagram and customize it so it matches your logical UPSR. See Network diagram (Adding a network element to a UPSR) on page 2-82. |
| 2 | Refer to the following diagrams throughout the course of this procedure as a guide:<br>• Physical DWDM ring (adding a node to a UPSR) (example) on page 3-29<br>• Band pass-through OMX on page 3-30<br>• Band and channel pass-through OMX (example) on page 3-30<br>• OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31 |
| 3 | Record network and nodal information. See Recording information (Adding a network element to a UPSR) on page 2-227. |
| 4 | Log into the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 5 | Log into all the network elements in the NPx Span of Control. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 6 | Perform a network element data backup to the network processor for all network elements in the NPx Span of Control. See 323-1059-302, Saving provisioning data from a shelf processor to a network processor on page 6-8. |

**—continued—**

Procedure 3-3 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **7** | Perform a network processor data backup.<br><br>**If** you are backing up data to / **Then** go to<br>a PC — step 8<br>an OPC — step 9<br>a UNIX workstation — step 10 |
| **8** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19<br>• 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29<br><br>Go to step 11. |
| **9** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40<br><br>Go to step 11. |
| **10** | See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24. |
| **11** | Log into Network Element A and Network Element B. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **12** | Identify the location of the head-end network element and the synchronization boundary from the Network diagram (Adding a network element to a UPSR) on page 2-82 that you have already drawn. |
| **13** | If the synchronization boundary is not between Network Element A and Network Element B, move the synchronization boundary to that span. See:<br>• Synchronization map with synchronization boundary (Adding a network element to a UPSR) on page 2-83<br>• Moving a synchronization boundary on page 2-216 |
| **14** | Log in to the new network element using a direct cable or modem connection. See 323-1059-302, Procedures for interface login and logout on page 2-1. |

**—continued—**

Procedure 3-3 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **15** | Provision synchronization for the new network element as follows:<br>• Externally timed if the new network element is an externally-timed head-end. See 323-1051-310, Synchronizing a network element to an external timing source on page 1-3<br>• Internally timed if the new network element is an internally-timed head-end. See 323-1051-310, Synchronizing a network element to an internal timing source on page 1-4<br>• Line-timed if the new network element is not the synchronization head-end. See 323-1051-310, Synchronizing a network element to a line-timing source on page 1-5 |
| **16** | **If** the section trace feature … **Then** go to<br>is used in this network → step 17<br>is not used in this network → step 19 |
| **17** | Set section trace fail mode to OFF for the optical interface<br>• in slot x of Network Element C<br>• in slot y of Network Element C<br>See 323-1059-520, Editing section trace messages on page 2-4. |
| **18** | Set section trace fail mode to OFF for the optical interface<br>• in slot x of Network Element A<br>• in slot y of Network Element B<br>See 323-1059-520, Editing section trace messages on page 2-4. |
| **19** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br>***Note:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during UPSR DWDM Converting and UPSR Adding / Removing NE reconfiguration on page 2-267. |
| **20** | **If** the physical OMX ring … **Then** go to<br>requires opening → step 21<br>does not require opening → step 22 |

**—continued—**

Procedure 3-3 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **21** | At the site where you will add a new network element, install an OMX+Fiber Manager 4CH equipment drawer of the required Band. See Adding an OMX to an in-service DWDM network on page 3-2. |
| **22** | Perform a manual switch on slot x of Network Element A to verify the protection line. See 323-1059-311, Operating a manual path switch in a UPSR on page 1-22.<br>***Note:*** This fiber span may have a traffic hit of less than 60ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **23** | Release the manual switch on slot x of Network Element A. See 323-1059-311, Releasing a path switch in a UPSR on page 1-25. |
| **24** | Perform a manual switch on slot y of Network Element B to verify the protection line. See 323-1059-311, Operating a manual path switch in a UPSR on page 1-22.<br>***Note:*** This fiber span may have a traffic hit of less than 60ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **25** | Release the manual switch on slot y of Network Element B. See 323-1059-311, Releasing a path switch in a UPSR on page 1-25. |
| **26** | Perform a forced switch on slot y of Network Element B. See 323-1059-311, Operating a forced path switch in a UPSR on page 1-23. |
| **27** | Perform a forced switch on slot x of Network Element A. See 323-1059-311, Operating a forced path switch in a UPSR on page 1-23. |
| **28** | Change the slot x optical facility state at Network Element A to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **29** | Change the slot y optical facility state at Network Element B to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |

**—continued—**

Procedure 3-3 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|

**30**

**CAUTION**
**You may not back out of this procedure beyond this point.**

If you need to back out of this procedure, restore provisioning data to the network processor and the network elements in the span of control.

See:

- 323-1059-302, Restoring provisioning data from an OPC to a network processor over a TCP/IP link on page 6-42
- 323-1059-302, Restoring provisioning data from an OPC to a network processor over an OSI link on page 6-36
- 323-1059-302, Restoring provisioning data from a local PC to a network processor using an Ethernet connection on page 6-31
- 323-1059-302, Restoring provisioning data from a UNIX workstation to a network processor on page 6-26
- 323-1059-302, Restoring provisioning data to a network processor from a remote PC that has an FTP server running on page 6-21
- 323-1059-302, Restoring provisioning data from a network processor to a shelf processor on page 6-10
- 323-1059-302, Restoring provisioning data from a local PC to a shelf processor on page 6-5

***Note:*** If you restored provisioning data, then you have completed this procedure.

**—continued—**

Procedure 3-3 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **31** | At Network Element C, measure the Transmit (Tx) power of the optical interface circuit packs in slot x and slot y.<br><br>See:<br>• 323-1059-222, Testing the power at the optical interface Tx port on page 2-8<br>• Optical interface specifications on page 2-265<br><br>***Note 1:*** The values obtained from the test must comply with the Launch power minimum values found in the interface specifications table for the optical interface.<br><br>***Note 2:*** At this point, if needed and if the required OMX ports are available, it is possible to replace the OC-48 optical interfaces on slot x at Network Element A, slot y at Network Element B, and slot x or slot y at Network Element C. However, ensure the OC-48 optical interfaces on slot x of Network Element A and slot y of Network Element C are using the same wavelength. The slot y of Network Element B and slot x of Network Element C must also use the same wavelength. |
| **32** | On Network Element C, connect the Tx fiber from the OC-48 DWDM circuit pack in slot 11 to the required ADD port on the clockwise-bound OMX of the required band. See OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31.<br><br>***Note:*** To do this, you will first need to remove the required channel pass-through fibers between the OMX equipment drawers. |
| **33** | On Network Element C, connect the Tx fiber from the OC-48 DWDM circuit pack in slot 12 to the required ADD port on the counter-clockwise-bound OMX of the required band. See OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31.<br><br>***Note:*** To do this, you will first need to remove the required channel pass-through fibers between the OMX equipment drawers. |
| **34** | Measure the Received (Rx) input power of the optical interface circuit packs in Network Elements A, B, and C. 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br><br>***Note:*** The value obtained from the test must be above the Receive sensitivity (min) value for the given unit and must not exceed the overload value found in the interface specifications table for the optical interface. |
| **35** | On Network Element C, connect the Rx fiber from the OC-48 DWDM circuit pack in slot 11 to the required DROP port on the clockwise-bound OMX of the required band. See OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31. |

**—continued—**

Procedure 3-3 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **36** | On Network Element C, connect the Rx fiber from the OC-48 DWDM circuit pack in slot 12 to the required DROP port on the counter-clockwise-bound OMX of the required band. See OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31. |
| **37** | Change the slot x optical facility state at Network Element A to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **38** | Change the slot y optical facility state at Network Element B to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **39** | In Site Manager, at the terminal you are using to connect to the network processor, add Network Element C to the NPx span of control. See 323-1059-520, Adding a network element to the span of control of a network processor on page 4-3. |
| **40** | At the terminal you are using to connect (by direct connection or modem) to Network Element C, select Disconnect in the File menu, and click OK. |
| **41** | Log into Network Element C through the network processor. See 323-1059-302, Logging in to a network element automatically on page 2-30. |
| **42** | **If** the section trace feature — **Then** go to<br>is used in this network — step 43<br>is not used in this network — step 47 |
| **43** | Provision section trace parameters for the slot x optical facility of Network Element C according to values in the Network Element C, slot x row of the Final section trace parameters table on page 2-249. See 323-1059-520, Editing section trace messages on page 2-4. |
| **44** | Provision section trace parameters for the slot y optical facility of Network Element C according to values in the Network Element C, slot y row of the Initial section trace parameters table on page 2-249. See 323-1059-520, Editing section trace messages on page 2-4. |
| **45** | Retrieve section trace parameters for slot x at Network Element A and slot y at Network Element B. See 323-1059-520, Retrieving section trace messages on page 2-2. |
| **46** | Ensure the section trace parameters retrieved in step 46 match with the recorded section trace parameters on the Final section trace parameters table on page 2-249 for the optical interface<br>• in slot x of Network Element A<br>• in slot y of Network Element B<br>See 323-1059-520, Editing section trace messages on page 2-4. |

**—continued—**

Procedure 3-3 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **47** | Add the pass-through cross-connects for Network Element C, recorded in the Network Element C cross-connects table. See:<br>• Network Element C cross-connects on page 2-252<br>• 323-1059-320, Adding a 2WAY or 1WAY cross-connect (linear or UPSR networks) on page 6-9 |
| **48** | Release the forced switch on slot x of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **49** | Release the forced switch on slot y of Network Element B. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **50** | **If** / **Then**<br>any of the optical interface circuit packs at:<br>• Network Element A, slot x<br>• Network Element B, slot y<br>• Network Element C, slot x<br>• Network Element C, slot y<br>are ER circuit packs — perform step 51 to step 61 for each of these ER circuit packs<br>none of the optical interface circuit packs at the locations listed above are ER circuit packs — go to step 62 |
| **51** | In Site Manager, select the required network element in the navigation tree. |
| **52** | Select Facility PM Thresholds in the Performance menu. |
| **53** | In the Type box, select OC-48. |
| **54** | In the Facility box, select the ER circuit pack. |
| **55** | In the Location box, select Near end. |
| **56** | In the Direction box, select Receive. |
| **57** | Click Retrieve. |
| **58** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **59** | Click Edit. |
| **60** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **61** | Click OK. |
| **62** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **63** | Save provisioning data from each network element to the NPx. See 323-1059-302, Saving provisioning data from all shelf processors in a span of control to the network processor on page 6-13. |

**—continued—**

Procedure 3-3 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **64** | Perform a network processor data backup. |

| **If** you are backing up data to | **Then** go to |
|---|---|
| a PC | step 65 |
| an OPC | step 66 |
| a UNIX workstation | step 67 |

**65** See:

- 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19
- 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29

You have completed this procedure.

**66** See:

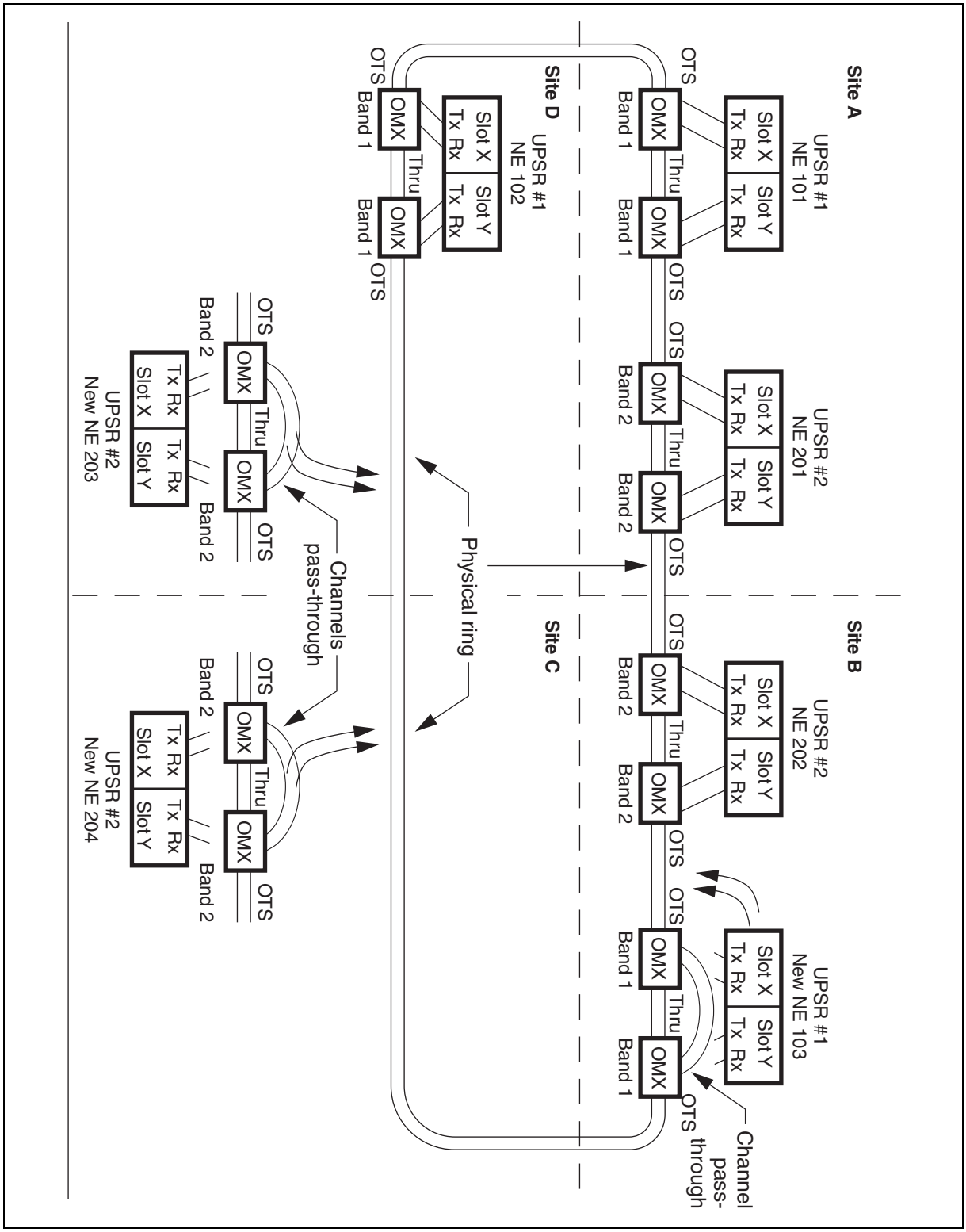
- 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34
- 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40

You have completed this procedure.

**67** See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24.

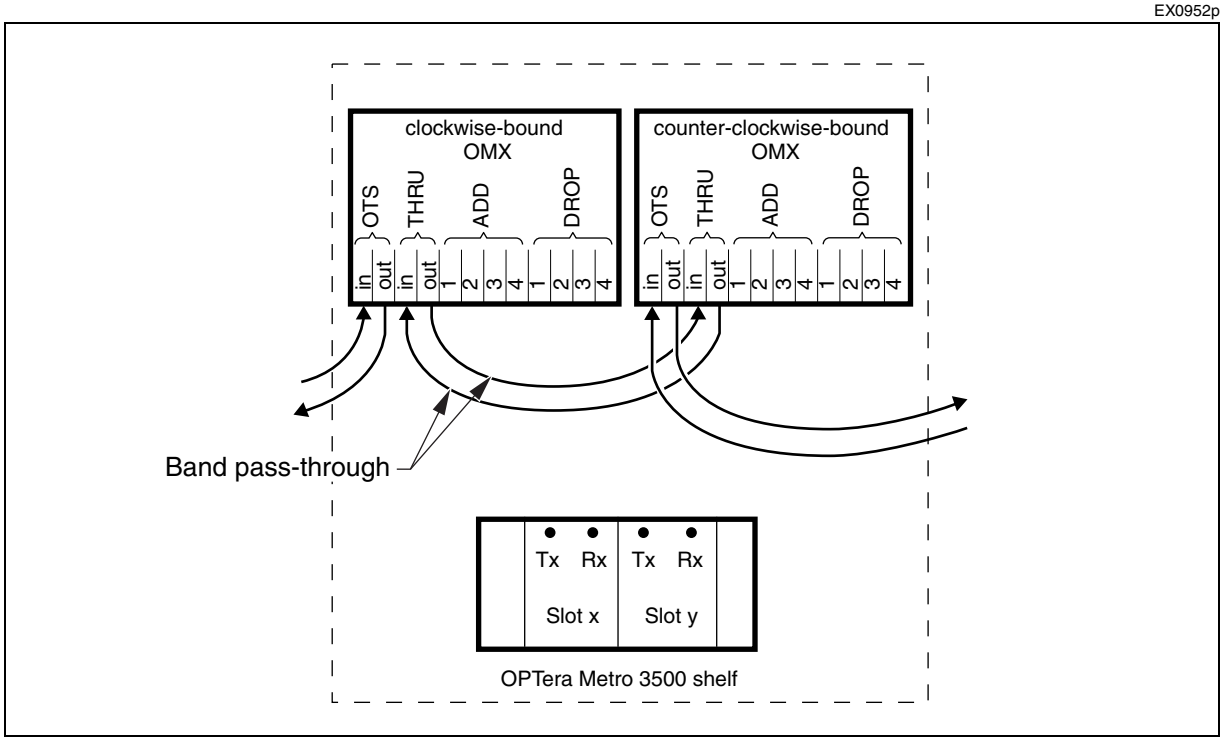
**—end—**

# Physical DWDM ring (adding a node to a UPSR) (example)



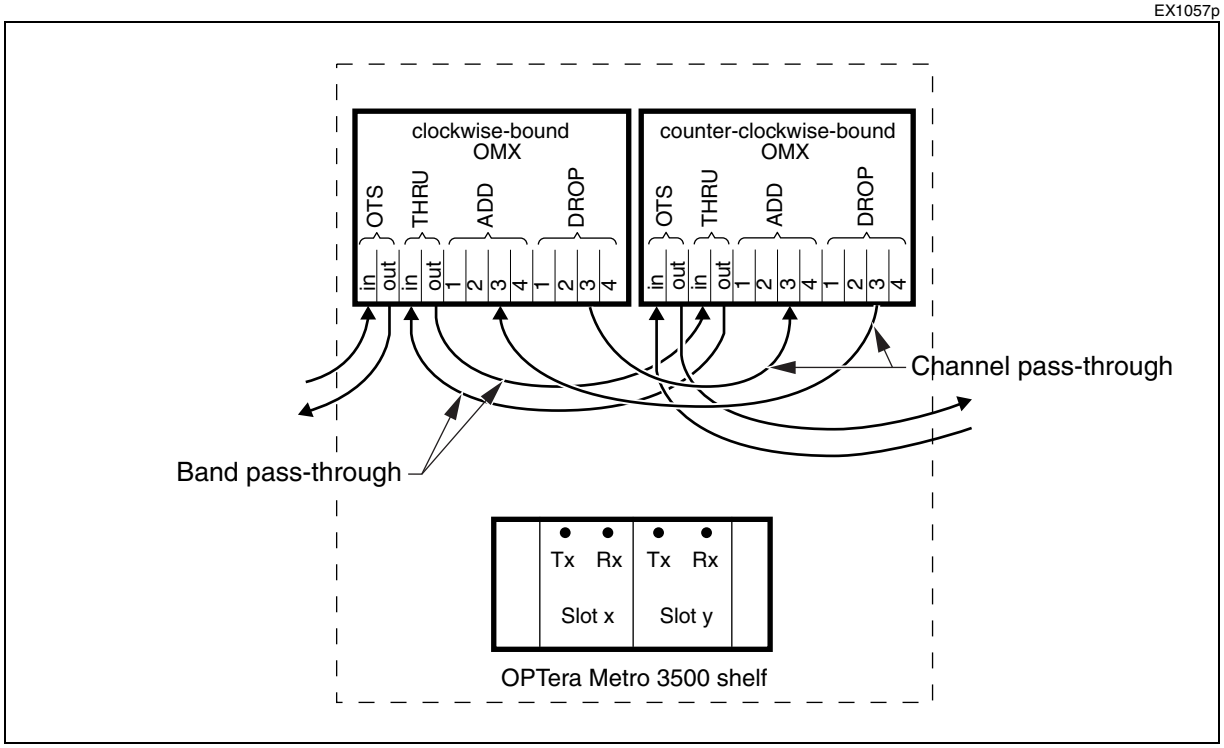
## Band pass-through OMX

EX0952p



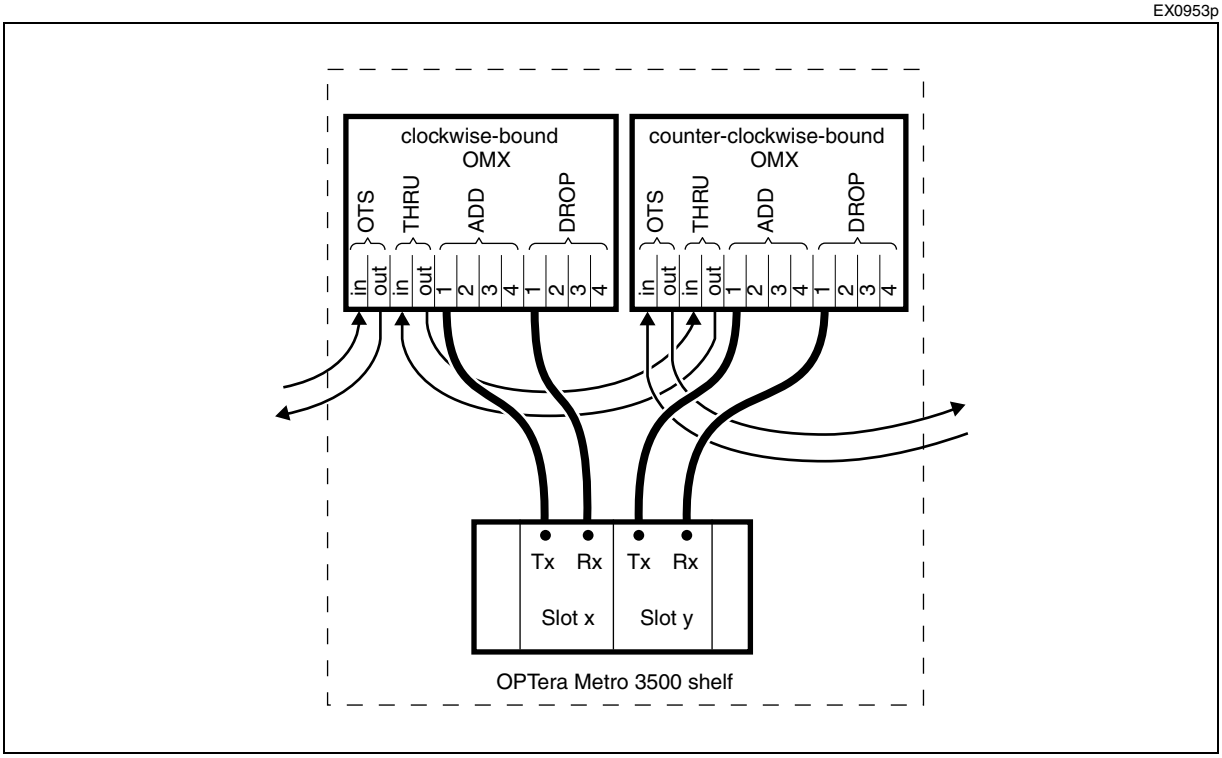

## Band and channel pass-through OMX (example)

EX1057p



# OMX with add/drop OPTera Metro 3500 shelf (example)

EX0953p



# Procedure 3-4
# Removing an OPTera Metro 3500 network element from an OC-48 UPSR over DWDM

Use this procedure to remove an OPTera Metro 3500 network element from a UPSR over DWDM.

***Note 1:*** This procedure applies only if all the network elements in the UPSR are OPTera Metro 3500 network elements. If one or more of the network elements is not an OPTera Metro 3500 network element, contact your next level of support or your Nortel Networks support group.

***Note 2:*** This procedure is applicable only for situations in which you do not intend to break the physical ring (connecting the OMXs).

***Note 3:*** This procedure supports the deletion of line-timed network elements. It does not support the deletion of a synchronization head-end network element. If you need to delete a head-end network element, contact your next level of support or your Nortel Networks support group.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, call your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- fulfill general requirements for DWDM reconfiguration procedures. See Requirements for DWDM reconfiguration procedures on page 3-90
- ensure you have the required tools. See Tools required on page 3-91
- ensure you have the required materials. See Materials required on page 3-91
- observe all safety requirements described in Safety requirements on page 1-2
- ensure all traffic that adds and drops from the network element to be removed is deprovisioned

**—continued—**

Procedure 3-4 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 UPSR over DWDM**

- ensure that the maximum loss (optical link budget) between the adjacent network elements (Network Elements A and B) is supported. Network Element C will be replaced by a channel pass-through. See Network diagram (Removing a network element from a UPSR) on page 2-156.

  ***Note:*** If multiple channels or bands are used, the Network diagram (Removing a network element from a UPSR) on page 2-156 represents the logical OC-48 UPSR configuration and not necessarily the physical OC-48 UPSR configuration.

- ensure that the slot x at Network Element A and slot y at Network Element B optical facilities are using the same channel (wavelength). If not, one or both OC-48 optical circuit packs will need to be replaced (these two facilities' wavelengths must match). In this case, ensure that the required replacement OC-48 optical circuit pack and corresponding OMX ports are available at Network Element A and/or Network Element B locations.

  ***Note:*** The circuit pack replacement process is covered in this procedure.

| Step | Action |
|---|---|
| 1 | Make a copy of the network diagram and customize it so it matches your UPSR. See Network diagram (Removing a network element from a UPSR) on page 2-156.<br>***Note:*** Match the network element you will remove to NE C in the logical BLSR diagram. |
| 2 | Record network and nodal information. See Recording information (Removing a network element from a UPSR) on page 2-239. |
| 3 | Log into the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 4 | Perform a network element data backup to the network processor for all network elements in the NPx Span of Control. See 323-1059-302, Saving provisioning data from a shelf processor to a network processor on page 6-8. |
| 5 | Perform a network processor data backup. |

| **If** you are backing up data to | **Then** go to |
|---|---|
| a PC | step 6 |
| an OPC | step 7 |
| a UNIX workstation | step 8 |

**—continued—**

Procedure 3-4 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **6** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19, or<br>• 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29.<br>Go to step 9. |
| **7** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34, or<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40.<br>Go to step 9. |
| **8** | See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24. |
| **9** | Log into Network Element A, Network Element B and Network Element C. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **10** | Identify the location of the head-end network element and the synchronization boundary from the Network diagram (Removing a network element from a UPSR) on page 2-156 that you have already drawn. |
| **11** | If the synchronization boundary is not between<br>• Network Element A and C, or<br>• Network Element B and C,<br>move the synchronization boundary to one of these spans.<br>See:<br>• Synchronization map with synchronization boundary (Removing a network element from a UPSR) on page 2-157<br>• Moving a synchronization boundary on page 2-216. |
| **12** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br>***Note:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during UPSR DWDM Converting and UPSR Adding / Removing NE reconfiguration on page 2-267. |
| **13** | If the network element to be removed is equipped with a network processor, relocate the network processor to another shelf. See Relocating the network processor on page 2-221. |

**—continued—**

Procedure 3-4 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **14** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **15** | **If** the section trace feature **Then** go to<br>**is** used in this network step 16<br>**is not** used in this network step 17 |
| **16** | Set section trace fail mode to OFF for the optical interface<br>• in slot x of Network Element A.<br>• in slot y of Network Element B.<br>See 323-1059-520, Editing section trace messages on page 2-4. |
| **17** | Perform a manual switch on slot x of Network Element A to verify the protection line. See 323-1059-311, Operating a manual path switch in a UPSR on page 1-22.<br>***Note:*** This fiber span may have a traffic hit of less than 50ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **18** | Release the manual switch on slot x of Network Element A.<br>See 323-1059-311, Releasing a path switch in a UPSR on page 1-25. |
| **19** | Perform a manual switch on slot y of Network Element B to verify the protection line. See 323-1059-311, Operating a manual path switch in a UPSR on page 1-22.<br>***Note:*** This fiber span may have a traffic hit of less than 50ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **20** | Release the manual switch on slot y of Network Element B.<br>See 323-1059-311, Releasing a path switch in a UPSR on page 1-25. |
| **21** | Perform a forced switch on the slot y optical interface circuit pack of Network Element B. See 323-1059-311, Operating a forced path switch in a UPSR on page 1-23. |
| **22** | Perform a forced switch on the slot x optical interface circuit pack of Network Element A. See 323-1059-311, Operating a forced path switch in a UPSR on page 1-23. |
| **23** | Change the slot x optical facility state at Network Element A to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **24** | Change the slot y optical facility state at Network Element B to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |

**—continued—**

Procedure 3-4 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **25** | Delete all pass-through cross-connects on Network Element C. See 323-1059-320, Deleting a cross-connect on page 6-4.<br><br>***Note:*** Network Element C must not have any cross-connects. |
| **26** | **CAUTION**<br>**Risk of traffic loss**<br>You must restore the provisioning data at Network Element C first, or else a traffic loss will occur.<br><br>**CAUTION**<br>**You may not back out of this procedure beyond this point**<br><br>If you need to back out of this procedure, restore provisioning data to the network processor and the network elements in the span of control.<br><br>See:<br>• 323-1059-302, Restoring provisioning data from an OPC to a network processor over a TCP/IP link on page 6-42<br>• 323-1059-302, Restoring provisioning data from an OPC to a network processor over an OSI link on page 6-36<br>• 323-1059-302, Restoring provisioning data from a local PC to a network processor using an Ethernet connection on page 6-31<br>• 323-1059-302, Restoring provisioning data from a UNIX workstation to a network processor on page 6-26<br>• 323-1059-302, Restoring provisioning data to a network processor from a remote PC that has an FTP server running on page 6-21<br>• 323-1059-302, Restoring provisioning data from a network processor to a shelf processor on page 6-10<br>• 323-1059-302, Restoring provisioning data from a local PC to a shelf processor on page 6-5<br><br>***Note:*** If you restored provisioning data, then you have completed this procedure. |
| **27** | Remove Network Element C from the NPx span of control. See 323-1059-520, Removing a network element from the span of control of a network processor on page 4-6. |
| **28** | Consult the OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31 for step 29 to step 48. |

**—continued—**

Procedure 3-4 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **29** | Disconnect both fiber-optic patch cords from the slot x optical interface of network element C. |
| **30** | Disconnect the fiber-optic patch cords identified in step 29 from the ADD and DROP ports of the clockwise-bound OMX connected to the slot x optical interface of Network Element C. |
| **31** | Disconnect both fiber-optic patch cords from the slot y optical interface of network element C. |
| **32** | Disconnect the fiber-optic patch cords identified in step 31 from the ADD and DROP ports of the counter-clockwise-bound OMX connected to the slot y optical interface of Network Element C. |
| **33** | Take note of the slot x at Network Element A and slot y at Network Element B optical facilities wavelength. |
| **34** | **If** the slot x at Network Element A and slot y at Network Element B optical facilities **Then** go to<br>are not using the same channel (wavelength) step 35<br>are using the same channel (wavelength) step 44 |
| **35** | Verify if the channel used by slot y at Network Element B is available on the OMX connected to the slot x at Network Element A optical facilitiy. Also verify if the channel used by slot x at Network Element A is available on the OMX connected to the slot y at Network Element B optical facility. |
| **36** | **If** both channels **Then** go to<br>are already in use step 37<br>are not already in use step 41 |
| **37** | Replace slot x at Network Element A and slot y at Network Element B OC-48 circuit packs with new OC-48 circuit packs of the same wavelength.<br>***Note:*** Ensure that the corresponding OMX ports are available. |
| **38** | Connect the slot x at Network Element A OC-48 circuit pack to the corresponding OMX port. |
| **39** | Connect the slot y at Network Element B OC-48 circuit pack to the corresponding OMX port. |
| **40** | Take note of the slot x at Network Element A to slot y at Network Element B new UPSR link wavelength. |
| **41** | Replace the slot x at Network Element A or slot y at Network Element B OC-48 circuit pack with a new OC-48 circuit pack.<br>***Note 1:*** Ensure the circuit pack in slot x at Network Element A employs the same wavelength as the circuit pack in slot y at Network Element B.<br>***Note 2:*** Ensure that the corresponding OMX ports are available. |

**—continued—**

Procedure 3-4 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **42** | Connect the new OC-48 circuit pack to the corresponding OMX port. |
| **43** | Take note of the slot x at Network Element A to slot y at Network Element B new UPSR link wavelength. |
| **44** | At the site of Network Element C, connect a fiber patch cord between the DROP port (of the channel used by this UPSR link) on the clockwise-bound OMX, and the ADD port (of the channel used by this UPSR link) on the counter-clockwise-bound OMX. See inset of Partial DWDM ring configuration (with band and channel pass-through OMX installed at Site 3) on page 3-8. |
| **45** | At the site of Network Element C, connect a fiber patch cord between the ADD port (of the channel used by this UPSR link) on the clockwise-bound OMX, and the DROP port (of the channel used by this UPSR link) on the counter-clockwise-bound OMX. See inset of Partial DWDM ring configuration (with band and channel pass-through OMX installed at Site 3) on page 3-8. |
| **46** | **CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the OC-48 optical interface does not exceed the overload value of -9 dBm for DWDM OC-48 circuit packs. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **47** | Measure the Received input power of the optical interface circuit packs in network elements A and B.<br>See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Receive sensitivity (min) value for the found in the interface specifications table for the optical interface. |
| **48** | Verify the receiving power of slot x at Network Element A and slot y at Network Element B. The receiving power should be between -9 dBm and -29 dBm.<br>***Note:*** Ensure the OMX equipment drawers are of the required band. |
| **49** | **If** the section trace feature — **Then** go to<br>**is** used in this network — step 50<br>**is not** used in this network — step 51 |

**—continued—**

Procedure 3-4 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **50** | Reprovision the section trace parameters that were recorded in the Final section trace parameters table on page 2-249 for network elements A and B. See 323-1059-520, Editing section trace messages on page 2-4.<br>***Note 1:*** Ensure that slot x at Network Element A transmitted values equal slot y at Network Element B expected values.<br>***Note 2:*** Ensure that slot x at Network Element A expected values equal slot y at Network Element B transmitted values. |
| **51** | Change the slot x optical facility state at Network Element A to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **52** | Change the slot y optical facility state at Network Element B to in service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **53** | Release the forced switch on the slot x optical interface circuit pack of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30.<br>***Note:*** This fiber span may have a traffic hit of less than 60 ms. |
| **54** | Release the forced switch on the slot y optical interface circuit pack of Network Element B. See 323-1059-311, Releasing an optical line switch on page 1-30.<br>***Note:*** This fiber span may have a traffic hit of less than 60 ms. |
| **55** | **If** / **Then**<br>any of the optical interface circuit packs at:<br>• Network Element A, slot x<br>• Network Element B, slot y<br>are ER circuit packs / perform step 56 to step 66 for each of these ER circuit packs<br>none of the optical interface circuit packs at the locations listed above are ER circuit packs / go to step 67 |
| **56** | In Site Manager, select the required network element in the navigation tree. |
| **57** | Select Facility PM Thresholds in the Performance menu. |
| **58** | In the Type box, select OC-48. |
| **59** | In the Facility box, select the circuit pack identified in step 55. |
| **60** | In the Location box, select Near end. |
| **61** | In the Direction box, select Receive. |
| **62** | Click Retrieve. |
| **63** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **64** | Click Edit. |

**—continued—**

Procedure 3-4 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 UPSR over DWDM**

| Step | Action |
|---|---|
| **65** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **66** | Click OK. |
| **67** | Check span performance at the adjacent network elements. See 323-1059-510, Procedures for facility PM counts on page 1-1. |
| **68** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **69** | Save provisioning data from all the network elements to the network processor. See 323-1059-302, Saving provisioning data from all shelf processors in a span of control to the network processor on page 6-13. |
| **70** | Perform a network processor data backup. |

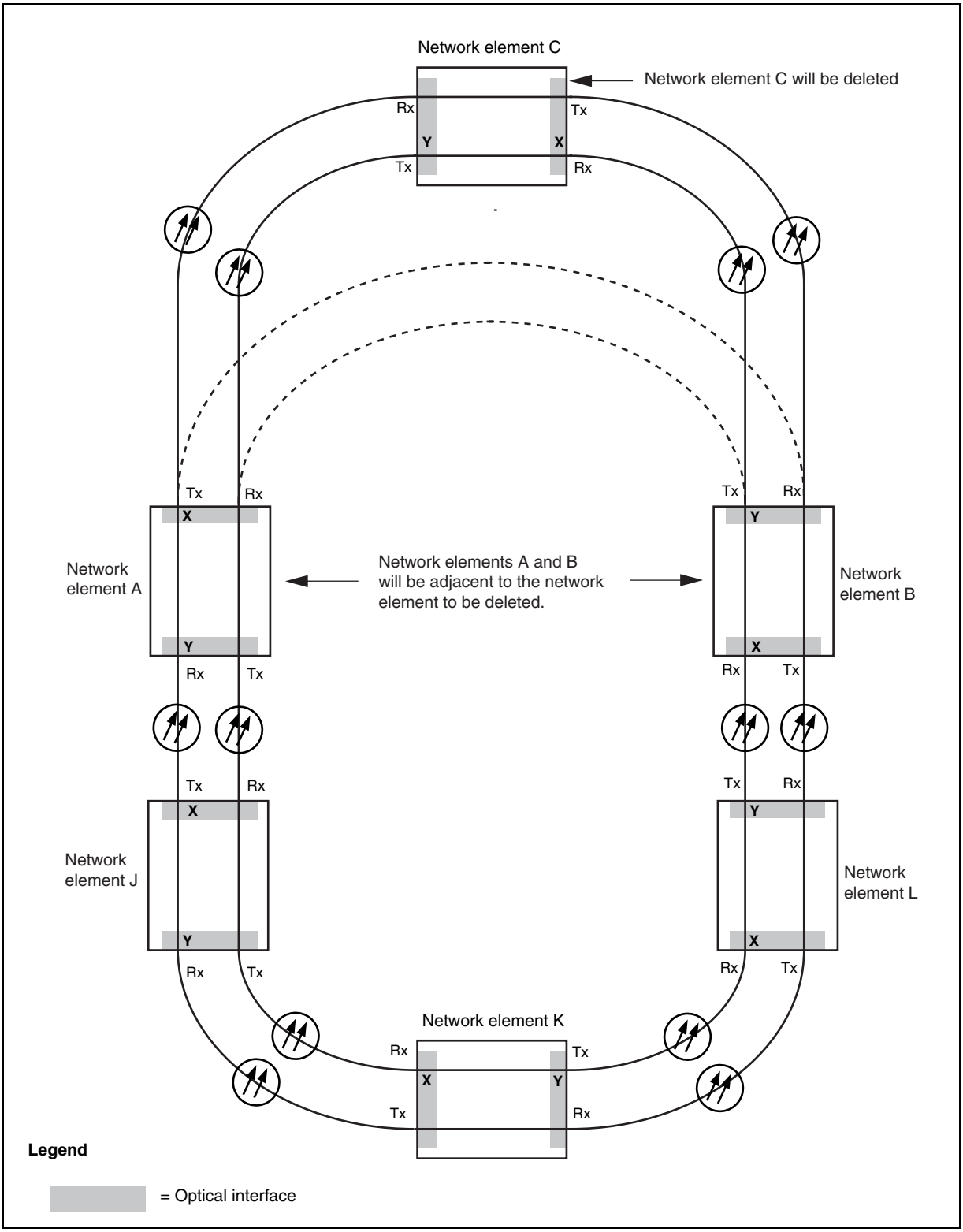
| **If** you are backing up data to | **Then** go to |
|---|---|
| a PC | step 71 |
| an OPC | step 72 |
| a UNIX workstation | step 73 |

| | |
|---|---|
| **71** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19, or<br>• 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29.<br>You have completed this procedure. |
| **72** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34, or<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40.<br>You have completed this procedure. |
| **73** | See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24. |

**—end—**

# Logical UPSR with network element to be removed

EX0240_IS4



# Procedure 3-5
# Converting an OC-48 linear point-to-point network to an OC-48 linear point-to-point network over DWDM

Use this procedure to convert an OC-48 linear point-to-point network to an OC-48 linear point-to-point network over DWDM.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, call your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

To perform this procedure, you must

- fulfill general requirements for DWDM reconfiguration procedures. See Requirements for DWDM reconfiguration procedures on page 3-90
- ensure you have the required tools. See Tools required on page 3-91
- ensure you have the required materials. See Materials required on page 3-91
- observe all safety requirements described in Safety requirements on page 1-2
- ensure there is a craftsperson at Site 1 and Site 2. See 1+1 linear configuration on page 3-48.

—continued—

Procedure 3-5 (continued)
**Converting an OC-48 linear point-to-point network to an OC-48 linear point-to-point network over DWDM**

| Step | Action |
|---|---|
| **1** | Log into all network elements in the network processor span of control. See 323-1059-302, Procedures for interface login and logout on page 2-1.<br><br>***Note:*** If you cannot see all the network elements of the linear network in the Navigation tree, add the network element to the network processor span of control. See 323-1059-520, Adding a network element to the span of control of a network processor on page 4-3. |
| **2** | Disable the automatic network element timeout feature on all network elements. See 323-1059-302, Changing a user account and user privilege levels on page 3-10. |
| **3** | Clear all alarms in all the network elements of the linear configuration. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **4** | If a DWDM network is not currently installed and ready for OPTera Metro 3500 access, install the DWDM network. See 323-1059-180, *DWDM Application Overview*. |
| **5** | If the required OMX equipment drawers are installed at each site, go to step 7. |
| **6** | For each site without the required OMX equipment drawer, install the new OMX + Fiber Manager 4CH equipment drawer. See 323-1059-201, Installing the OMX + Fiber Manager 4CH (NT0H32AE-HE) equipment drawer.<br><br>***Note:*** Ensure all new OMX equipment drawers are of the required band. |
| **7** | Consult the initial 1+1 linear configuration diagram for step 8 to step 15. See 1+1 linear configuration on page 3-48. |
| **8** | Match the network elements in your linear configuration to the network elements at Site 1 and Site 2 in the diagram. |
| **9** | Determine which optical OC-48 circuit pack is the provisioned working circuit pack. See 323-1059-311, Retrieving protection status details on page 1-15. |
| **10** | Verify that the provisioned working line can carry traffic by operating a manual switch on the provisioned protection line. See 323-1059-311, Operating a manual optical line switch in a 1+1 linear system on page 1-26. |
| **11** | If traffic switches back autonomously to the provisioned protection line, contact your next level of support or your Nortel Networks support group. |
| **12** | Remove all traffic from the provisioned protection line (labelled in the diagram) by performing a lockout on the slot y optical interface at Site 1. See 323-1059-311, Operating a lockout on an optical interface circuit pack in a 1+1 linear system on page 1-28. |
| **13** | Disconnect fibers from the OC-48 circuit packs in slot y of the OPTera Metro 3500 shelf at Site 1 and in slot y of the OPTera Metro 3500 shelf at Site 2. |
| **14** | Replace the OC-48 circuit pack in slot y of OPTera Metro 3500 shelf at Site 1 with the required DWDM OC-48 circuit pack. |

**—continued—**

Procedure 3-5 (continued)
**Converting an OC-48 linear point-to-point network to an OC-48 linear point-to-point network over DWDM**

| Step | Action |
|---|---|
| **15** | Replace the OC-48 circuit pack in slot y of OPTera Metro 3500 shelf at Site 2 with the required DWDM OC-48 circuit pack.<br>***Note:*** The DWDM circuit pack at Site 2 must be of the same wavelength as the DWDM circuit pack at Site 1. |
| **16** | Consult the intermediate 1+1 linear configuration diagram for step 17 to step 25. See 1+1 linear configuration (1 line over DWDM) (example) on page 3-49. |
| **17** | At Site 1, connect the OTS-out port of the clockwise-bound OMX to the fiber originating from the OTS-in port of the counter-clockwise-bound OMX at Site 2. |
| **18** | At Site 1, connect the OTS-in port of the clockwise-bound OMX to the fiber originating from the OTS-out port of the counter-clockwise-bound OMX at Site 2. |
| **19** | Perform basic optical tests on the Tx power of the slot y DWDM optical interface at Site 1 and the slot y DWDM optical interface at Site 2. See:<br>• 323-1059-222, Testing the power at the optical interface Tx port on page 2-8.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Launch power sensitivity (min) value found in the interface specifications table for the optical interface. |
| **20** | At Site 1, connect fiber between the Tx of the DWDM OC-48 circuit pack in slot y, and the required ADD port on the clockwise-bound OMX. |
| **21** | At Site 2, connect fiber between the Tx of the DWDM OC-48 circuit pack in slot y, and the required ADD port on the counter-clockwise-bound OMX. |
| **22** | **CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the OC-48 optical interface does not exceed the overload value of -9 dBm for DWDM OC-48 circuit packs. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |

**—continued—**

Procedure 3-5 (continued)
**Converting an OC-48 linear point-to-point network to an OC-48 linear point-to-point network over DWDM**

| Step | Action |
|---|---|
| **23** | Perform basic optical tests on the Rx power of the slot y DWDM optical interface at Site 1 and the slot y DWDM optical interface at Site 2.<br>See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Receive sensitivity (min) value for the found in the interface specifications table for the optical interface. |
| **24** | At Site 1, connect fiber between the Rx of the DWDM OC-48 circuit pack in slot y, and the required DROP port on the clockwise-bound OMX. |
| **25** | At Site 2, connect fiber between the Rx of the DWDM OC-48 circuit pack in slot y, and the required DROP port on the counter-clockwise-bound OMX. |
| **26** | Restore traffic to the provisioned protection line. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **27** | Check alarms and events in all the network elements of the linear network. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **28** | Verify that the provisioned protection line (slot y) can carry traffic by performing a manual switch on the provisioned working line (slot x). See 323-1059-311, Operating a manual optical line switch in a 1+1 linear system on page 1-26.<br>If traffic switches back autonomously to the provisioned protection line, contact your next level of support or your Nortel Networks support group. |
| **29** | Remove all traffic from the provisioned working line (labelled in the diagram) by performing a forced switch on the slot x optical interface at Site 1. See 323-1059-311, Operating a forced optical line switch in a 1+1 linear system on page 1-27. |
| **30** | Disconnect the fibers from the OC-48 circuit packs in slot x of the OPTera Metro 3500 shelf at Site 1, and in slot x of the OPTera Metro 3500 shelf at Site 2. |
| **31** | Replace the OC-48 circuit pack in slot x of OPTera Metro 3500 shelf at Site 1 with the required DWDM OC-48 circuit pack. |
| **32** | Replace the OC-48 circuit pack in slot x of OPTera Metro 3500 shelf at Site 2 with the required DWDM OC-48 circuit pack.<br>***Note:*** The DWDM circuit pack at Site 2 must be of the same wavelength as the DWDM circuit pack at Site 1. |

**—continued—**

Procedure 3-5 (continued)
**Converting an OC-48 linear point-to-point network to an OC-48 linear point-to-point network over DWDM**

| Step | Action |
|---|---|
| **33** | Consult the final 1+1 linear configuration diagram for step 34 to step 42. See 1+1 linear configuration (both lines over DWDM) (example) on page 3-50. |
| **34** | At Site 1, connect the OTS-out port of the counter-clockwise-bound OMX to the fiber originating in the OTS-in port of the clockwise-bound OMX at Site 2. |
| **35** | At Site 1, connect the OTS-in port of the counter-clockwise-bound OMX to the fiber originating in the OTS-out port of the clockwise-bound OMX at Site 2. |
| **36** | Perform basic optical tests on the Tx power of the slot x DWDM optical interface at Site 1 and the slot x DWDM optical interface at Site 2. See:<br>• 323-1059-222, Testing the power at the optical interface Tx port on page 2-8.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Launch power sensitivity (min) value for the found in the interface specifications table for the optical interface. |
| **37** | At Site 1, connect fiber between the Tx of the DWDM OC-48 circuit pack in slot x, and the required ADD port on the counter-clockwise-bound OMX. |
| **38** | At Site 2, connect fiber between the Tx of the DWDM OC-48 circuit pack in slot x, and the required ADD port on the clockwise-bound OMX. |
| **39** | **CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the OC-48 optical interface does not exceed the overload value of -9 dBm for DWDM OC-48 circuit packs. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **40** | Perform basic optical tests on the Rx power of the slot x DWDM optical interface at Site 1 and the slot x DWDM optical interface at Site 2. See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Receive sensitivity (min) value for the found in the interface specifications table for the optical interface. |
| **41** | At Site 1, connect fiber between the Rx of the DWDM OC-48 circuit pack in slot x, and the required DROP port on the counter-clockwise-bound OMX. |

**—continued—**

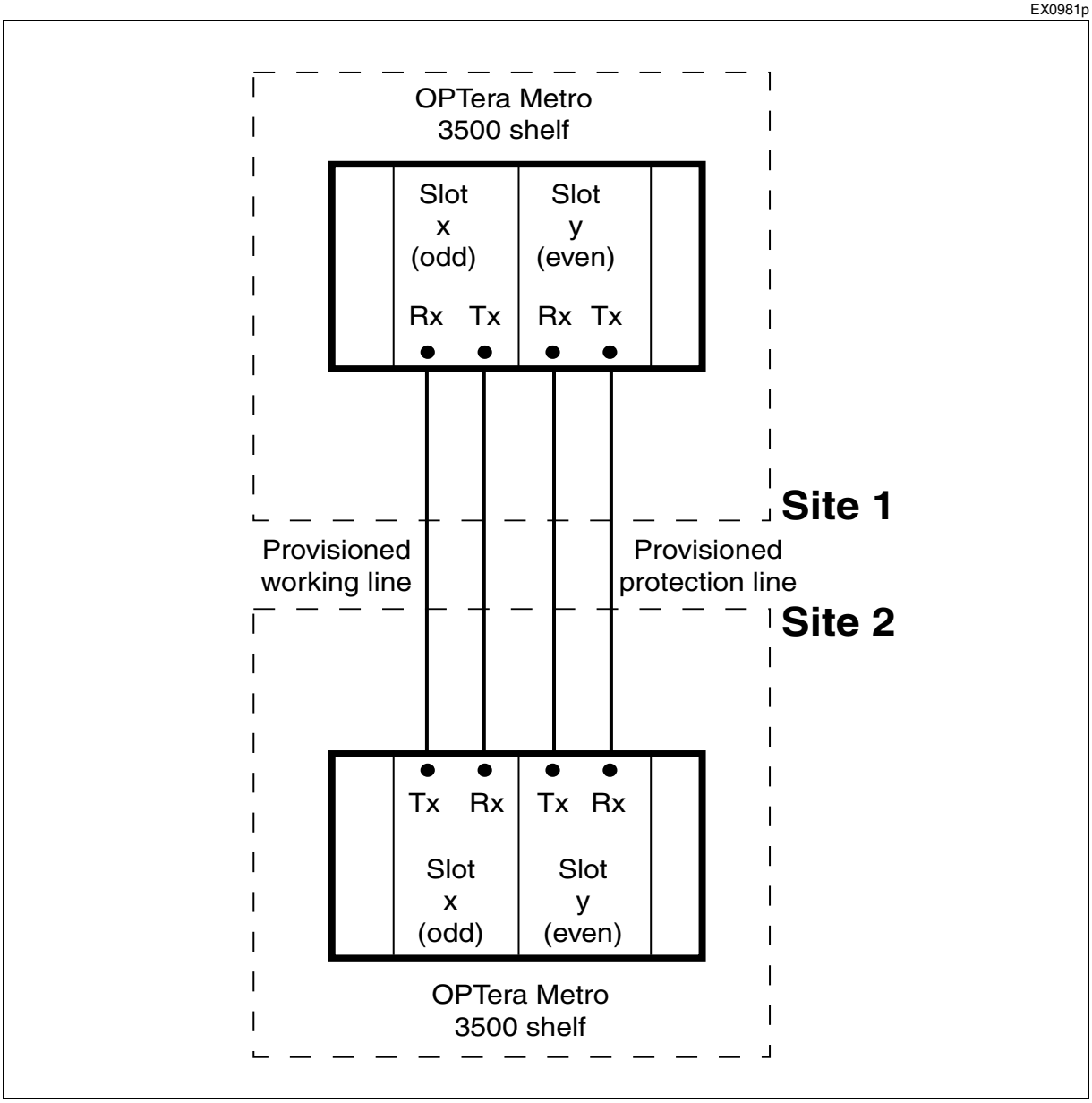
Procedure 3-5 (continued)
**Converting an OC-48 linear point-to-point network to an OC-48 linear point-to-point network over DWDM**

| Step | Action |
|---|---|
| **42** | At Site 2, connect fiber between the Rx of the DWDM OC-48 circuit pack in slot x, and the required DROP port on the clockwise-bound OMX. |
| **43** | Restore traffic to the provisioned working line. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **44** | Verify the performance of the provisioned working line (slot x) by performing a manual switch on the provisioned protection line (slot y). See 323-1059-311, Operating a manual optical line switch in a 1+1 linear system on page 1-26. |
| **45** | **If** / **Then**<br>any of the optical interface circuit packs at:<br>• slot x of the Network Element at Site 1<br>• slot y of the Network Element at Site 1<br>• slot x of the Network Element at Site 2<br>• slot y of the Network Element at Site 2<br>are ER circuit packs — perform step 46 to step 56 for each of these ER circuit packs<br>none of the optical interface circuit packs at the locations listed above are ER circuit packs — go to step 57 |
| **46** | In Site Manager, select the required network element in the navigation tree. |
| **47** | Select Facility PM Thresholds in the Performance menu. |
| **48** | In the Type box, select OC-48. |
| **49** | In the Facility box, select the circuit pack identified in step 45. |
| **50** | In the Location box, select Near end. |
| **51** | In the Direction box, select Receive. |
| **52** | Click Retrieve. |
| **53** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **54** | Click Edit. |
| **55** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **56** | Click OK. |
| **57** | Check alarms and events in all the network elements of the linear network. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **58** | Enable the automatic network element timeout feature for all network elements in the network processor span of control. See 323-1059-302, Changing a user account and user privilege levels on page 3-10. |

**—end—**

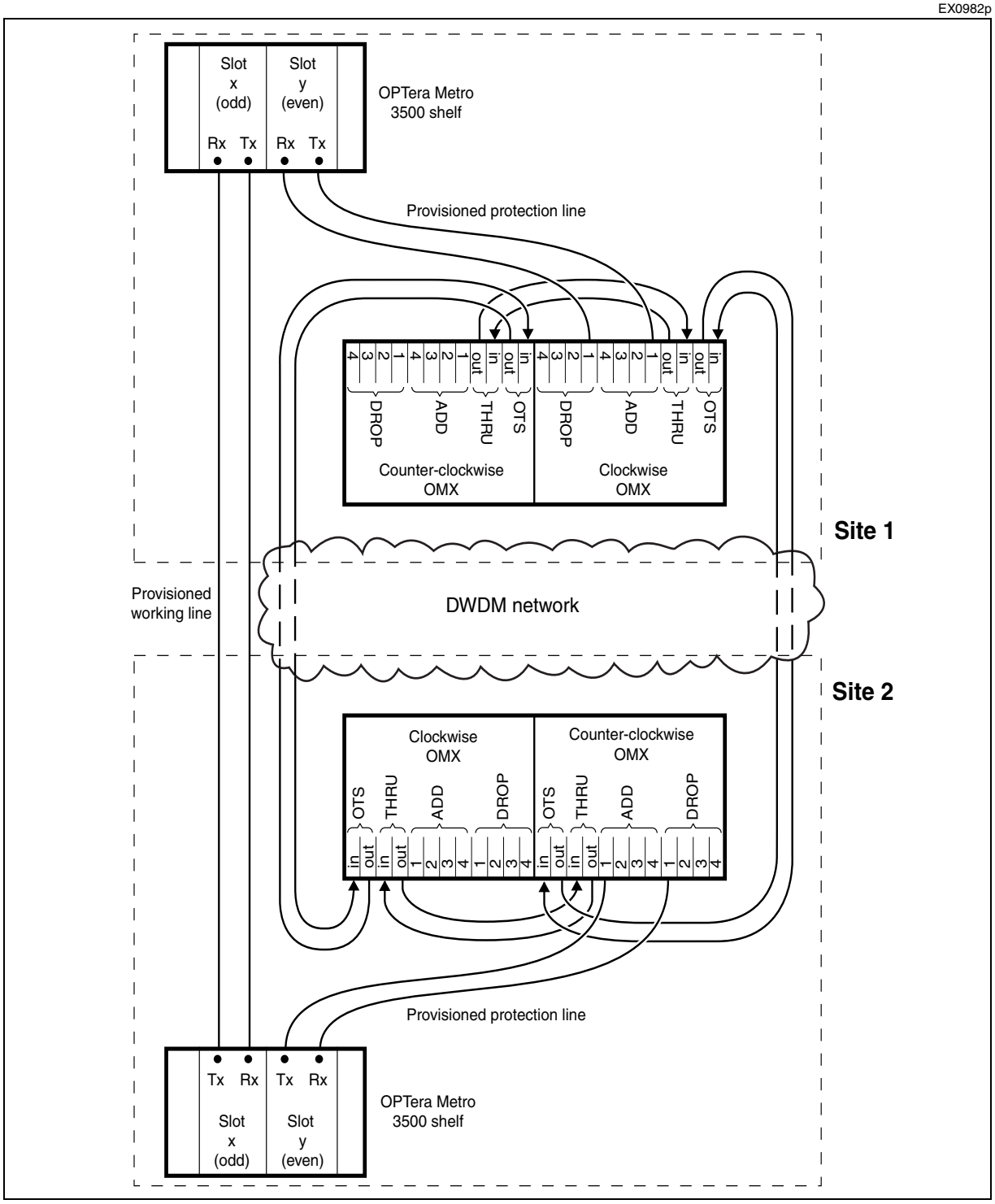
## 1+1 linear configuration

EX0981p



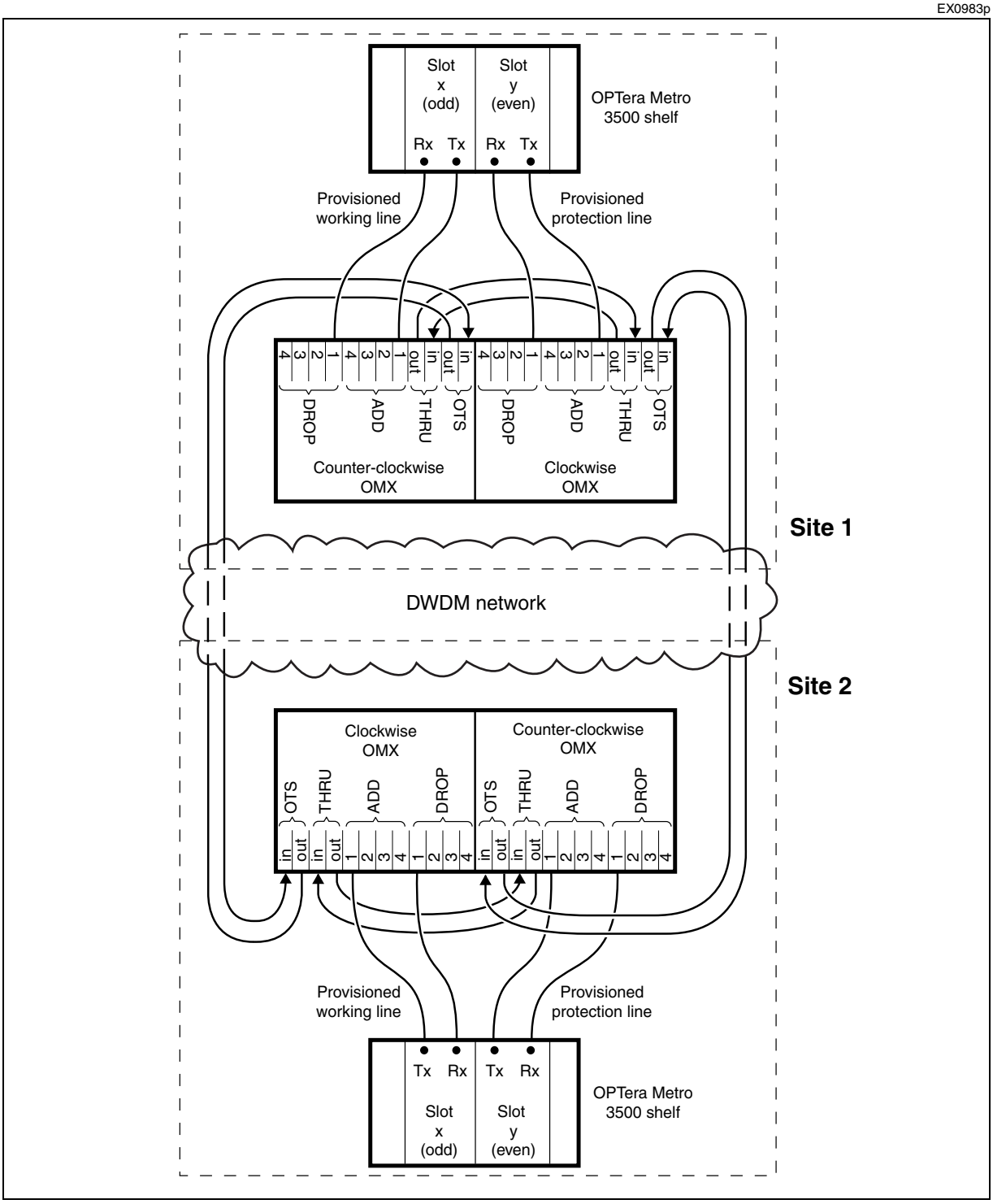
# 1+1 linear configuration (1 line over DWDM) (example)

EX0982p



# 1+1 linear configuration (both lines over DWDM) (example)

EX0983p



# Procedure 3-6
# Converting an OC-48 BLSR span to an OC-48 BLSR span over DWDM

Use this procedure to convert an existing bidirectional line switched ring (BLSR) span to a BLSR span over dense wavelength division multiplexing (DWDM).

***Note 1:*** You must perform this procedure for each separate BLSR span if you want to convert the entire BLSR system.

***Note 2:*** This procedure applies only if all the nodes in the BLSR are OPTera Metro 3500 network elements. If one of the adjacent nodes is not an OPTera Metro 3500 network element, contact your next level of support or your Nortel Networks support group.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, call your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

To perform this procedure, you must

- fulfill general requirements for DWDM reconfiguration procedures. See Requirements for DWDM reconfiguration procedures on page 3-90
- ensure you have an up-to-date map of your network
- fulfill specific requirements for this procedure. See Specific requirements for converting an OPTera Metro 3500 OC-48 ring to a DWDM ring on page 3-92.
- ensure you have the required tools. See Tools required on page 3-91
- ensure you have the required materials. See Materials required on page 3-91
- observe all safety requirements described in Safety requirements on page 1-2
- ensure there is a craftsperson at Site 1 and Site 2

—continued—

Procedure 3-6 (continued)
**Converting an OC-48 BLSR span to an OC-48 BLSR span over DWDM**

| Step | Action |
|---|---|
| **1** | Make a copy of the logical network diagram. See Logical network diagram (Converting BLSR span to BLSR over DWDM) on page 3-57. |
| **2** | Add or remove network elements to/from the diagram depending on the number of network elements in your network. |
| **3** | Label the network elements represented in your diagram.<br>***Note:*** The span you will refit for DWDM is between Network Element A and Network Element B. |
| **4** | Identify the location of the head-end network element and the synchronization boundary. See:<br>• Determining the location of a synchronization boundary on page 2-218<br>• Synchronization map with synchronization boundary (BLSR) (example) on page 3-60 |
| **5** | If the synchronization boundary is not between Network Element A and Network Element B, move the synchronization boundary to that span.<br>See Moving a synchronization boundary on page 2-216. |
| **6** | Log into all network elements in the network processor span of control. See 323-1059-302, Procedures for interface login and logout on page 2-1.<br>***Note:*** If you cannot see all the network elements of the BLSR in the Navigation tree, add the network element to the network processor span of control.<br>See 323-1059-520, Adding a network element to the span of control of a network processor on page 4-3. |
| **7** | Disable the automatic network element timeout feature on all network elements. See 323-1059-302, Changing a user account and user privilege levels on page 3-10. |
| **8** | Clear all alarms in all the network elements of the BLSR. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **9** | If a DWDM network is not currently installed and ready for OPTera Metro 3500 access, install the DWDM network. See 323-1059-180, *DWDM Application Overview*. |
| **10** | If the required OMX equipment drawers are installed already at Site 1 and Site 2, go to step 12. |
| **11** | For each site without the required OMX, install the OMX. See 323-1059-201, Installing the OMX + Fiber Manager 4CH (NT0H32AE-HE).<br>***Note:*** Ensure the new OMX is of the required band. |
| **12** | Consult the initial cabling assignment diagram for step 13 to step 24. See Initial optical fiber cabling assignment on page 3-58. |
| **13** | Match the network elements in the BLSR span you wish to refit to the network elements at Site 1 and Site 2 in the diagram. |

**—continued—**

Procedure 3-6 (continued)
**Converting an OC-48 BLSR span to an OC-48 BLSR span over DWDM**

| Step | Action |
|---|---|
| **14** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br><br>***Note:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during BLSR DWDM Converting and BLSR Adding / Removing NE reconfiguration on page 2-269. |
| **15** | Perform a manual switch on slot x of Network Element A to verify the protection line. See 323-1059-311, Operating a manual switch in a BLSR on page 1-31.<br><br>***Note:*** This fiber span may have a traffic hit of less than 50ms.<br><br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **16** | Release the manual switch on slot x of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **17** | Perform a manual switch on slot y of Network Element B to verify the protection line. See 323-1059-311, Operating a manual switch in a BLSR on page 1-31.<br><br>***Note:*** This fiber span may have a traffic hit of less than 50ms.<br><br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **18** | Release the manual switch on slot y of Network Element B. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **19** | Perform a forced switch on slot y of Network Element B. See 323-1059-311, Operating a forced switch in a BLSR on page 1-32. |
| **20** | Perform a forced switch on slot x of Network Element A. See 323-1059-311, Operating a forced switch in a BLSR on page 1-32. |
| **21** | Change the slot x optical facility state at Network Element A to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **22** | Change the slot y optical facility state at Network Element B to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **23** | Disconnect the fibers from the OC-48 circuit packs in slot y of the OPTera Metro 3500 shelf at Site 1. |
| **24** | Disconnect the fibers from the OC-48 circuit packs in slot x of the OPTera Metro 3500 shelf at Site 2. |
| **25** | At Site 1, connect the OTS-out port of the counter-clockwise-bound OMX to the OTS-in port of the clockwise-bound OMX at Site 2 (labelled in diagram). |

**—continued—**

Procedure 3-6 (continued)
**Converting an OC-48 BLSR span to an OC-48 BLSR span over DWDM**

| Step | Action |
|---|---|
| **26** | At Site 1, connect the OTS-in port of the counter-clockwise-bound OMX to the OTS-out port of the clockwise-bound OMX at Site 2 (labelled in diagram). |
| **27** | Replace the OC-48 circuit pack in slot y of OPTera Metro 3500 shelf at Site 1 with the required DWDM OC-48 circuit pack. |
| **28** | Replace the OC-48 circuit pack in slot x of OPTera Metro 3500 shelf at Site 2 with the required DWDM OC-48 circuit pack.<br>***Note:*** The DWDM circuit pack at Site 2 must be of the same wavelength as the DWDM circuit pack at Site 1. |
| **29** | Perform basic optical tests.<br>See:<br>• 323-1059-222, Testing the power at the optical interface Tx port on page 2-8.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Launch power sensitivity (min) value found in the interface specifications table for the optical interface. |
| **30** | Consult the final cabling assignment diagram for step 31 to step 38. See Final optical fiber cabling assignment (example) on page 3-17. |
| **31** | At Site 1, connect fiber between the Tx of the DWDM OC-48 circuit pack in slot y, and the required ADD port on the counter-clockwise-bound OMX. |
| **32** | At Site 2, connect fiber between the Tx of the DWDM OC-48 circuit pack in slot x, and the required ADD port on the clockwise-bound OMX. |
| **33** | **CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the OC-48 optical interface does not exceed the overload value of -9 dBm for DWDM OC-48 circuit packs. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **34** | Perform basic optical tests. See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Receive sensitivity (min) value for the found in the interface specifications table for the optical interface. |

**—continued—**

Procedure 3-6 (continued)
**Converting an OC-48 BLSR span to an OC-48 BLSR span over DWDM**

| Step | Action |
|---|---|
| **35** | At Site 1, connect fiber between the Rx of the DWDM OC-48 circuit pack in slot y, and the required DROP port on the counter-clockwise-bound OMX. |
| **36** | At Site 2, connect fiber between the Rx of the DWDM OC-48 circuit pack in slot x, and the required DROP port on the clockwise-bound OMX. |
| **37** | At both sites, ensure that an optical patch cord is connected from the THRU-in on the clockwise-bound OMX to the THRU-out on the counter-clockwise-bound OMX. |
| **38** | At both sites, ensure that an optical patch cord is connected from the THRU-in on the counter-clockwise-bound OMX to the THRU-out on the clockwise-bound OMX. |
| **39** | Change the slot x optical facility state at network element A to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **40** | Change the slot y optical facility state at network element B to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **41** | Release the forced switch on slot x of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **42** | Release the forced switch on slot y of Network Element B. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **43** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **44** | Perform a manual switch on slot x of Network Element A to verify the protection line. See 323-1059-311, Operating a manual switch in a BLSR on page 1-31.<br>***Note:*** This fiber span may have a traffic hit of less than 50ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **45** | Release the manual switch on slot x of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30. |

**46**

| If | Then |
|---|---|
| this is the last span to be converted to DWDM | go to step 47 |
| this is not the last span to be converted to DWDM | you have completed this procedure |

**47**

| If | Then |
|---|---|
| any of the optical interface circuit packs (on all sites using the physical ring) are extended reach (ER) circuit packs | perform step 48 to step 59 for each of the ER circuit packs |
| none of the optical interface circuit packs using the physical ring are ER circuit packs | you have completed this procedure |

**—continued—**

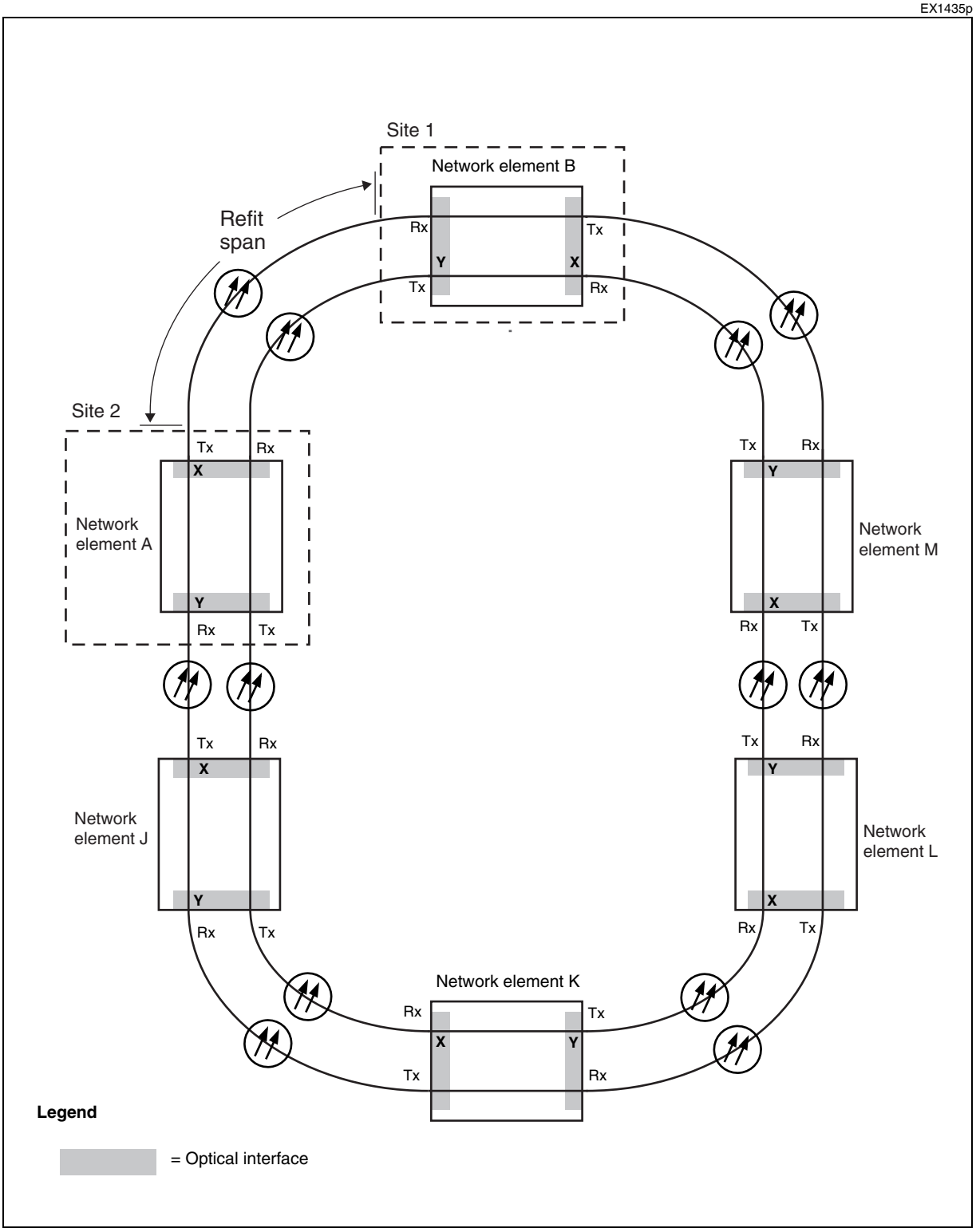
Procedure 3-6 (continued)
**Converting an OC-48 BLSR span to an OC-48 BLSR span over DWDM**

| Step | Action |
|---|---|
| **48** | Ensure you are logged into the network element equipped with the ER circuit pack. See Procedures for interface login and logout on page 2-1. |
| **49** | In Site Manager, select this network element in the navigation tree. |
| **50** | Select Facility PM Thresholds in the Performance menu. |
| **51** | In the Type box, select OC-48. |
| **52** | In the Facility box, select the ER circuit pack. |
| **53** | In the Location box, select Near end. |
| **54** | In the Direction box, select Receive. |
| **55** | Click Retrieve. |
| **56** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **57** | Click Edit. |
| **58** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **59** | Click OK. |

**—end—**

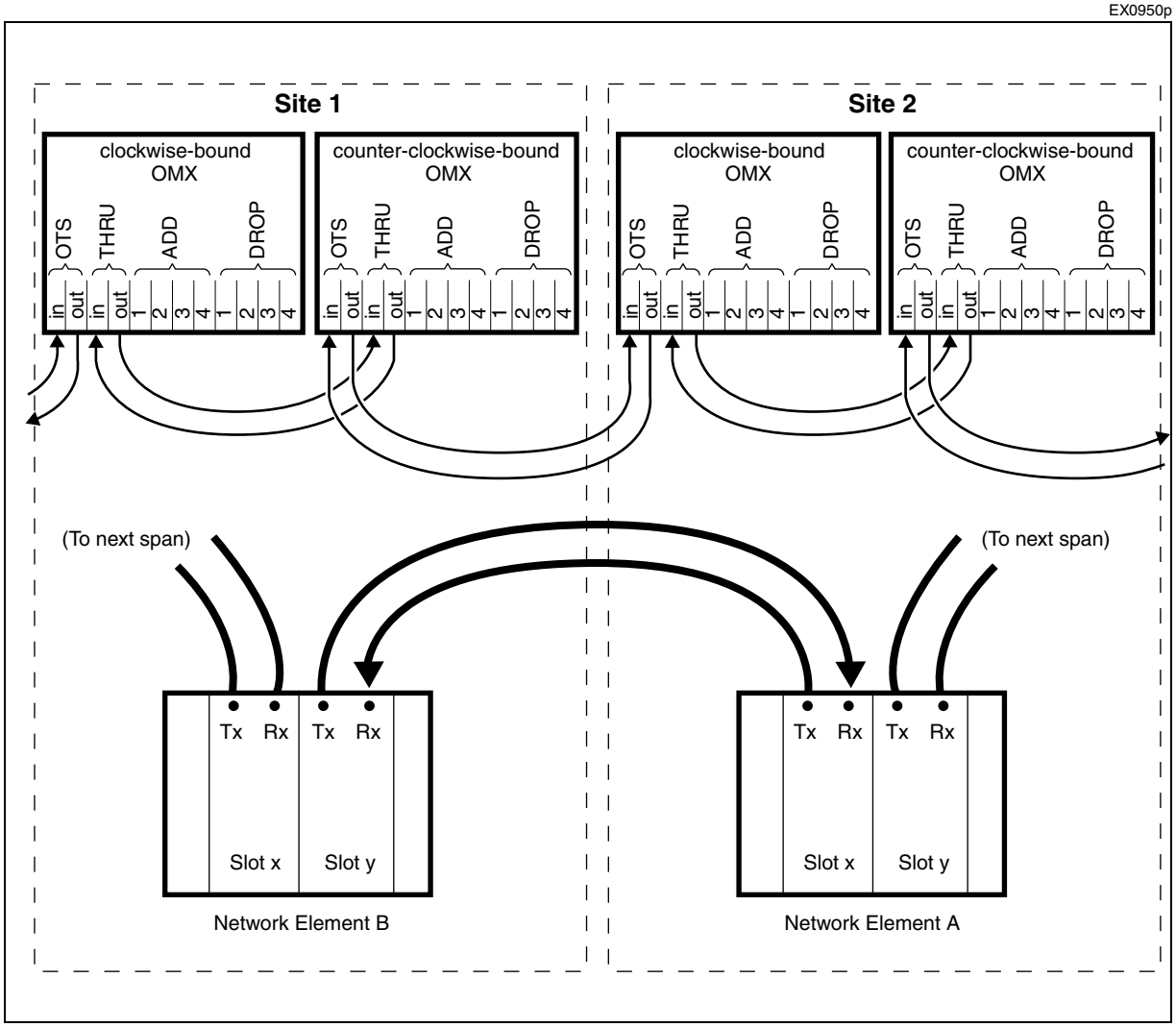
# Logical network diagram (Converting BLSR span to BLSR over DWDM)

EX1435p



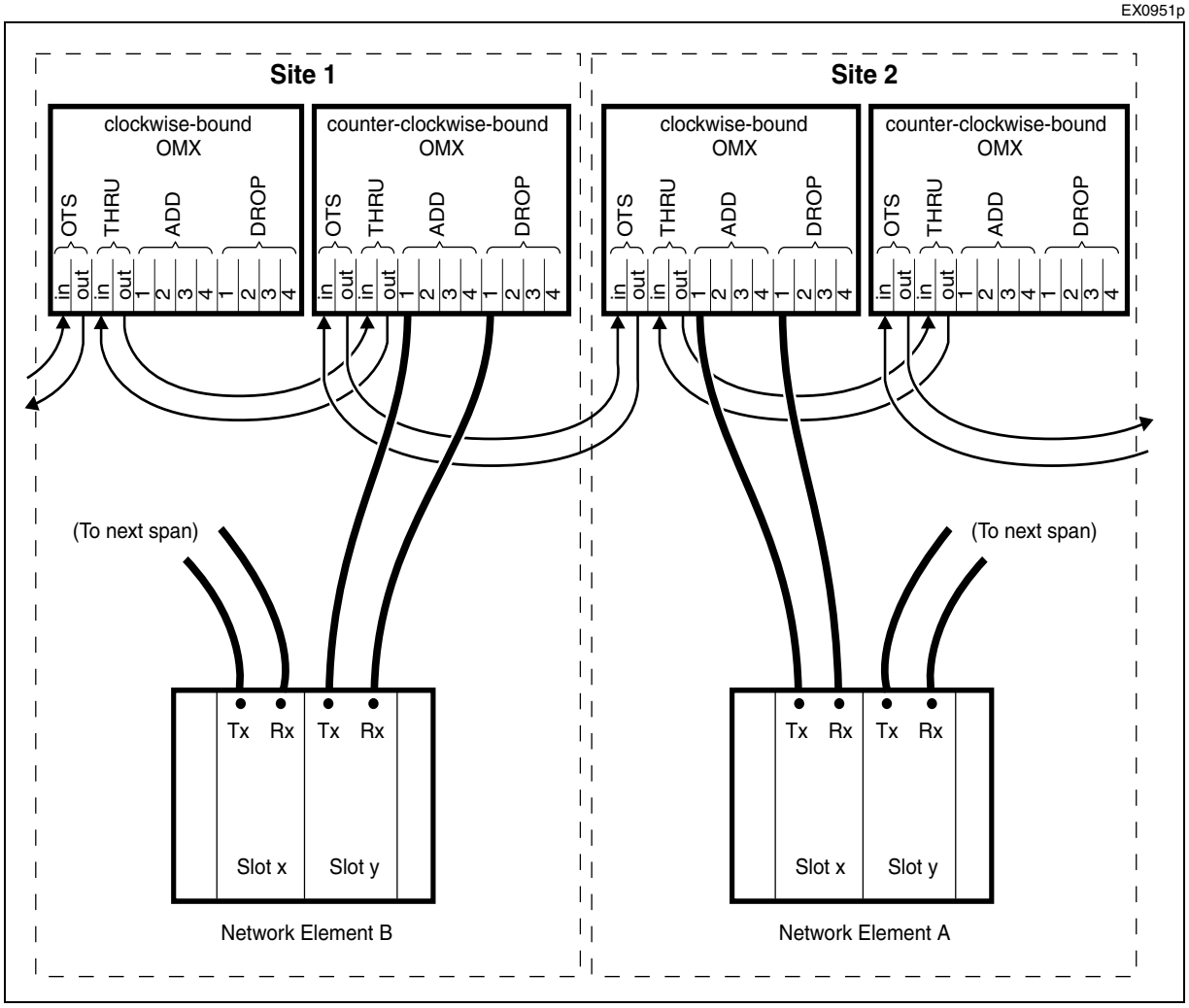
## Initial optical fiber cabling assignment

EX0950p



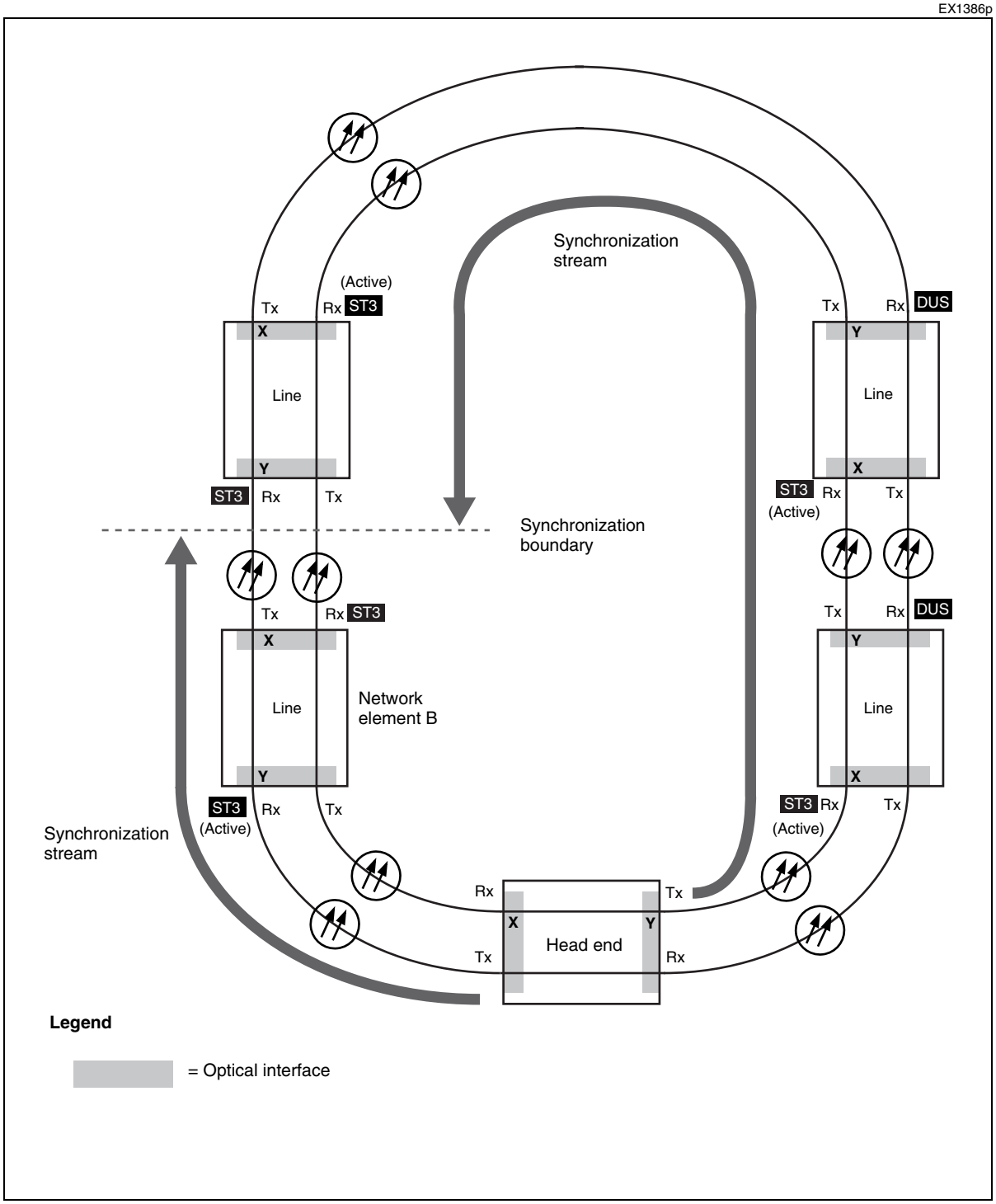
# Final optical fiber cabling assignment (example)

EX0951p



# Synchronization map with synchronization boundary (BLSR) (example)

EX1386p



# Procedure 3-7
# Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM

Use this procedure to add an OPTera Metro 3500 network element to an existing BLSR over a DWDM network, using any one of the following scenarios:

- Adding a new network element to an existing logical BLSR without having to open the physical OMX ring (the required OMX equipment drawers and ports are available at the new network element site). See Figure A, Site B.
- Adding a new network element to an existing logical BLSR and you have to open the physical OMX ring (the required OMX equipment drawers are not available at the new network element site). See Figure A, Site C or Site D.

  ***Note:*** This procedure applies only if all the network elements in the BLSR are OPTera Metro 3500 network elements. If one or more of the network elements is not an OPTera Metro 3500 network element, contact your next level of support or your Nortel Networks support group.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, call your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

Before you begin this procedure, review the following.

## Conditions required

Before you begin this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- fulfill general requirements for DWDM reconfiguration procedures. See Requirements for DWDM reconfiguration procedures on page 3-90.
- ensure you have an up-to-date map of your network
- fulfill specific requirements for this procedure. See Specific requirements for adding a network element to a DWDM ring on page 3-93
- ensure you have the required tools. See Tools required on page 3-91

**—continued—**

Procedure 3-7 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM**

- ensure you have the required materials. See Materials required on page 3-91
- observe all safety requirements described in Safety requirements on page 1-2
- ensure that the maximum loss (optical link budget) between the new network element and adjacent network elements is supported
- ensure that the optical link budget of every used band is within specifications if new OMX equipment drawers are added
- ensure that the new network element OC-48 interfaces are using the proper wavelength. As an example, slot x at NE103 and slot y at NE101 must use the same wavelength. Slot y at NE103 and slot y at NE102 must use the same wavelength.

  ***Note:*** If the corresponding OMX ports are available, it is possible to change this section's wavelength by replacing both OC-48 interface ends with interfaces with a new wavelength.

| Step | Action |
|---|---|
| 1 | Make a copy of the network diagram and customize it so it matches your logical BLSR. See Network diagram (Adding a network element to a BLSR) on page 2-95. |
| 2 | Refer to the following diagrams throughout the course of this procedure as a guide:<br>• Physical DWDM ring (adding a node to a BLSR) (example) on page 3-71<br>• Band pass-through OMX on page 3-30<br>• Band and channel pass-through OMX (example) on page 3-30<br>• OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31 |
| 3 | Record network and nodal information. See Recording information (Adding a network element to a BLSR) on page 2-232. |
| 4 | Log into the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 5 | Log into all the network elements in the NPx Span of Control. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 6 | Perform a network element data backup to the network processor for all network elements in the NPx Span of Control. See 323-1059-302, Saving provisioning data from a shelf processor to a network processor on page 6-8. |

**—continued—**

Procedure 3-7 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **7** | Perform a network processor data backup.<br><br>**If** you are backing up data to / **Then** go to:<br>a PC — step 8<br>an OPC — step 9<br>a UNIX workstation — step 10 |
| **8** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19<br>• 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29<br><br>Go to step 11. |
| **9** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40<br><br>Go to step 11. |
| **10** | See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24. |
| **11** | Log into Network Element A and Network Element B. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **12** | Identify the location of the head-end network element and the synchronization boundary from the Network diagram (Adding a network element to a BLSR) on page 2-95 that you have already drawn. |
| **13** | If the synchronization boundary is not between Network Element A and Network Element B, move the synchronization boundary to that span. See:<br>• Synchronization map with synchronization boundary (Adding a network element to a BLSR) on page 2-96<br>• Moving a synchronization boundary on page 2-216 |
| **14** | Log in to the new network element using a direct cable or modem connection. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **15** | Configure the line optical interfaces to BLSR mode. See 323-1059-311, Changing the protection scheme from UPSR to BLSR on page 1-10.<br><br>***Note:*** If your network is configured as a 1+1 linear configuration, you must first perform a reconfiguration from 1+1 linear to UPSR before performing this step. See Converting a 1+1 linear point-to-point configuration to a 2-node UPSR on page 2-185. |

**—continued—**

Procedure 3-7 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **16** | Provision synchronization for the new network element as follows:<br>• Externally timed if the new network element is an externally-timed head-end. See 323-1051-310, Synchronizing a network element to an external timing source on page 1-3<br>• Internally timed if the new network element is an internally-timed head-end. See 323-1051-310, Synchronizing a network element to an internal timing source on page 1-4<br>• Line-timed if the new network element is not the synchronization head-end. See 323-1051-310, Synchronizing a network element to a line-timing source on page 1-5 |
| **17** | **If** the section trace feature … **Then** go to<br>is used in this network — step 18<br>is not used in this network — step 20 |
| **18** | Set section trace fail mode to OFF for the optical interface<br>• in slot x of Network Element C<br>• in slot y of Network Element C<br>See 323-1059-520, Editing section trace messages on page 2-4. |
| **19** | Set section trace fail mode to OFF for the optical interface<br>• in slot x of Network Element A<br>• in slot y of Network Element B<br>See 323-1059-520, Editing section trace messages on page 2-4. |
| **20** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br>***Note:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during BLSR DWDM Converting and BLSR Adding / Removing NE reconfiguration on page 2-269. |
| **21** | **If** the physical OMX ring … **Then** go to<br>requires opening — step 22<br>does not require opening — step 23 |
| **22** | At the site where you will add a new network element, install an OMX+Fiber Manager 4CH equipment drawer of the required Band. See Adding an OMX to an in-service DWDM network on page 3-2. |

**—continued—**

Procedure 3-7 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **23** | Perform a manual switch on slot x of Network Element A to verify the protection line. See 323-1059-311, Operating a manual switch in a BLSR on page 1-31.<br>***Note:*** This fiber span may have a traffic hit of less than 60ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **24** | Release the manual switch on slot x of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **25** | Perform a manual switch on slot y of Network Element B to verify the protection line. See 323-1059-311, Operating a manual switch in a BLSR on page 1-31.<br>***Note:*** This fiber span may have a traffic hit of less than 60ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **26** | Perform a forced switch on slot y of Network Element B. See 323-1059-311, Operating a forced switch in a BLSR on page 1-32. |
| **27** | Perform a forced switch on slot x of Network Element A. See 323-1059-311, Operating a forced switch in a BLSR on page 1-32. |
| **28** | Change the slot x optical facility state at Network Element A to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **29** | Change the slot y optical facility state at Network Element B to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **30** | Change the slot y optical facility state at Network Element B to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |

**—continued—**

Procedure 3-7 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| 31 | **CAUTION**<br>**You may not back out of this procedure beyond this point.**<br><br>If you need to back out of this procedure, restore provisioning data to the network processor and the network elements in the span of control.<br><br>See:<br>• 323-1059-302, Restoring provisioning data from an OPC to a network processor over a TCP/IP link on page 6-42<br>• 323-1059-302, Restoring provisioning data from an OPC to a network processor over an OSI link on page 6-36<br>• 323-1059-302, Restoring provisioning data from a local PC to a network processor using an Ethernet connection on page 6-31<br>• 323-1059-302, Restoring provisioning data from a UNIX workstation to a network processor on page 6-26<br>• 323-1059-302, Restoring provisioning data to a network processor from a remote PC that has an FTP server running on page 6-21<br>• 323-1059-302, Restoring provisioning data from a network processor to a shelf processor on page 6-10<br>• 323-1059-302, Restoring provisioning data from a local PC to a shelf processor on page 6-5<br><br>***Note:*** If you restored provisioning data, then you have completed this procedure.<br><br>**—continued—** |

Procedure 3-7 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **32** | At Network Element C, measure the Transmit (Tx) power of the optical interface circuit packs in slot x and slot y. See:<br>• 323-1059-222, Testing the power at the optical interface Tx port on page 2-8<br>• Optical interface specifications on page 2-265<br>***Note 1:*** The values obtained from the test must comply with the Launch power minimum values found in the interface specifications table for the optical interface.<br>***Note 2:*** At this point, if needed and if the required OMX ports are available, it is possible to replace the OC-48 optical interfaces on slot x at Network Element A, slot y at Network Element B, and slot x or slot y at Network Element C. However, ensure the OC-48 optical interfaces on slot x of Network Element A and slot y of Network Element C are using the same wavelength. The slot y of Network Element B and slot x of Network Element C must also use the same wavelength. |
| **33** | On Network Element C, connect the Tx fiber from the OC-48 DWDM circuit pack in slot 11 to the required ADD port on the clockwise-bound OMX of the required band. See OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31.<br>***Note:*** To do this, you will first need to remove the required channel pass-through fibers between the OMX equipment drawers. |
| **34** | On Network Element C, connect the Tx fiber from the OC-48 DWDM circuit pack in slot 12 to the required ADD port on the counter-clockwise-bound OMX of the required band. See OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31.<br>***Note:*** To do this, you will first need to remove the required channel pass-through fibers between the OMX equipment drawers. |
| **35** | Measure the Received (Rx) input power of the optical interface circuit packs in Network Elements A, B, and C. 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>***Note:*** The value obtained from the test must be above the Receive sensitivity (min) value for the given unit and must not exceed the overload value found in the interface specifications table for the optical interface. |
| **36** | On Network Element C, connect the Rx fiber from the OC-48 DWDM circuit pack in slot 11 to the required DROP port on the clockwise-bound OMX of the required band. See OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31. |
| **37** | On Network Element C, connect the Rx fiber from the OC-48 DWDM circuit pack in slot 12 to the required DROP port on the counter-clockwise-bound OMX of the required band. See OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31. |

**—continued—**

Procedure 3-7 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **38** | Change the slot x optical facility state at Network Element A to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **39** | Change the slot y optical facility state at Network Element B to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **40** | In Site Manager, at the terminal you are using to connect to the network processor, add Network Element C to the NPx span of control. See 323-1059-520, Adding a network element to the span of control of a network processor on page 4-3. |
| **41** | At the terminal you are using to connect (by direct connection or modem) to Network Element C, select Disconnect in the File menu, and click OK. |
| **42** | Log into Network Element C through the network processor. See 323-1059-302, Logging in to a network element automatically on page 2-30. |
| **43** | **If** the section trace feature — **Then** go to<br>is used in this network — step 44<br>is not used in this network — step 48 |
| **44** | Provision section trace parameters for the slot x optical facility of Network Element C according to values in the Network Element C, slot x row of the Final section trace parameters table on page 2-249. See 323-1059-520, Editing section trace messages on page 2-4. |
| **45** | Provision section trace parameters for the slot y optical facility of Network Element C according to values in the Network Element C, slot y row of the Initial section trace parameters table on page 2-249. See 323-1059-520, Editing section trace messages on page 2-4. |
| **46** | Retrieve section trace parameters for slot x at Network Element A and slot y at Network Element B. See 323-1059-520, Retrieving section trace messages on page 2-2. |
| **47** | Ensure the section trace parameters retrieved in step 46 match with the recorded section trace parameters on the Final section trace parameters table on page 2-249 for the optical interface<br>• in slot x of Network Element A<br>• in slot y of Network Element B<br>See 323-1059-520, Editing section trace messages on page 2-4. |
| **48** | Edit the BLSR ring configuration to include the new network element. See:<br>• Final BLSR configuration data table on page 2-249<br>• Editing a BLSR configuration (adding a network element) on page 2-222 |

**—continued—**

Procedure 3-7 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **49** | Add the pass-through cross-connects for Network Element C, recorded in the Network Element C cross-connects table. See:<br>• Network Element C cross-connects on page 2-252<br>• 323-1059-320, Adding a 2WAY cross-connect (BLSR networks) on page 6-13 |
| **50** | Release the forced switch on slot x of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **51** | Release the forced switch on slot y of Network Element B. See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **52** | **If** / **Then**<br>any of the optical interface circuit packs at:<br>• Network Element A, slot x<br>• Network Element B, slot y<br>• Network Element C, slot x<br>• Network Element C, slot y<br>are ER circuit packs — perform step 53 to step 63 for each of these ER circuit packs<br>none of the optical interface circuit packs at the locations listed above are ER circuit packs — go to step 64 |
| **53** | In Site Manager, select the required network element in the navigation tree. |
| **54** | Select Facility PM Thresholds in the Performance menu. |
| **55** | In the Type box, select OC-48. |
| **56** | In the Facility box, select the ER circuit pack. |
| **57** | In the Location box, select Near end. |
| **58** | In the Direction box, select Receive. |
| **59** | Click Retrieve. |
| **60** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **61** | Click Edit. |
| **62** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **63** | Click OK. |

**—continued—**

Procedure 3-7 (continued)
**Adding an OPTera Metro 3500 network element to an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **64** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **65** | Save provisioning data from each network element to the NPx. See 323-1059-302, Saving provisioning data from all shelf processors in a span of control to the network processor on page 6-13. |
| **66** | Perform a network processor data backup. |

| **If** you are backing up data to | **Then** go to |
|---|---|
| a PC | step 67 |
| an OPC | step 68 |
| a UNIX workstation | step 69 |

**67** See:

- 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19
- 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29

You have completed this procedure.

**68** See:

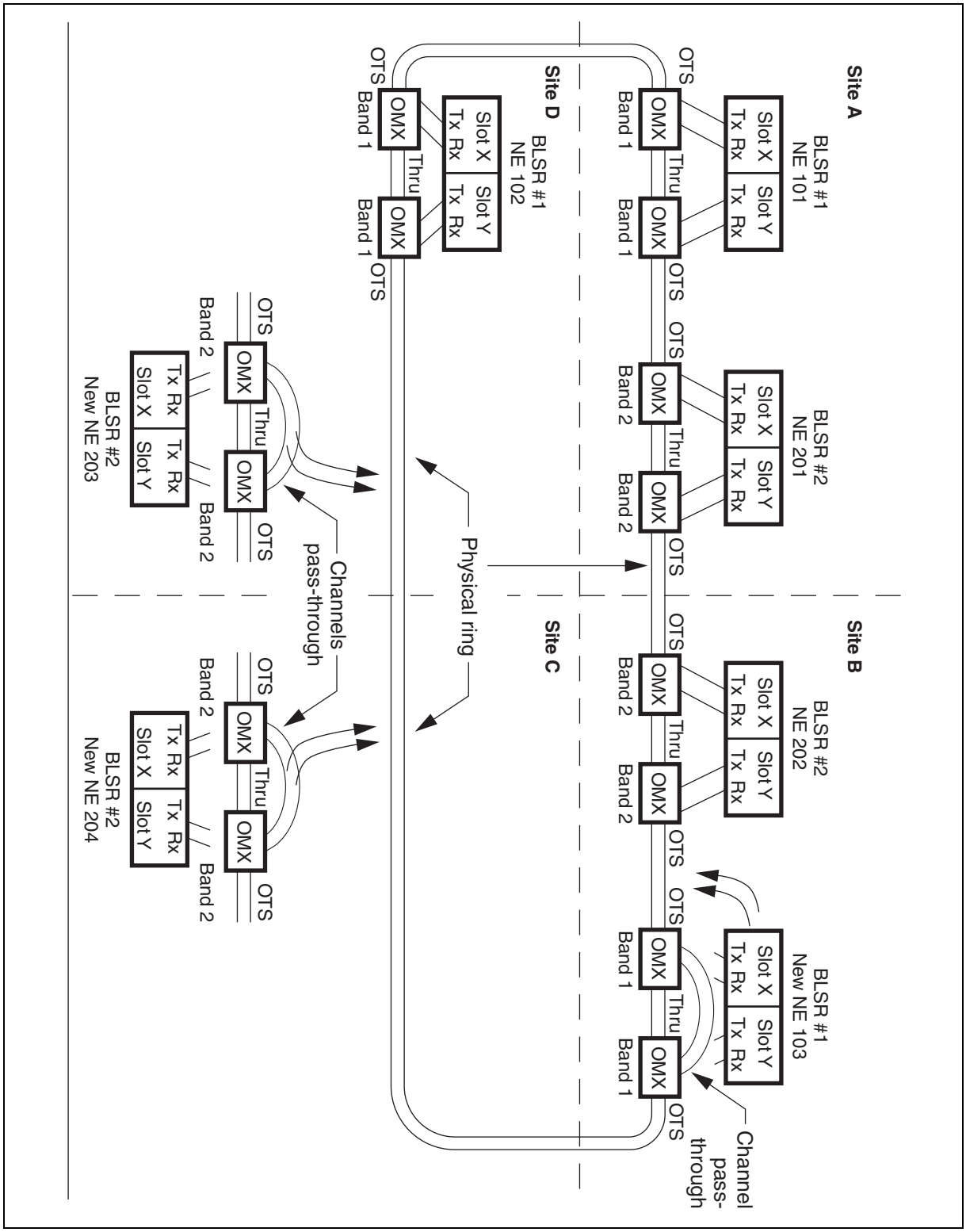
- 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34
- 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40

You have completed this procedure.

**69** See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24.

**—end—**

## Physical DWDM ring (adding a node to a BLSR) (example)



# Procedure 3-8
# Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM

Use this procedure to remove an OPTera Metro 3500 network element from a BLSR over DWDM.

***Note 1:*** This procedure applies only if all the network elements in the BLSR are OPTera Metro 3500 network elements. If one or more of the network elements is not an OPTera Metro 3500 network element, contact your next level of support or your Nortel Networks support group.

***Note 2:*** This procedure is applicable only for situations in which you do not intend to break the physical ring (connecting the OMXs).

***Note 3:*** This procedure supports the deletion of line-timed network elements. It does not support the deletion of a synchronization head-end network element. If you need to delete a head-end network element, contact your next level of support or your Nortel Networks support group.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, call your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

## Requirements

To perform this procedure, you must

- ensure you have all the required documentation referenced in this procedure
- fulfill general requirements for DWDM reconfiguration procedures. See Requirements for DWDM reconfiguration procedures on page 3-90
- ensure you have the required tools. See Tools required on page 3-91
- ensure you have the required materials. See Materials required on page 3-91
- observe all safety requirements described in Safety requirements on page 1-2
- ensure all traffic that adds and drops from the network element to be removed is deprovisioned

—continued—

Procedure 3-8 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM**

- ensure that the maximum loss (optical link budget) between the adjacent network elements (Network Elements A and B) is supported. Network Element C will be replaced by a channel pass-through. See Network diagram (Removing a network element from a BLSR) on page 2-167.

  ***Note:*** If multiple channels or bands are used, the Network diagram (Removing a network element from a BLSR) on page 2-167 represents the logical OC-48 BLSR configuration and not necessarily the physical OC-48 BLSR configuration.

- ensure that the slot x at Network Element A and slot y at Network Element B optical facilities are using the same channel (wavelength). If not, one or both OC-48 optical circuit packs will need to be replaced (these two facilities' wavelengths must match). In this case, ensure that the required replacement OC-48 optical circuit pack and corresponding OMX ports are available at Network Element A and/or Network Element B locations.

  ***Note:*** The circuit pack replacement process is covered in this procedure.

| Step | Action |
|---|---|
| 1 | Make a copy of the network diagram and customize it so it matches your BLSR. See Network diagram (Removing a network element from a BLSR) on page 2-167.<br>***Note:*** Match the network element you will remove to NE C in the logical BLSR diagram. |
| 2 | Record network and nodal information. See Recording information (Removing a network element from a BLSR) on page 2-244. |
| 3 | Log into the network processor. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| 4 | Perform a network element data backup to the network processor for all network elements in the NPx Span of Control. See 323-1059-302, Saving provisioning data from a shelf processor to a network processor on page 6-8. |
| 5 | Perform a network processor data backup.<br>**If** you are backing up data to — **Then** go to:<br>a PC — step 6<br>an OPC — step 7<br>a UNIX workstation — step 8 |

—continued—

Procedure 3-8 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **6** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19, or<br>• 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29.<br>Go to step 9. |
| **7** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34, or<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40.<br>Go to step 9. |
| **8** | See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24. |
| **9** | Log into Network Element A, Network Element B and Network Element C. See 323-1059-302, Procedures for interface login and logout on page 2-1. |
| **10** | Identify the location of the head-end network element and the synchronization boundary from the Network diagram (Removing a network element from a BLSR) on page 2-167 that you have already drawn. |
| **11** | If the synchronization boundary is not between<br>• Network Element A and C, or<br>• Network Element B and C,<br>move the synchronization boundary to one of these spans.<br>See:<br>• Synchronization map with synchronization boundary (Removing a network element from a BLSR) on page 2-168<br>• Moving a synchronization boundary on page 2-216. |
| **12** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3.<br>***Note:*** Depending on the facility and timing provisioned, several alarms in the Alarms table are raised temporarily in the network throughout the course of the procedure. See Alarms observed during BLSR DWDM Converting and BLSR Adding / Removing NE reconfiguration on page 2-269. |
| **13** | If the network element to be removed is equipped with a network processor, relocate the network processor to another shelf. See Relocating the network processor on page 2-221. |
| **14** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |

**—continued—**

Procedure 3-8 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **15** | **If** the section trace feature **Then** go to<br>**is** used in this network step 16<br>**is not** used in this network step 17 |
| **16** | Set section trace fail mode to OFF for the optical interface<br>• in slot x of Network Element A.<br>• in slot y of Network Element B.<br>See 323-1059-520, Editing section trace messages on page 2-4. |
| **17** | Perform a manual switch on slot x of Network Element A to verify the protection line. See 323-1059-311, Operating a manual switch in a BLSR on page 1-31.<br>***Note:*** This fiber span may have a traffic hit of less than 50ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **18** | Release the manual switch on slot x of Network Element A.<br>See 323-1059-311, Releasing an optical line switch on page 1-30. |
| **19** | Perform a manual switch on slot y of Network Element B to verify the protection line. See 323-1059-311, Operating a manual switch in a BLSR on page 1-31.<br>***Note:*** This fiber span may have a traffic hit of less than 50ms.<br>If traffic switches back autonomously to the working path, contact your next level of support or your Nortel Networks support group. |
| **20** | Perform a forced switch on the slot y optical interface circuit pack of Network Element B. See 323-1059-311, Operating a forced switch in a BLSR on page 1-32. |
| **21** | Perform a forced switch on the slot x optical interface circuit pack of Network Element A. See 323-1059-311, Operating a forced switch in a BLSR on page 1-32. |
| **22** | Change the slot x optical facility state at Network Element A to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **23** | Change the slot y optical facility state at Network Element B to out-of-service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **24** | Delete all pass-through cross-connects on Network Element C. See 323-1059-320, Deleting a cross-connect on page 6-4.<br>***Note:*** Network Element C must not have any cross-connects. |

**—continued—**

Procedure 3-8 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **25** | Edit the BLSR configuration so that it does not include the network element to be removed. See:<br>• Final BLSR configuration data table on page 2-249<br>• Editing a BLSR configuration (removing a network element) on page 2-225 |
| **26** | **CAUTION**<br>**Risk of traffic loss**<br>You must restore the provisioning data at Network Element C first, or else a traffic loss will occur.<br><br>**CAUTION**<br>**You may not back out of this procedure beyond this point**<br><br>If you need to back out of this procedure, restore provisioning data to the network processor and the network elements in the span of control. See:<br>• 323-1059-302, Restoring provisioning data from an OPC to a network processor over a TCP/IP link on page 6-42<br>• 323-1059-302, Restoring provisioning data from an OPC to a network processor over an OSI link on page 6-36<br>• 323-1059-302, Restoring provisioning data from a local PC to a network processor using an Ethernet connection on page 6-31<br>• 323-1059-302, Restoring provisioning data from a UNIX workstation to a network processor on page 6-26<br>• 323-1059-302, Restoring provisioning data to a network processor from a remote PC that has an FTP server running on page 6-21<br>• 323-1059-302, Restoring provisioning data from a network processor to a shelf processor on page 6-10<br>• 323-1059-302, Restoring provisioning data from a local PC to a shelf processor on page 6-5<br><br>***Note:*** If you restored provisioning data, then you have completed this procedure. |
| **27** | Remove Network Element C from the NPx span of control. See 323-1059-520, Removing a network element from the span of control of a network processor on page 4-6. |
| **28** | Consult the OMX with add/drop OPTera Metro 3500 shelf (example) on page 3-31 for step 29 to step 48. |

**—continued—**

Procedure 3-8 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **29** | Disconnect both fiber-optic patch cords from the slot x optical interface of network element C. |
| **30** | Disconnect the fiber-optic patch cords identified in step 29 from the ADD and DROP ports of the clockwise-bound OMX connected to the slot x optical interface of Network Element C. |
| **31** | Disconnect both fiber-optic patch cords from the slot y optical interface of network element C. |
| **32** | Disconnect the fiber-optic patch cords identified in step 31 from the ADD and DROP ports of the counter-clockwise-bound OMX connected to the slot y optical interface of Network Element C. |
| **33** | Take note of the slot x at Network Element A and slot y at Network Element B optical facilities wavelength. |
| **34** | **If** the slot x at Network Element A and slot y at Network Element B optical facilities **Then** go to<br>are using the same channel (wavelength) — step 44<br>are not using the same channel (wavelength) — step 35 |
| **35** | Verify if the channel used by slot y at Network Element B is available on the OMX connected to the slot x at Network Element A optical facilitiy. Also verify if the channel used by slot x at Network Element A is available on the OMX connected to the slot y at Network Element B optical facility. |
| **36** | **If** both channels **Then** go to<br>are already in use — step 37<br>are not already in use — step 41 |
| **37** | Replace slot x at Network Element A and slot y at Network Element B OC-48 circuit packs with new OC-48 circuit packs of the same wavelength.<br>***Note:*** Ensure that the corresponding OMX ports are available. |
| **38** | Connect the slot x at Network Element A OC-48 circuit pack to the corresponding OMX port. |
| **39** | Connect the slot y at Network Element B OC-48 circuit pack to the corresponding OMX port. |
| **40** | Take note of the slot x at Network Element A to slot y at Network Element B new BLSR link wavelength. |
| **41** | Replace the slot x at Network Element A or slot y at Network Element B OC-48 circuit pack with a new OC-48 circuit pack.<br>***Note 1:*** Ensure the circuit pack in slot x at Network Element A employs the same wavelength as the circuit pack in slot y at Network Element B.<br>***Note 2:*** Ensure that the corresponding OMX ports are available. |

**—continued—**

Procedure 3-8 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **42** | Connect the new OC-48 circuit pack to the corresponding OMX port. |
| **43** | Take note of the slot x at Network Element A to slot y at Network Element B new BLSR link wavelength. |
| **44** | At the site of Network Element C, connect a fiber patch cord between the DROP port (of the channel used by this BLSR link) on the clockwise-bound OMX, and the ADD port (of the channel used by this BLSR link) on the counter-clockwise-bound OMX. See inset of Partial DWDM ring configuration (with band and channel pass-through OMX installed at Site 3) on page 3-8. |
| **45** | At the site of Network Element C, connect a fiber patch cord between the ADD port (of the channel used by this BLSR link) on the clockwise-bound OMX, and the DROP port (of the channel used by this BLSR link) on the counter-clockwise-bound OMX. See inset of Partial DWDM ring configuration (with band and channel pass-through OMX installed at Site 3) on page 3-8. |
| **46** | **CAUTION**<br>**Risk of damaging equipment**<br>Ensure the received input power of the OC-48 optical interface does not exceed the overload value of -9 dBm for DWDM OC-48 circuit packs. Otherwise, the equipment will be damaged. A variable optical attenuator or a fixed attenuator must be installed for each instance where the received power level exceeds the overload level. |
| **47** | Measure the Received input power of the optical interface circuit packs in network elements A and B.<br>See:<br>• 323-1059-222, Testing the power at the optical interface Rx port on page 2-10.<br>• Optical interface specifications on page 2-265.<br>***Note:*** The value obtained from the test must comply with the Receive sensitivity (min) value for the found in the interface specifications table for the optical interface. |
| **48** | Verify the receiving power of slot x at Network Element A and slot y at Network Element B. The receiving power should be between -9 dBm and -29 dBm.<br>***Note:*** Ensure the OMX equipment drawers are of the required band. |
| **49** | **If** the section trace feature — **Then** go to<br>**is** used in this network — step 50<br>**is not** used in this network — step 51 |

**—continued—**

Procedure 3-8 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **50** | Reprovision the section trace parameters that were recorded in the Final section trace parameters table on page 2-249 for network elements A and B. See 323-1059-520, Editing section trace messages on page 2-4.<br>***Note 1:*** Ensure that slot x at Network Element A transmitted values equal slot y at Network Element B expected values.<br>***Note 2:*** Ensure that slot x at Network Element A expected values equal slot y at Network Element B transmitted values. |
| **51** | Change the slot x optical facility state at Network Element A to in-service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **52** | Change the slot y optical facility state at Network Element B to in service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **53** | Release the forced switch on the slot x optical interface circuit pack of Network Element A. See 323-1059-311, Releasing an optical line switch on page 1-30.<br>***Note:*** This fiber span may have a traffic hit of less than 60 ms. |
| **54** | Release the forced switch on the slot y optical interface circuit pack of Network Element B. See 323-1059-311, Releasing an optical line switch on page 1-30.<br>***Note:*** This fiber span may have a traffic hit of less than 60 ms. |
| **55** | **If** / **Then**<br>any of the optical interface circuit packs at:<br>• Network Element A, slot x<br>• Network Element B, slot y<br>are ER circuit packs / perform step 56 to step 66 for each of these ER circuit packs<br>none of the optical interface circuit packs at the locations listed above are ER circuit packs / go to step 67 |
| **56** | In Site Manager, select the required network element in the navigation tree. |
| **57** | Select Facility PM Thresholds in the Performance menu. |
| **58** | In the Type box, select OC-48. |
| **59** | In the Facility box, select the circuit pack identified in step 55. |
| **60** | In the Location box, select Near end. |
| **61** | In the Direction box, select Receive. |
| **62** | Click Retrieve. |
| **63** | In the Monitor Type column of the PM Thresholds list, select OPR. |
| **64** | Click Edit. |

**—continued—**

Procedure 3-8 (continued)
**Removing an OPTera Metro 3500 network element from an OC-48 BLSR over DWDM**

| Step | Action |
|---|---|
| **65** | In the Edit Threshold Values dialog box, under Physical PM, select Reset baseline power level. |
| **66** | Click OK. |
| **67** | Check span performance at the adjacent network elements. See 323-1059-510, Procedures for facility PM counts on page 1-1. |
| **68** | Check for active alarms. See 323-1059-543, Retrieving active alarms for a network element on page 2-3. |
| **69** | Save provisioning data from all the network elements to the network processor. See 323-1059-302, Saving provisioning data from all shelf processors in a span of control to the network processor on page 6-13. |
| **70** | Perform a network processor data backup. |

| **If** you are backing up data to | **Then** go to |
|---|---|
| a PC | step 71 |
| an OPC | step 72 |
| a UNIX workstation | step 73 |

| | |
|---|---|
| **71** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to a remote PC that has an FTP server running on page 6-19, or<br>• 323-1059-302, Saving provisioning data from a network processor to a local PC using an Ethernet connection on page 6-29.<br>You have completed this procedure. |
| **72** | See:<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over an OSI link on page 6-34, or<br>• 323-1059-302, Saving provisioning data from a network processor to an OPC over a TCP/IP link on page 6-40.<br>You have completed this procedure. |
| **73** | See 323-1059-302, Saving provisioning data from a network processor to a UNIX workstation on page 6-24. |

**—end—**

# Procedure 3-9
# Removing traffic from a UPSR span

Use this procedure to switch all traffic away from a UPSR span.

***Note:*** This procedure is not a stand-alone procedure.

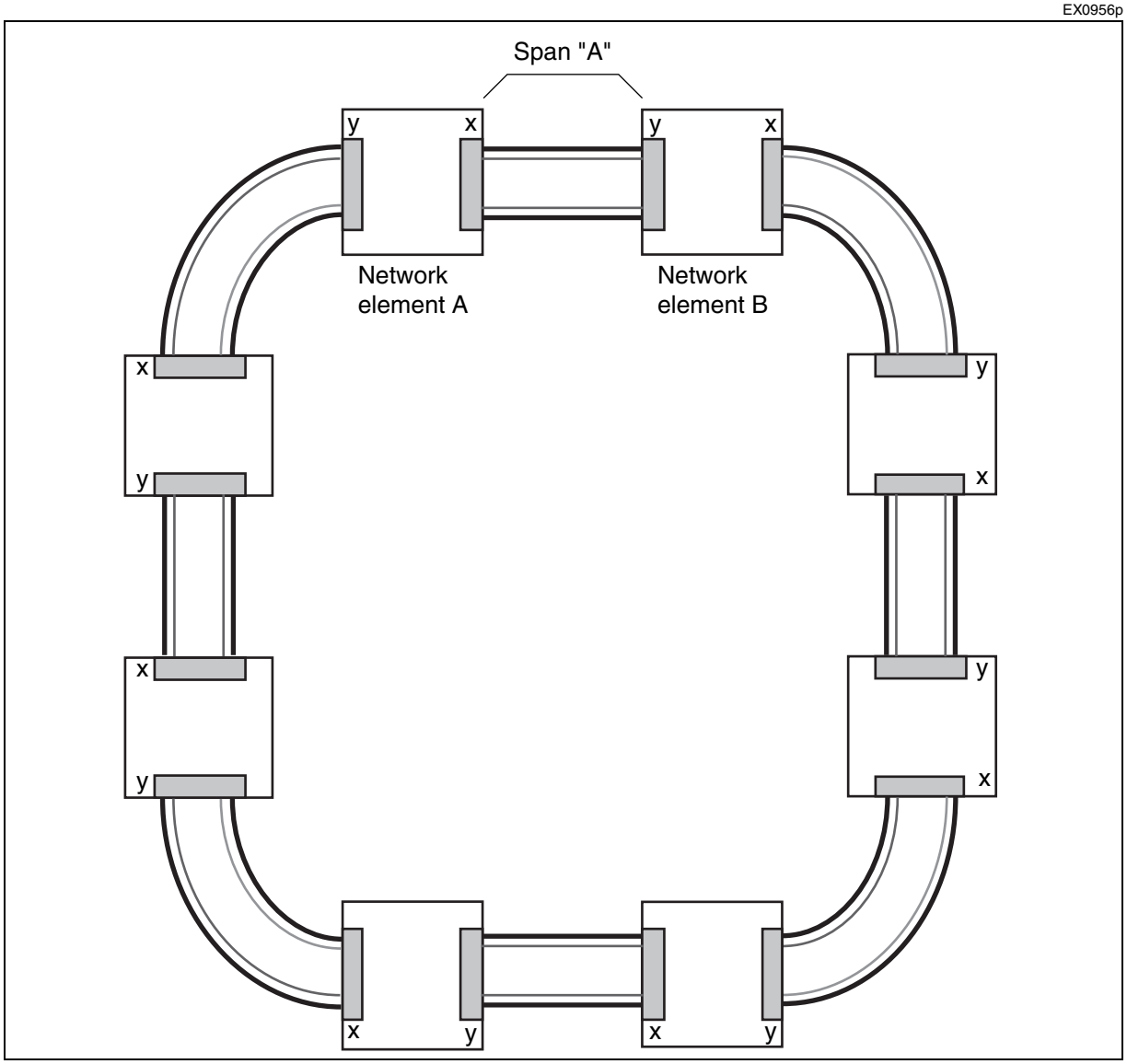
**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, call your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

| Step | Action |
|---|---|
| **1** | Consult the logical UPSR diagram. See Logical network diagram on page 3-82. |
| **2** | In your UPSR, match the span to be refitted for DWDM to Span “A” in the logical UPSR diagram. |
| **3** | Put the slot x optical facility of network element A out of service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |
| **4** | Put the slot y optical facility of network element B out of service. See 323-1059-350, Changing a facility state to Out of Service (OOS) on page 2-25. |

**—end—**

## Logical network diagram

EX0956p



# Procedure 3-10
# Restoring traffic to a UPSR span

Use this procedure to restore traffic to a UPSR span.

***Note:*** This procedure is not a stand-alone procedure.

**CAUTION**
**Risk of reconfiguration problems**
If you encounter any situation that deviates from the behaviour described in this procedure, call your next level of support or your Nortel Networks support group. Do not attempt to troubleshoot the system.

| Step | Action |
|---|---|
| **1** | Consult the logical UPSR diagram. See Logical network diagram on page 3-82. |
| **2** | In your UPSR, match the UPSR span to which you will restore traffic, to Span “A” in the logical UPSR diagram. |
| **3** | Put the slot x optical facility of network element A in service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |
| **4** | Put the slot y optical facility of network element B in service. See 323-1059-350, Changing a facility state to In Service (IS) on page 2-26. |

**—end—**

## Initial section trace parameters

| Network element, slot | Facility | Section Trace Fail Mode | Section Trace Format | Transmitted Values | Expected Values |
|---|---|---|---|---|---|
| NE A, slot x | | | | | |
| NE B, slot y | | | | | |
| NE C, slot x | | | | | |
| NE C, slot y | | | | | |

## Final section trace parameters

| Network element, slot | Facility | Section Trace Fail Mode | Section Trace Format | Transmitted Values | Expected Values |
|---|---|---|---|---|---|
| NE A, slot x | | | | | |
| NE B, slot y | | | | | |
| NE C, slot x | | | | | |
| NE C, slot y | | | | | |

## Network element A cross-connects

| From | To | Switch mate | Rate | Type |
|---|---|---|---|---|
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## Network element B cross-connects

| From | To | Switch mate | Rate | Type |
|---|---|---|---|---|
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## Network element C cross-connects

| From | To | Switch mate | Rate | Type |
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# UPSR to UPSR-over-DWDM reconfiguration worksheet

| Fiber Span # | Network element TID | DWDM OC-48 circuit pack | | | OMX equipment drawer | | Optical receive overload test | Done (√) |
|---|---|---|---|---|---|---|---|---|
| | | Channel | PEC | Slot | Band | PEC for Node1 / Node2 | | |
| Example | NE1 | 2 | | 11 | 2 | NT0H32BE | compliant | √ |
| | NE2 | 2 | | 12 | 2 | NT0H32BE | compliant | √ |
| 1 | | | | | | | | |
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| 2 | | | | | | | | |
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| 3 | | | | | | | | |
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| 10 | | | | | | | | |
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| 11 | | | | | | | | |
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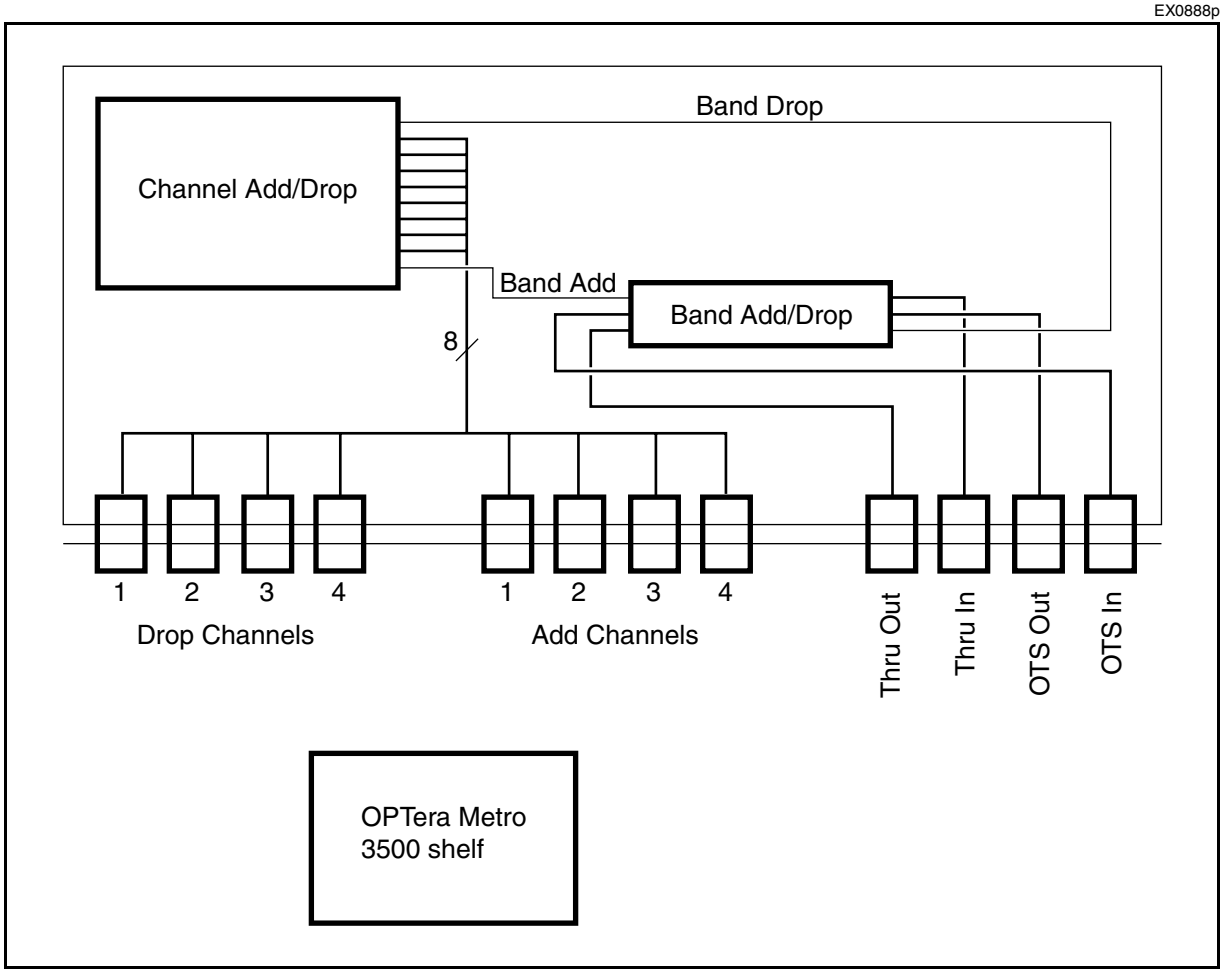
| 12 | | | | | | | | |
| | | | | | | | | |

## Functional schematic of the OMX

EX0888p



## Requirements for DWDM reconfiguration procedures

You must ensure

- you carry out site testing before you continue
- you have Site Manager Release 6 installed at all affected sites
- the OMX is or can be co-located with the OPTera Metro 3500 Multiservice Platform shelf for each network element in the reconfiguration
- the system does not have active high speed or low speed switches
- no alarms exist in any network element in the configuration and if there are alarms, clear the alarms before continuing
- there are no timing loops in the configuration
- all surveillance personnel are informed about the reconfiguration before it is started

  ***Note:*** Except for reconfiguration personnel, all other users must log out of the system.

- that all reconfiguration personnel have the TMOUT option on their user account set to N, see 323-1059-302, Changing a user account and user privilege levels on page 3-10
- that reconfiguration personnel are located at all of the affected sites
- you have a user identifier (UID) and a password identifier (PID) with a level 4 or higher user privilege code (UPC)
- you have a thorough understanding of the procedures
- you plan the complete reconfiguration in advance

## Tools required

Ensure the following tools are available before you start the reconfiguration:

| Quantity | Tool description |
|---|---|
| 1 (per person) | ESD protection |
| 1 (per site) | Fiber cleaning kit |
| 1 (per site) | Optical power meter to measure transmit output power |
| 2 (per site) | 5 dB fixed attenuator or variable optical attenuator (VOA) |
| 1 (per site) | 1/4 in. flathead screwdriver |

## Materials required

Ensure you have the following materials before you start the reconfiguration:

| Quantity | Material |
|---|---|
| 2 (per network element) | OC-48 circuit packs of the same band that support DWDM if DWDM service is required, or OC-48 circuit packs that do not support DWDM, if DWDM service is not required. |
| 4 (per network element) | Optical patch cords between the OMX patch panel and the OC-48 optical interface circuit packs on the OPTera Metro 3500 Multiservice Platform shelf.<br>The patch cords are needed when removing a node from an existing DWDM ring if the traffic in that wavelength must be passed through.<br>Patch cords are not required when converting from a DWDM ring to a UPSR. |
| 2 (per network element) | OMX equipment drawers of the same band<br>These are not needed if you are removing a node from an existing DWDM ring or converting from a DWDM ring to a UPSR. |
| 8 (per network element) | tuned SC-PC connectors<br>These are not needed if you are removing a node from an existing DWDM ring or converting from a DWDM ring to a UPSR. |
| 1 | Set of OPTera Metro 3500 Multiservice Platform Standard NTPs |

## Specific requirements for converting an OPTera Metro 3500 OC-48 ring to a DWDM ring

You must ensure

- you have an initial OPTera Metro 3500 Multiservice Platform UPSR with no more than 16 network elements
- you use the same band and wavelength for the DWDM ring
- you have the required number of OMX equipment drawers of the required band
- you have the required number of OC-48 with DWDM circuit packs that support the band and channel for all network elements that are part of the same ring system
- that each network element in the UPSR is co-located with an OMX
- the new equipment conforms to the minimum hardware baseline requirements and is running the same software release as the rest of the system
- you identify all the network elements that will use the same wavelength in the ring
- the target identifier (TID) for each network element is unique in the network
- the optical fibers are installed and tested between sites
- no alarms exist in any of the network elements in the configuration and if there are alarms, clear the alarms before continuing

## Specific requirements for adding a network element to a DWDM ring

You must ensure

- you have an initial DWDM ring configuration with a maximum of 12 OPTera Metro 3500 Multiservice Platform network elements per wavelength
- you select a wavelength inside an existing band
- you install the new node at a site that does not use the selected wavelength
- the new network element to be added has been installed, commissioned, and site tested
- the OC-48 circuit packs support:
  - DWDM functionality
  - the band of the OMX
  - the required wavelengths for your logical configuration
- ensure the on-site OMX equipment drawers are of the same band present in the existing ring
- the new equipment conforms to the minimum hardware baseline requirements and the OPTera Metro 3500 shelf is running the same software release as the rest of the system
- you identify all the network elements that will use the same wavelength in the ring
- the cabling from an external clock to the new node is in place (if required)
- the target identifier (TID) for the new network element is unique in the network

## Specific requirements for removing a network element from a DWDM ring

You must ensure

- you have an initial DWDM ring configuration with a maximum of 12 OPTera Metro 3500 Multiservice Platform network elements per wavelength
- the node to be deleted is not equipped with a network processor
- the node to be deleted allows traffic pass-through for the required wavelengths, otherwise, a traffic loss will occur
- no traffic originates or terminates at the node to be deleted
- the fiber optic cables are in place but not connected before you start the procedure
- the node to be deleted does not provide BITS output to the BITS clock or to other digital equipment that accepts a BITS signal
- you identify all the network elements that use the same wavelength in the ring
- there are no end-to-end DS1, DS3, or STS-3c services using DS1 or DS3 ports on the network element to be removed
- you plan all the removal tasks in advance

  ***Note:*** If the node to be deleted is not in the same location, one person in the field must be present at each network element (A, B, and C).

Nortel Networks

# OPTera Metro 3500 Multiservice Platform

System Reconfiguration

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