



Upgrade, Add, and Remove Cards and Nodes



Note

The terms "Unidirectional Path Switched Ring" and "UPSR" may appear in Cisco literature. These terms do not refer to using Cisco ONS 15xxx products in a unidirectional path switched ring configuration. Rather, these terms, as well as "Path Protected Mesh Network" and "PPMN," refer generally to Cisco's path protection feature, which may be used in any topological network configuration. Cisco does not recommend using its path protection feature in any particular topological network configuration.

This chapter provides procedures for adding and removing dense wavelength division multiplexing (DWDM) cards and nodes.



Note

Unless otherwise specified, "ONS 15454" refers to both ANSI and ETSI shelf assemblies.

Before You Begin

Before performing any of the following procedures, investigate all alarms and clear any trouble conditions. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* as necessary for general troubleshooting information and alarm or error descriptions.

This section lists the chapter procedures (NTPs). Turn to a procedure to view its tasks (DLPs).

1. [NTP-G107 Remove Permanently or Remove and Replace DWDM Cards, page 12-2](#)—Complete as needed.
2. [NTP-G127 Add an AD-xC-xx.x Card to an OADM Node, page 12-5](#)—Complete as needed.
3. [NTP-G129 Add a DWDM Node, page 12-9](#)—Complete as needed.
4. [NTP-G130 Remove a DWDM Node, page 12-11](#)—Complete as needed.
5. [NTP-G146 Add a Rack and/or Shelf to a Multishelf Node, page 12-13](#)—Complete as needed.
6. [NTP-G147 Delete a Shelf and/or Rack from a Multishelf Node, page 12-14](#)—Complete as needed.
7. [NTP-G173 Convert an OADM Node to a ROADM Node, page 12-16](#)—Complete as needed.
8. [NTP-G176 Convert an Line Amplifier Node to an OADM Node, page 12-19](#)—Complete as needed.
9. [NTP-G182 Convert a Line Amplifier Node to a ROADM Node, page 12-20](#)—Complete as needed.
10. [NTP-G195 Convert a Protected ROADM Node from two Separate Nodes to a Single Multishelf Node, page 12-22](#)—Complete as needed.
11. [NTP-G177 Upgrade ANS Parameters on a DWDM Node, page 12-29](#)—Complete as needed.

NTP-G107 Remove Permanently or Remove and Replace DWDM Cards

Purpose	This procedure permanently removes or removes and replaces DWDM cards installed in the ONS 15454 shelf and rack.
Tools/Equipment	None
Prerequisite Procedures	NTP-G30 Install the DWDM Cards, page 3-49 NTP-G179 Install the TXP, MXP, GE_XP, 10GE_XP, and ADM-10G Cards, page 3-54
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher

**Caution**

Removing and replacing cards can be traffic affecting.

**Caution**

Do not use this procedure to replace a TCC2 or TCC2P card.

Step 1 Complete the [“DLP-G46 Log into CTC” task on page 2-27](#).

**Note**

If you cannot log into Cisco Transport Controller (CTC) and you need to remove a card, remove the card as described in [Step 6](#). After you log into CTC, troubleshoot the mismatched equipment alarm (MEA) with the *Cisco ONS 15454 DWDM Troubleshooting Guide*.

Step 2 Click the **Alarms** tab.

- a. Verify that the alarm filter is not on. See the [“DLP-G128 Disable Alarm Filtering” task on page 9-29](#) as necessary.
- b. Verify that no unexplained alarms appear on the network. If alarms appear, investigate and resolve them before continuing. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Step 3 If you are removing and replacing a card, go to [Step 5](#).

Step 4 If you are permanently removing a card, go to [Step 11](#).

Step 5 To remove and replace a card, complete the following tasks, as needed:

- The circuits traversing through the card that needs to be replaced (for example, an amplifier) need to be protection switched. For instance, if the card you want to replace is an active transponder (TXP) or muxponder (MXP) in a Y-cable protection group, complete the [“DLP-G179 Apply a Force Y-Cable or Splitter Protection Switch” task on page 10-42](#) to force traffic away from the TXP or MXP that you will remove. If the card you want to replace is the standby TXP or MXP in a Y-cable protection group, complete the [“DLP-G182 Apply a Lockout” task on page 10-44](#) to prevent traffic from switching to the TXP or MXP that you will remove. See the *Cisco ONS 15454 Procedure Guide* or the *Cisco ONS 15454 SDH Procedure Guide* for other types of protection switching path protection, BLSR, optical, and electrical).

- If the card is used as a node timing reference, complete the [“NTP-G112 Change the Node Timing Reference” procedure on page 13-18](#) to change the timing reference to a card that will not be removed.
- If the card is an OSCM or OSC-CSM with an optical service channel (OSC) or TXP, MXP, GE_XP, 10GE_XP, and ADM-10G cards with generic communications channel (GCC) termination, complete the [“NTP-G85 Modify or Delete OSC Terminations, DCC/GCC Terminations, and Provisionable Patchcords” procedure on page 10-46](#) to delete the termination and recreate it on a card that will not be removed.



Note If you delete a card in CTC but do not remove it from the shelf, it will reboot and reappear in CTC.

- Step 6** Physically remove the card:
- Disconnect any cables.
 - Open the card latches/ejectors.
 - Use the latches/ejectors to pull the card forward and away from the shelf.
- Step 7** Insert the new card using one of the following procedures as applicable:
- [NTP-G30 Install the DWDM Cards, page 3-49](#)
 - [NTP-G179 Install the TXP, MXP, GE_XP, 10GE_XP, and ADM-10G Cards, page 3-54](#)
- Step 8** Complete the [“NTP-G34 Install Fiber-Optic Cables on DWDM Cards and DCUs” procedure on page 3-60](#).
- Step 9** Complete the following tasks or procedures, as needed:
- If you switched a Y-cable protection group in [Step 5](#), complete the [“DLP-G180 Clear a Manual or Force Y-Cable or Splitter Protection Switch” task on page 10-43](#).
 - If you switched the timing reference in [Step 5](#), complete the [“NTP-G112 Change the Node Timing Reference” procedure on page 13-18](#) to change the reference back to the new card.
 - If you deleted an OSC or GCC termination in [Step 5](#), complete the [“NTP-G38 Provision OSC Terminations” procedure on page 3-97](#) or the [“DLP-G76 Provision DCC/GCC Terminations” task on page 7-59](#).
- Step 10** Go to [Step 13](#).
- Step 11** To permanently remove a card, complete the following tasks:
- Delete the circuits associated with the card being removed. Complete the [“DLP-G106 Delete Optical Channel Network Connections” task on page 7-23](#), the [“DLP-G347 Delete Optical Channel Client Connections” task on page 7-10](#), or the [“DLP-G418 Delete an Optical Channel Trail” task on page 7-18](#) as needed.
 - Physically remove the card:
 - Disconnect any cables.
 - Open the card latches/ejectors.
 - Use the latches/ejectors to pull the card forward and away from the shelf.
- Step 12** If the card you are removing is an OSCM, OSC-CSM, DWDM Amplifier, or Filter card, complete the following tasks; otherwise, go to [Step 13](#).

- Reconfigure the circuits (OCHCC, OCHNC, Trails) as needed. Complete the “[DLP-G105 Provision Optical Channel Network Connections](#)” task on page 7-21, the “[DLP-G346 Provision Optical Channel Client Connections](#)” task on page 7-4, or the “[DLP-G395 Create an Optical Channel Trail](#)” task on page 7-16.
- Reload ANS provisioning. Complete the “[NTP-G143 Import the Cisco MetroPlanner NE Update Configuration File](#)” task on page 3-42.
- Relaunch ANS. Complete the “[NTP-G37 Run Automatic Node Setup](#)” task on page 3-99.

Step 13 Click the **Alarms** tab.

- Verify that the alarm filter is not on. See the “[DLP-G128 Disable Alarm Filtering](#)” task on page 9-29 as necessary.
- Verify that no unexplained alarms appear on the network. If alarms appear, investigate and resolve them. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for procedures.

Stop. You have completed this procedure.

DLP-G254 Place Amplifier Ports Out of Service

Purpose	This task places OPT-BST, OPT-BST-E, OPT-BST-L, OPT-PRE, OPT-AMP-L, or OPT-AMP-17-C card ports out of service in preparation for card removal.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC , page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

- Step 1** On the shelf graphic in CTC, double-click the OPT-BST, OPT-BST-E, OPT-BST-L, OPT-PRE, OPT-AMP-L, or OPT-AMP-17-C card with the ports that you want to put out of service.
 - Step 2** Click the **Provisioning > Optical Line > Parameters** tabs.
 - Step 3** In the Admin State column for the card’s ports, choose **OOS,MT** (ANSI) or **Locked,disabled** (ETSI) for each port that does not have an OOS-MA,DSBLD or Locked-enabled,disabled service state.
 - Step 4** Click **Apply**.
 - Step 5** In the confirmation dialog box, click **Yes**.
 - Step 6** Click the **Provisioning > Opt Apli Line > Parameters** tabs.
 - Step 7** In the Admin State column for the card’s ports, choose **OOS,MT** or **IS,AINS** (ANSI) or **Locked,maintenance** or **unlocked,automaticinservice** (ETSI) for each port that does not have an OOS-MA,DSBLD or Locked,disabled service state.
 - Step 8** Click **Apply**.
 - Step 9** In the confirmation dialog box, click **Yes**.
 - Step 10** Return to your originating procedure (NTP).
-

DLP-G318 Place Amplifier Ports In Service

Purpose	This task places OPT-BST, OPT-BST-E, OPT-BST-L, OPT-PRE, OPT-AMP-L or OPT-AMP-17-C card ports in service.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

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- Step 1** On the shelf graphic in CTC, double-click the OPT-BST, OPT-BST-E, OPT-BST-L, OPT-PRE, OPT-AMP-L, or OPT-AMP-17-C card with the ports that you want to put in service.
- Step 2** Click the **Provisioning > Optical Line > Parameters** tabs.
- Step 3** In the Admin State column for the card's ports, choose **IS,AINS** (ANSI) or **Unlocked-automaticInService** (ETSI) for Port 1 (COM-RX) of the OPT-PRE card (or OPT-AMP-L or OPT-AMP-17-C cards provisioned in OPT-PRE mode), or Port 2 (OSC-RX) and Port 3 (COM-TX) of the OPT-BST, OPT-BST-E, or OPT-BST-L cards (or OPT-AMP-L or OPT-AMP-17-C cards provisioned in OPT-LINE mode).
- Step 4** Click **Apply**.
- Step 5** In the confirmation dialog box, click **Yes**.
- Step 6** Return to your originating procedure (NTP).
-

NTP-G127 Add an AD-xC-xx.x Card to an OADM Node

Purpose	This procedure adds an AD-xC-xx.x card to an optical add/drop multiplexing (OADM) node.
Tools/Equipment	None
Prerequisite Procedures	Chapter 6, "Turn Up a Network" A Cisco MetroPlanner OADM site plan recalculated for the new OADM card
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher



Note

Do not begin this procedure until the Cisco MetroPlanner site plan has been recalculated with the new AD-xC-xx.x card added to the OADM node.



Caution

This procedure will affect the service of unprotected circuits that pass through the OADM node.

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- Step 1** Complete the “[DLP-G46 Log into CTC](#)” task on page 2-27 at a node in the OADM network.
- Step 2** In node view (single-shelf mode) or multishelf view (multishelf mode), display the OADM node where you will add the card.
- Step 3** Click the **Circuits** tab.
- Step 4** Make a list of all optical channel network connections (OCHNCs) and/or optical channel client connections (OCHCCs) that are carried on the express path for both the Side B-to-Side A and Side A-to-Side B directions.
- Step 5** For OCHNCs and/or OCHCCs identified in [Step 4](#) that are routed on the active path of a splitter or Y-cable protection group, force the traffic to the protect path in the opposite side of the ring using the “[DLP-G179 Apply a Force Y-Cable or Splitter Protection Switch](#)” task on page 10-42.
- Step 6** Click the **Circuits** tab.
- Step 7** Complete the following steps for all OCHNCs and/or OCHCCs carried on the express path that were identified in [Step 4](#):
- Choose the OCHNC or OCHCC circuit(s) and click **Edit**. (To choose multiple circuits, press the Shift key while you click the circuits.)
 - In the Edit Circuit dialog box, click the **State** tab.
 - In the State field on the right, choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the drop-down list.
 - Click **Apply**.
 - Repeat Steps [a](#) through [d](#) for each OCHNC or OCHCC circuit.
- Step 8** From the Tools menu, choose **Open TL1 Connection**.
- Step 9** In the Select Node dialog box, choose the OADM node where you will add the AD-xC-xx.x card and click **OK**.
- Step 10** In the TL1 dialog box, use the **DLT-OCHNC** command to delete the OCHNC cross-connects for the express path OCHNC listed in [Step 4](#), using the following format:
- ```
DLT-OCHNC:[<TID>]:<SRC>,<DST>:<CTAG>:::[CKTID=<CKTID>],[CMDMDE=<CMDMDE>];
```
- where:
- <SRC> is the access identifier from the Channel section in a two-way wavelength.
  - <DST> is the destination access identifier from the LINEWL section in a two-way wavelength.
  - <CKTID> is the cross-connect ID. The default is Blank or None. CKTD is a string of ASCII characters. The maximum length is 48. If CKTID is empty or null, the CKTID field will not be displayed.
  - <CMDMDE> is the command execution mode. NORM mode is the default behavior for all commands but you can specify FRCD to force the system to override a state in which the command would normally be denied.
- For additional information, including valid command values, refer to the *Cisco ONS SONET TL1 Command Guide* or the *Cisco ONS 15454 SDH and Cisco ONS 15600 SDH TL1 Command Guide*.
- Step 11** In the TL1 dialog box, use the **DLT-OCHCC** command to delete the OCHCC cross-connects for the express path OCHCC listed in [Step 4](#), using the following format:
- ```
DLT-OCHCC:[<TID>]:<AID>:<CTAG>:::[CKTID=<CKTID>],[CMDMDE=<CMDMDE>];
```
- where:
- <AID> is the access identifier from the Channel section i in a two-way wavelength.

- <CKTID> is the cross-connect ID. The default is Blank or None. CKTD is a string of ASCII characters. The maximum length is 48. If CKTID is empty or null, the CKTID field will not be displayed.
- <CMDMDE> is the command execution mode. NORM mode is the default behavior for all commands but you can specify FRCD to force the system to override a state in which the command would normally be denied.

For additional information, including valid command values, refer to the *Cisco ONS SONET TL1 Command Guide* or the *Cisco ONS 15454 SDH and Cisco ONS 15600 SDH TL1 Command Guide*.

- Step 12** Click **Close** to close the TL1 dialog box.
- Step 13** In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Internal Patchcords** tabs.
- Step 14** Highlight the two express connections that carry the deleted circuits passing through the node. (The express connections are the only ones connecting an EXP_TX port on the last Side A OADM card, with an EXP_RX port on the first Side B OADM card.)
- Step 15** Click **Delete**.
- Step 16** Remove the physical express cables between the EXP_TX and EXP_RX ports specified in [Step 14](#).
- Step 17** Insert the new AD-xC-xx.x card in the slot identified by your Cisco MetroPlanner site plan.
- Step 18** Complete the “[NTP-G34 Install Fiber-Optic Cables on DWDM Cards and DCUs](#)” procedure on [page 3-60](#) for the OADM node, following the new internal connections table generated by Cisco MetroPlanner.
- Step 19** Complete the “[NTP-G152 Create and Verify Internal Patchcords](#)” procedure on [page 3-91](#).
- Step 20** Import the recalculated OADM site parameters. See the “[NTP-G143 Import the Cisco MetroPlanner NE Update Configuration File](#)” task on [page 3-42](#).
- Step 21** In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Port Status** tabs.
- Step 22** Click **Launch ANS**.
- Step 23** From the Tools menu, choose **Open TL1 Connection**.
- Step 24** In the Select Node dialog box, choose the OADM node and click **OK**.
- Step 25** In the TL1 dialog box, use the **DLT-OCHNC** command to delete the OCHNC cross-connects for the express path OCHNC listed in [Step 14](#), using the following format:

```
DLT-OCHNC:[<TID>]:<SRC>,<DST>:<CTAG>:::[CKTID=<CKTID>],[CMDMDE=<CMDMDE>];
```

where:

- <SRC> is the access identifier from the Channel section in a two-way wavelength.
- <DST> is the destination access identifier from the LINEWL section in a two-way wavelength.
- <CKTID> is the cross-connect ID. The default is Blank or None. CKTD is a string of ASCII characters. The maximum length is 48. If CKTID is empty or null, the CKTID field will not be displayed.
- <CMDMDE> is the command execution mode. NORM mode is the default behavior for all commands but you can specify FRCD to force the system to override a state in which the command would normally be denied.

For additional information, including valid command values, refer to the *Cisco ONS SONET TL1 Command Guide* or the *Cisco ONS 15454 SDH and Cisco ONS 15600 SDH TL1 Command Guide*.

Step 26 In the TL1 dialog box, use the **DLT-OCHCC** command to delete the OCHCC cross-connects for the express path OCHCC listed in [Step 14](#), using the following format:

DLT-OCHCC:[<TID>]:<AID>:<CTAG>[:<CKTID>], [CMDMDE=<CMDMDE>]

where:

- <AID> is the access identifier from the Channel section.
- <CKTID> is the cross-connect ID. The default is Blank or None. CKTID is a string of ASCII characters. The maximum length is 48. If CKTID is empty or null, the CKTID field will not be displayed.
- <CMDMDE> is the command execution mode. NORM mode is the default behavior for all commands but you can specify FRCD to force the system to override a state in which the command would normally be denied.
- <PST> is the Primary state, which indicates the current overall service condition of an entity. The default is IS (in service).
- <SST> is the Secondary state, which provides additional information pertaining to PST and PSTQ. The default is AINS.

For additional information, including valid command values, refer to the *Cisco ONS SONET TL1 Command Guide* or the *Cisco ONS 15454 SDH and Cisco ONS 15600 SDH TL1 Command Guide*.

Step 27 Click **Close** to close the TL1 dialog box.

Step 28 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Circuits** tab.

Step 29 Complete the following steps for all OCHNCs and/or OCHCCs set to OOS,DSBLD (ANSI) or Locked,disabled (ETSI) in [Step 7](#):

- a. Choose the OCHNC or OCHCC circuit(s) and click **Edit**. To choose multiple circuits, press the Shift key while you click the circuits.
- b. In the Edit Circuit dialog box, click the **State** tab.
- c. In the State field on the right, choose **IS,AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) from the drop-down list.
- d. Click **Apply**, and then click **OK**.

Step 30 Complete the “[DLP-G180 Clear a Manual or Force Y-Cable or Splitter Protection Switch](#)” task on [page 10-43](#) for OCHNCs and/or OCHCCs that were switched to the opposite side of the ring as part of a splitter or Y-cable protection group to return the traffic to its condition before the card was added.

Stop. You have completed this procedure.

NTP-G129 Add a DWDM Node

Purpose	This procedure adds a DWDM node to an existing DWDM network.
Tools/Equipment	None
Prerequisite Procedures	Chapter 6, “Turn Up a Network” A Cisco MetroPlanner network plan recalculated for the new node
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher


Note

Do not begin this procedure until the Cisco MetroPlanner network plan has been updated and recalculated with the new DWDM node.


Note

This procedure assumes that all turn-up procedures provided in [Chapter 3, “Turn Up a Node”](#) have been completed at the node that will be added. If they have not been completed, do not continue. Complete the turn-up procedures at the new node before you complete this procedure.


Note

During this procedure, you will use TL1 commands to delete and recreate OCHNC and OCHCC cross-connects. You might need to refer to the *Cisco ONS SONET TL1 Command Guide* or the *Cisco ONS 15454 SDH and Cisco ONS 15600 SDH TL1 Command Guide*.


Caution

To complete this procedure, a span will be disconnected where the new node is added. This will affect the service of any unprotected circuits that pass through that span.

- Step 1** At the node that will be added, complete the [“NTP-G51 Verify DWDM Node Turn Up” procedure on page 6-2](#). If the node has not been turned up, do not continue. Complete the relevant procedures in [Chapter 3, “Turn Up a Node”](#) and [Chapter 4, “Perform Node Acceptance Tests,”](#) then begin this procedure again.
- Step 2** If the Cisco MetroPlanner network design has not been updated and recalculated for the new node and client services, update and recalculate it now, following the procedures in the Cisco MetroPlanner documentation.
- Step 3** Identify the fiber spans that must be disconnected to insert the new node.
- Step 4** Complete the [“DLP-G46 Log into CTC” task on page 2-27](#) at a DWDM node that is active on the network where you want to add the new DWDM node.
- Step 5** From the View menu, choose **Go to Network View**.
- Step 6** In network view, click the **Circuits** tab.
- Step 7** Identify the OCHCCs and/or OCHNCs that are carried on the fiber span express path that you identified in [Step 3](#) in both the Side B-to-Side A and Side A-to-Side B directions.

- Step 8** If the OCHCC and/or OCHNC circuit is on the active path and is protected by a splitter or Y-cable protection group, complete the “[DLP-G179 Apply a Force Y-Cable or Splitter Protection Switch](#)” task on page 10-42 to force traffic away from the span where the node will be added. If not, continue with Step 9.
- Step 9** For each circuit identified in Step 7 that was not switched in Step 8 (unprotected circuits), complete the following steps:
- In network view, select the OCHNC and/or OCHCC circuit and click **Edit**.
 - In the Edit Circuit dialog box, click the **State** tab.
 - In the State field on the right, choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) from the drop-down list.
 - Click **Apply**, then click **OK**.
- Step 10** Remove the fibers from the cards at the adjacent nodes that will connect to the new node.
- Step 11** Install the fibers from the adjacent nodes that will connect to the new node using the “[NTP-G34 Install Fiber-Optic Cables on DWDM Cards and DCUs](#)” procedure on page 3-60.
- Step 12** Update the ANS parameters at the adjacent nodes:
- Display an adjacent node in node view.
 - Complete the “[NTP-G143 Import the Cisco MetroPlanner NE Update Configuration File](#)” procedure on page 3-42 to load the new NE Update file onto the node.
 - Complete the “[NTP-G37 Run Automatic Node Setup](#)” procedure on page 3-99 to recalculate the ANS parameters at the node.
 - Display the next adjacent node in node view.
 - Repeat Steps b and c for the second adjacent node.
- Step 13** Display the new node in node view.
- Step 14** Create cross-connects on the new node for all circuits identified in Step 7:
- From the Tools menu, choose **Open TL1 Connection**.
 - In the Select Node dialog box, choose the new node and click **OK**.
 - In the TL1 dialog box, use the **ENT-OCHNC** command to create the OCHNC cross-connects for each unprotected pass-through circuit as follows:

```
ENT-OCHNC:[<TID>]:<SRC>,<DST>:<CTAG>::[<WCT>]:[CKTID=<CKTID>],
[CMDMDE=<CMDMDE>]:[<PST>,<SST>]];
```

where:

 - <SRC> is the source access identifier from the CHANNEL section. In two-way wavelength connection sources, both directions need to be indicated.
 - <DST> is the destination access identifier from the LINE section. In two-way wavelength connection sources, both directions need to be indicated.
 - <WCT> is the wavelength connection type, either 1WAY or 2WAY. The default is 1WAY.
 - <CKTID> is the cross-connect ID. The default is Blank or None. CKTID is a string of ASCII characters. The maximum length is 48. If CKTID is empty or null the CKTID field will not be displayed.
 - <CMDMDE> is the command execution mode.
 - <PST> is the primary state, either IS or OOS.
 - <SST> is the secondary state.

For additional information and a list of valid command values, see the *Cisco ONS SONET TL1 Command Guide* or the *Cisco ONS 15454 SDH and Cisco ONS 15600 SDH TL1 Command Guide*.

- d. Click **Close** to close the TL1 dialog box.
 - e. Repeat [Step 9](#) to change the circuits placed in OOS,DSBLD (ANSI) or Locked,disabled (ETSI) back in service by choosing **IS-AINS** (ANSI) or **Unlocked,automaticInService** (ETSI) in the State drop-down list.
- Step 15** Complete the [“DLP-G180 Clear a Manual or Force Y-Cable or Splitter Protection Switch” task on page 10-43](#) for the circuits that were switched in [Step 8](#) to return the traffic to its original paths.
- Step 16** Complete the [“DLP-G105 Provision Optical Channel Network Connections” task on page 7-21](#) to create new circuits.

Stop. You have completed this procedure.

NTP-G130 Remove a DWDM Node

Purpose	This procedure removes a node from a DWDM network.
Tools/Equipment	None
Prerequisite Procedures	A Cisco MetroPlanner network plan recalculated for the new topology.
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher



Note

During this procedure, you will use TL1 commands to delete and recreate OCHNC or OCHCC cross-connects. You might need to refer to the *Cisco ONS SONET TL1 Command Guide* or the *Cisco ONS 15454 SDH and Cisco ONS 15600 SDH TL1 Command Guide*.



Caution

This procedure will affect the service of unprotected circuits that pass through the span where the node will be removed.

- Step 1** If the Cisco MetroPlanner network design has not been updated and recalculated with the node removed, update and recalculate the design now by following the procedures in the Cisco MetroPlanner documentation.
- Step 2** Complete the [“DLP-G46 Log into CTC” task on page 2-27](#) at the DWDM target node that will be removed.
- Step 3** Click the **Circuits** tab.
- Step 4** Identify all the OCHNCs and OCHCCs that are passing through or are added or dropped at the node that will be removed.
- Step 5** Delete the OCHNCs and OCHCCs identified in [Step 4](#) that terminate (add/drop) on the target DWDM node. See the [“DLP-G347 Delete Optical Channel Client Connections” task on page 7-10](#) and/or the [“DLP-G106 Delete Optical Channel Network Connections” task on page 7-23](#) to delete OCHCCs and OCHNCs, respectively.

Step 6 For the protected pass through circuits on the target node, perform [Step 7](#). Else, go to [Step 10](#).



Note Non-protected pass through circuits need not be modified or deleted.

Step 7 If the OCHNC and OCHCC circuits pass through the target node on the active path and are protected by a splitter or Y-cable protection group, navigate to an adjacent node connected to the target node and complete the “[DLP-G179 Apply a Force Y-Cable or Splitter Protection Switch](#)” task on page 10-42 to force the traffic away from the node that will be deleted. Otherwise, continue with [Step 8](#).

Step 8 Complete the following steps for the protected pass through circuits:

- a. Select the OCHNCs or OCHCCs and click **Edit**.
- b. In the Edit Circuit dialog box, click the **State** tab.
- c. In the State field, choose **OOS,DSBLD (ANSI)** or **Locked,disabled (ETSI)** from the drop-down list.
- d. Click **Apply**, then click **OK**.

Step 9 Complete the following steps to delete the cross-connects on the target node for each circuit placed in the OOS,DSBLD (ANSI) or Locked,disabled (ETSI) state in [Step 8](#):

- a. From the Tools menu, choose **Open TL1 Connection**.
- b. In the Select Node dialog box, select the new node and click **OK**.
- c. In the TL1 dialog box, use the **DLT-OCHNC** command to delete the OCHNC cross-connects for each unprotected pass-through circuit as follows:

```
DLT-OCHNC:[<TID>]:<SRC>,<DST>:<CTAG>:::[CKTID=<CKTID>],
[CMDMDE=<CMDMDE>];
```

where:

- <SRC> is the source access identifier from the Channel section in a two-way wavelength.
- <DST> is the destination access identifier from the LINEWL section in a two-way wavelength.
- <CKTID> is the cross-connect ID. The default is Blank or None. CKTD is a string of ASCII characters. The maximum length is 48. If CKTID is empty or null, the CKTID field will not be displayed.
- <CMDMDE> is the command execution mode. NORM mode is the default behavior for all commands but you can specify FRCD to force the system to override a state in which the command would normally be denied.

For additional information, including valid command values, refer to the *Cisco ONS SONET TL1 Command Guide* or the *Cisco ONS 15454 SDH and Cisco ONS 15600 SDH TL1 Command Guide*.

- d. Click **Close** to close the TL1 dialog box.

Step 10 Remove the fibers from the target node, and reconnect the fibers to the adjacent nodes. Note that once the fibers are rerouted, the non-protected pass through circuits will go to OOS-PARTIAL (ANSI) or Locked-partial (ETSI) state.

Step 11 Complete the following steps to update the ANS parameters at the adjacent nodes:

- a. Display an adjacent node in node view.
- b. Complete the “[NTP-G143 Import the Cisco MetroPlanner NE Update Configuration File](#)” procedure on page 3-42 to load the new NE Update file onto the node.
- c. Complete the “[NTP-G37 Run Automatic Node Setup](#)” procedure on page 3-99 to recalculate the ANS parameters at the node.

- d. Display the next adjacent node in node view.
 - e. Repeat Steps [b](#) and [c](#) for the second adjacent node.
- Step 12** Repeat [Step 8](#) to change the circuits placed in OOS,DSBLD (ANSI) or Locked,disabled (ETSI) back in service by changing the Target Circuit Admin State field to **IS-AINS** (ANSI) or **Unlocked,AutomaticInService** (ETSI).
- Step 13** Complete the “[DLP-G180 Clear a Manual or Force Y-Cable or Splitter Protection Switch](#)” task on [page 10-43](#) for the OCHNCs and OCHCCs that were switched in [Step 7](#).
- Step 14** To discover the non-protected pass through circuits that are in the OOS-PARTIAL (ANSI) or Locked-partial (ETSI) state after completing [Step 10](#), select the circuit and choose **Tools > Circuits > Reconfigure Circuits** from the menu bar. The Reconfigure Circuits dialog box is displayed; click **Yes**.
Stop. You have completed this procedure.

NTP-G146 Add a Rack and/or Shelf to a Multishelf Node

Purpose	This procedure adds a rack and/or subtending shelf to a multishelf node.
Tools/Equipment	None
Prerequisite Procedures	One of the following: <ul style="list-style-type: none"> NTP-G145 Connect a Multishelf Node and Subtending Shelves to an MS-ISC-100T Card, page 1-81 NTP-G158 Connect a Multishelf Node and Subtending Shelves to a Catalyst 2950, page 1-83 Chapter 3, “Turn Up a Node”
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher



Note

Each shelf you want to add to a multishelf configuration must have network connectivity. For more information, see [Chapter 2, “Connect the PC and Log into the GUI.”](#)

- Step 1** Complete the “[DLP-G46 Log into CTC](#)” task on [page 2-27](#) at the multishelf DWDM node where you want to add a shelf.
- Step 2** To add a rack, in multishelf view right-click the gray area and choose **Add Rack**. If you do not need to add a rack, continue with [Step 3](#).
- Step 3** To add a shelf, in multishelf view right-click the white space inside the rack and choose **Add Shelf**.
- Step 4** In the Shelf ID Selection dialog box, choose a shelf ID from the drop-down list.
- Step 5** Click **OK**. The shelf appears in the multishelf view.
- Step 6** Complete the “[DLP-G46 Log into CTC](#)” task on [page 2-27](#) at the subtending shelf.
- Step 7** In multishelf view, click the **Provisioning > General > Multishelf Config** tabs.
- Step 8** Click **Enable as Subtended Shelf**.

- Step 9** From the Shelf ID drop-down list, choose the shelf ID that you created in [Step 4](#).
- Step 10** Click **Apply**.
- Step 11** In the confirmation dialog box, click **Yes** to reboot the shelf. The CTC view changes to network view and the node icon changes to gray. (This might take several minutes.)
- Step 12** If you are connecting the new subtending shelf to the Ethernet Adapter Panel (EAP), complete the following steps. If not, continue with [Step 13](#).
- Using a cross-over (CAT 5) LAN cable, plug one connector into the RJ-45 front panel port of the subtending shelf TCC2/TCC2P card in Slot 7 and plug the other end into the SSC port on the left patch panel.
 - Using a cross-over (CAT 5) LAN cable, plug one connector into the RJ-45 front panel port of the subtending shelf TCC2/TCC2P card in Slot 11 and plug the other end into the SSC port on the right patch panel.
- Step 13** If you are connecting the subtending shelf to the Catalyst 2950 switch, complete the following steps. If not, continue with [Step 14](#).
- Plug one end of a cross-over (CAT-5) LAN cable into the RJ-45 front panel port of the subtending shelf TCC2/TCC2P card in Slot 7 and plug the other end into Port 2 of the first Catalyst 2950.
 - Plug one end of a cross-over (CAT-5) LAN cable into the RJ-45 front panel port of the subtending shelf TCC2/TCC2P card in Slot 11 and plug the other end into Port 2 of the backup Catalyst 2950.
- Step 14** Repeat Steps [3](#) through [13](#) for each subtending shelf in the multishelf configuration.
- Stop. You have completed this procedure.**

NTP-G147 Delete a Shelf and/or Rack from a Multishelf Node

Purpose	This procedure deletes a shelf and/or rack from a multishelf node.
Tools/Equipment	None
Prerequisite Procedures	One of the following: <ul style="list-style-type: none"> NTP-G145 Connect a Multishelf Node and Subtending Shelves to an MS-ISC-100T Card, page 1-81 NTP-G158 Connect a Multishelf Node and Subtending Shelves to a Catalyst 2950, page 1-83 Chapter 3, “Turn Up a Node”
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher



Note

You cannot delete a node controller shelf from a multishelf node configuration.

- Step 1** Complete the [“DLP-G46 Log into CTC” task on page 2-27](#) at the multishelf DWDM node where you want to delete a shelf or rack. If you want to delete a shelf, continue with [Step 2](#). If you want to delete a rack only, go to [Step 9](#).

Step 2 Complete the following tasks, as needed:

- If cards on the shelf carry unprotected circuits, you must delete the circuits. Complete the [“DLP-G106 Delete Optical Channel Network Connections” task on page 7-23](#) and/or the [“DLP-G347 Delete Optical Channel Client Connections” task on page 7-10](#).
- If cards use internal patchcords, complete the [“DLP-G355 Delete an Internal Patchcord” task on page 3-94](#).
- If OSCM or OSC-CSM cards with OSC or GCC terminations are on the shelf, complete the [“NTP-G85 Modify or Delete OSC Terminations, DCC/GCC Terminations, and Provisionable Patchcords” procedure on page 10-46](#) to delete the terminations.
- Put all ports in the Out-of-Service and Management, Disabled (OOS-MA,DSBLD) (ANSI) or Locked-enabled,disabled (ETSI) service state. For more information, see [Chapter 11, “Change DWDM Card Settings.”](#)



Note

It is not necessary to delete the cards from the shelf before deleting a shelf.

Step 3 From the View menu, choose **Go to Parent View** to return to multishelf view.

Step 4 Right-click the subtending shelf you want to delete and choose **Delete Shelf**.

Step 5 In the confirmation dialog box, click **Yes**.

Step 6 To return the deleted shelf to a single-shelf node, you must use the LCD panel:

- a. Repeatedly press the **Status** button until Shelf Status appears.
- b. Repeatedly press the **Port** button until Controller Status=MS Config appears.
- c. Press **Status** again and press **Port** to set multishelf mode to MS=N.
- d. Press **Status** to choose Done.
- e. Repeatedly press **Status** until “Save and Reboot?” appears, and then press **Slot** to choose Apply. This reboots the shelf. A “Saving changes; TCC may reboot” message appears on the LCD.

Step 7 After the TCC2/TCC2P reboot is complete, complete the following steps to disconnect the removed subtending shelf from the patch panel or Catalyst 2950:

- a. Remove the cross-over (CAT 5) LAN cable from the RJ-45 front panel port of the TCC2/TCC2P card in Slot 7.
- b. Remove the cross-over (CAT 5) LAN cable from the RJ-45 front panel port of the TCC2/TCC2P card in Slot 11.

Step 8 Reconnect the shelf to the LAN through either the backplane or one of the RJ-45 front panel ports of the TCC2/TCC2P cards. For more information, see [Chapter 2, “Connect the PC and Log into the GUI.”](#)

Step 9 To delete an empty rack from the CTC window, right-click the gray area on the rack graphic and choose **Delete Rack**.

Stop. You have completed this procedure.

NTP-G173 Convert an OADM Node to a ROADM Node

Purpose	This procedure converts an OADM node to a ROADM node.
Tools/Equipment	None
Prerequisite Procedures	Chapter 6, “Turn Up a Network” A Cisco MetroPlanner site plan recalculated for the new ROADM node.
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher



Note

Do not begin this procedure until the Cisco MetroPlanner site plan has been recalculated with the new ROADM node. You will import the new NE Update file and run ANS to recalculate the ANS parameters. In addition, you will run ANS at the two adjacent nodes to recalculate the ANS parameters at those nodes.



Note

During this procedure, you will use TL1 commands to delete and recreate OCHNC or OCHCC cross-connects. You might need to refer to the *Cisco ONS SONET TL1 Command Guide* or the *Cisco ONS 15454 SDH and Cisco ONS 15600 SDH TL1 Command Guide*.



Caution

This procedure will affect the service of unprotected circuits that pass through the OADM node.

- Step 1** Complete the [“DLP-G46 Log into CTC” task on page 2-27](#) at a node in the OADM network.
- Step 2** In node view (single-shelf mode) or multishelf view (multishelf mode), display the OADM node that you will convert to a ROADM node.
- Step 3** Click the **Circuits** tab.
- Step 4** Make a list of the following OCHNCs and/or optical channel client connections (OCHCCs) that:
 - Terminate (add/drop) at the node.
 - Pass through the node on the express path for both the Side B-to-Side A and Side A-to-Side B directions.
- Step 5** If OCHNCs and/or OCHCCs identified in [Step 4](#) are routed on the active path of a splitter or Y-cable protection group, complete the following steps. If not, continue with [Step 6](#).
 - a. Display the node containing the TXP, MXP, ADM-10G, GE_XP, 10GE_XP, or ITU-T line card with the Y-cable or splitter protection.
 - a. Force the traffic to the protect path in the opposite side of the ring using the [“DLP-G179 Apply a Force Y-Cable or Splitter Protection Switch” task on page 10-42](#).
- Step 6** In node view, display node that will be converted.
- Step 7** Complete the [“DLP-G347 Delete Optical Channel Client Connections” task on page 7-10](#) and/or the [“DLP-G106 Delete Optical Channel Network Connections” task on page 7-23](#) to delete OCHCCs and/or OCHNCs identified in [Step 4](#) that:
 - Terminate (add/drop) at the node.

- Pass through the node on an unprotected express path for both the Side B-to-Side A and Side A-to-Side B directions.

Step 8 From the Tools menu, choose **Open TL1 Connection**.

Step 9 In the Select Node dialog box, choose the OADM node and click **OK**.

Step 10 In the TL1 dialog box, use the **DLT-OCHNC** command to delete the OCHNC cross-connects for the express path OCHNCs listed in [Step 4](#), using the following format:

DLT-OCHNC:[<TID>]:<SRC>,<DST>:<CTAG>:::[CKTID=<CKTID>],[CMDMDE=<CMDMDE>];

where:

- <SRC> is the source access identifier from the Channel section in a two-way wavelength.
- <DST> is the destination access identifier from the LINEWL section in a two-way wavelength.
- <CKTID> is the cross-connect ID. The default is Blank or None. CKTD is a string of ASCII characters. The maximum length is 48. If CKTID is empty or null, the CKTID field will not be displayed.
- <CMDMDE> is the command execution mode. NORM mode is the default behavior for all commands but you can specify FRCD to force the system to override a state in which the command would normally be denied.

For additional information, including valid command values, refer to the *Cisco ONS SONET TL1 Command Guide* or the *Cisco ONS 15454 SDH and Cisco ONS 15600 SDH TL1 Command Guide*.

Step 11 In the TL1 dialog box, use the **DLT-OCHCC** command to delete the OCHCC cross-connects for the express path OCHCCs listed in [Step 4](#), using the following format:

DLT-OCHCC:[<TID>]:<AID>:<CTAG>[:::CKTID=<CKTID>],[CMDMDE=<CMDMDE>];

where:

- <AID> is the access identifier from the Facility section.
- <CKTID> is the cross-connect ID. The default is Blank or None. CKTD is a string of ASCII characters. The maximum length is 48. If CKTID is empty or null, the CKTID field will not be displayed.
- <CMDMDE> is the command execution mode. NORM mode is the default behavior for all commands but you can specify FRCD to force the system to override a state in which the command would normally be denied.

For additional information, including valid command values, refer to the *Cisco ONS SONET TL1 Command Guide* or the *Cisco ONS 15454 SDH and Cisco ONS 15600 SDH TL1 Command Guide*.

Step 12 Click **Close** to close the TL1 dialog box.

Step 13 Delete the internal patchcords:

- In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > WDM-ANS > Internal Patchcords** tabs.
- Highlight all of the internal patchcords.
- Click **Delete**.
- Click **Yes** on the confirmation dialog box.

Step 14 Delete the OSC terminations:

- Click the **Provisioning > Comm Channels > OSC** tabs.
- Highlight all of the OSC terminations.
- Click **Delete**.

- d. Click **Yes** on the confirmation dialog box.
- Step 15** Remove the cables from all the AD-xC-xx.x and/or AD-xB-xx.x cards.
- Step 16** Remove the AD-xC-xx.x and/or AD-xB-xx.x cards from the shelf.
- Step 17** Remove any amplifier cards (OPT-BST, OPT-PRE) that are installed but not required in the ROADM node.
- Step 18** Install the new ROADM cards in the slots identified by your Cisco MetroPlanner site plan using the [“NTP-G30 Install the DWDM Cards” procedure on page 3-49](#).
- Step 19** Complete the [“NTP-G34 Install Fiber-Optic Cables on DWDM Cards and DCUs” procedure on page 3-60](#) for the ROADM node, following the new internal connections table generated by Cisco MetroPlanner.
- Step 20** Complete the [“NTP-G152 Create and Verify Internal Patchcords” procedure on page 3-91](#) to recreate the internal patchcords deleted in [Step 13](#).
- Step 21** Complete the [“NTP-G38 Provision OSC Terminations” procedure on page 3-97](#) to recreate the OSC terminations deleted in [Step 14](#).
- Step 22** Import the recalculated ROADM site parameters using the [“NTP-G143 Import the Cisco MetroPlanner NE Update Configuration File” task on page 3-42](#).
- Step 23** Complete the [“NTP-G37 Run Automatic Node Setup” procedure on page 3-99](#).
- Step 24** Update the ANS parameters at the adjacent nodes:
 - a. Display an adjacent node in node view.
 - b. Complete the [“NTP-G143 Import the Cisco MetroPlanner NE Update Configuration File” procedure on page 3-42](#) to load the new NE Update file onto the node.
 - c. Complete the [“NTP-G37 Run Automatic Node Setup” procedure on page 3-99](#) to recalculate the ANS parameters at the node.
 - d. Display the next adjacent node in node view.
 - e. Repeat Steps [b](#) and [c](#) for the second adjacent node.
- Step 25** Display the new ROADM node in node view.
- Step 26** Recreate the OCHNCs and/or OCHCCs deleted in [Step 7](#) using the following tasks:
 - [DLP-G346 Provision Optical Channel Client Connections, page 7-4](#)
 - [DLP-G105 Provision Optical Channel Network Connections, page 7-21](#)
- Step 27** Complete the [“DLP-G180 Clear a Manual or Force Y-Cable or Splitter Protection Switch” task on page 10-43](#) for OCHNCs and/or OCHCCs that were switched to the opposite side of the ring as part of a splitter or Y-cable protection group to return the traffic to its condition before the card was added.

Stop. You have completed this procedure.

NTP-G176 Convert an Line Amplifier Node to an OADM Node

Purpose	This procedure converts a full line amplifier node with OPT-PRE and OPT-BST cards installed on each side of the shelf to an OADM node.
Tools/Equipment	Cisco MetroPlanner reports and NE Update file for the new OADM node.
Prerequisite Procedures	Chapter 6, “Turn Up a Network” A Cisco MetroPlanner site plan recalculated for the new ROADM node.
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher


Caution

This procedure will affect the service of unprotected circuits that pass through the OADM node.


Caution

This procedure applies to line amplifier nodes with OPT-BST and OPT-PRE cards installed on both sides of the shelf. If the line amplifier node has a different configuration, the upgrade might affect the adjacent nodes and require an update of their ANS parameters. If the line amplifier node is not a full line amplifier, contact your next level of support.

- Step 1** Complete the [“NTP-G139 Verify Cisco MetroPlanner Reports and Files” procedure on page 3-3](#) procedure to verify that you have the files and reports prepared by Cisco MetroPlanner for the OADM node.
- Step 2** Complete the [“DLP-G46 Log into CTC” task on page 2-27](#) at the line amplifier node.
- Step 3** Click the **Circuits** tab.
- Step 4** Make a list of the OCHNCs, OCH trails, and OCHCCs that pass through the node on the express path for both the Side B-to-Side A and Side A-to-Side B directions.


Caution

You will delete the optical channel circuits in the next step and use the list to recreate the circuits later. Do not proceed until you complete the circuit list.

- Step 5** Delete the circuits identified in [Step 4](#) using one or more of the following tasks:
- [DLP-G347 Delete Optical Channel Client Connections, page 7-10](#)
 - [DLP-G418 Delete an Optical Channel Trail, page 7-18](#)
 - [DLP-G106 Delete Optical Channel Network Connections, page 7-23](#)
- Step 6** Click the **Provisioning > WDM-ANS > Internal Patchcords** tabs.
- Step 7** In the internal patchcords table, click the OPT-PRE COM-TX to OPT-BST COM-RX internal patchcord.
- Step 8** Click **Delete**.
- Step 9** On the confirmation dialog, click **OK**.
- Step 10** Remove the physical fiber and attenuators, if present, that connect the COM-TX to COM-RX ports and COM-RX to COM-TX ports between the OPT-BST and OPT-PRE cards installed in Side B.
- Step 11** Referring to the Cisco MetroPlanner Shelf Layout report, install the AD-xC-xx-x and/or AD-xB-xx.x cards on both Side B and Side A of the node.

- Step 12** Referring to the Cisco MetroPlanner Internal Connections report, connect the fibers to the new AD-xC-xx-x and/or AD-xB-xx.x cards.
- Step 13** Click **Default Patchcords**.
- Step 14** Verify that the new internal patchcords are created for the physical cables connected to the new AD-xC-xx.x and AD-xB-xx.x card(s) in [Step 12](#). If not, complete the “[DLP-G354 Create an Internal Patchcord Manually](#)” task on [page 3-92](#) to manually create the internal patchcords.
- Step 15** Complete the “[NTP-G143 Import the Cisco MetroPlanner NE Update Configuration File](#)” procedure on [page 3-42](#).
- Step 16** Complete the “[NTP-G37 Run Automatic Node Setup](#)” procedure on [page 3-99](#).
- Step 17** In node view, click the **Circuits** tab.
- Step 18** Complete one or more of the following procedures to recreate circuits identified in [Step 4](#) that will pass through the OADM node:
- [DLP-G105 Provision Optical Channel Network Connections](#), [page 7-21](#)
 - [DLP-G346 Provision Optical Channel Client Connections](#), [page 7-4](#)
 - [DLP-G395 Create an Optical Channel Trail](#), [page 7-16](#)



Note Cisco recommends that you recreate the circuits one at a time.

- Step 19** Verify that each circuit appears on the Circuits table with a DISCOVERED status and an IS/Unlocked state. If not, complete [Steps 17 and 18](#).
- If the circuits still do not appear with a DISCOVERED status and IS/Unlocked state, contact your next level of support.
- Step 20** Referring to the Cisco MetroPlanner Traffic Matrix report, repeat [Steps 18 and 19](#) to create the new add/drop circuits at the node, as needed.

Stop. You have completed this procedure.

NTP-G182 Convert a Line Amplifier Node to a ROADM Node

Purpose	This procedure converts a line amplifier node with OPT-PRE and OPT-BST cards installed on each side of the shelf to an ROADM node.
Tools/Equipment	Cisco MetroPlanner reports and NE Update file for the new ROADM node.
Prerequisite Procedures	Chapter 6, “Turn Up a Network”
	A Cisco MetroPlanner site plan recalculated for the new ROADM node.
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher



Caution

This procedure will affect the service of unprotected circuits that pass through the ROADM node.

**Caution**

This procedure applies to line amplifier nodes with OPT-BST and OPT-PRE cards installed on both sides of the shelf. If the line amplifier node has a different configuration, the upgrade might affect the adjacent nodes and require an update of their ANS parameters. If the line amplifier node is not a full line amplifier, contact your next level of support.

-
- Step 1** Complete the [“NTP-G139 Verify Cisco MetroPlanner Reports and Files” procedure on page 3-3](#) to verify that you have the files and reports prepared by Cisco MetroPlanner for the ROADM node.
- Step 2** Complete the [“DLP-G46 Log into CTC” task on page 2-27](#) at the line amplifier node.
- Step 3** Click the **Circuits** tab.
- Step 4** Make a list of the following OCHNCs, OCH trails, and OCHCCs that pass through the node on the express path for both the Side B-to-Side A and Side A-to-Side B directions.

**Caution**

You will delete the optical channel circuits in the next step and use the list to recreate the circuits later. Do not proceed until you complete the circuit list.

-
- Step 5** Delete the circuits identified in [Step 4](#) using one or more of the following tasks:
- [DLP-G347 Delete Optical Channel Client Connections, page 7-10](#)
 - [DLP-G418 Delete an Optical Channel Trail, page 7-18](#)
 - [DLP-G106 Delete Optical Channel Network Connections, page 7-23](#)
- Step 6** Click the **Provisioning > WDM-ANS > Internal Patchcords** tabs.
- Step 7** In the internal patchcords table, click the OPT-PRE COM-TX to OPT-BST COM-RX internal patchcord.
- Step 8** Click **Delete**.
- Step 9** In the confirmation dialog box, click **OK**.
- Step 10** Remove the physical fiber and attenuators, if present, that connect the COM-TX to COM-RX ports and COM-RX to COM-TX ports between the OPT-BST and OPT-PRE cards installed in Side B.
- Step 11** Referring to the Cisco MetroPlanner Shelf Layout report, install one of the following sets of cards on both Side B and Side A of the node as described by the Cisco MetroPlanner NE Update file:
- 32WSS and 32DMX cards
 - 32WSS-L and 32DMX-L cards
 - 40-WSS-C and 40-DMX-C cards
- Step 12** Referring to the Cisco MetroPlanner Internal Connections report, connect the fibers to the new wavelength selective switch and demultiplexer cards.
- Step 13** Click **Default Patchcords**.
- Step 14** Verify that the new internal patchcords are created for the physical cables connected to the new wavelength selective switch and demultiplexer cards in [Step 12](#). If not, complete the [“DLP-G354 Create an Internal Patchcord Manually” task on page 3-92](#) to manually create the internal patchcords.
- Step 15** Complete the [“NTP-G143 Import the Cisco MetroPlanner NE Update Configuration File” procedure on page 3-42](#).
- Step 16** Complete the [“NTP-G37 Run Automatic Node Setup” procedure on page 3-99](#).
- Step 17** In node view, click the **Circuits** tab.

Step 18 Complete one or more of the following procedures to recreate circuits identified in [Step 4](#) that will pass through the ROADM node:

- [DLP-G105 Provision Optical Channel Network Connections, page 7-21](#)
- [DLP-G346 Provision Optical Channel Client Connections, page 7-4](#)
- [DLP-G395 Create an Optical Channel Trail, page 7-16](#)



Note Cisco recommends that you recreate the circuits one at a time.

Step 19 Verify that each circuit appears on the Circuits table with a DISCOVERED status and an IS/Unlocked state. If not, repeat Steps [17](#) and [18](#).

If the circuits still do not appear with a DISCOVERED status and IS/Unlocked state, contact your next level of support.

Step 20 Referring to the Cisco MetroPlanner Traffic Matrix report, repeat Steps [17](#) and [18](#) to create the new add/drop circuits at the node, as needed.

Stop. You have completed this procedure.

NTP-G195 Convert a Protected ROADM Node from two Separate Nodes to a Single Multishelf Node

Purpose	This procedure converts a protected ROADM node from two separate nodes to a single multishelf node.
Tools/Equipment	None.
Prerequisite Procedures	Chapter 6, “Turn Up a Network”
	A Cisco TransportPlanner site plan recalculated for the new node.
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher



Caution

This procedure will affect the service of unprotected circuits that pass through the ROADM node.



Caution

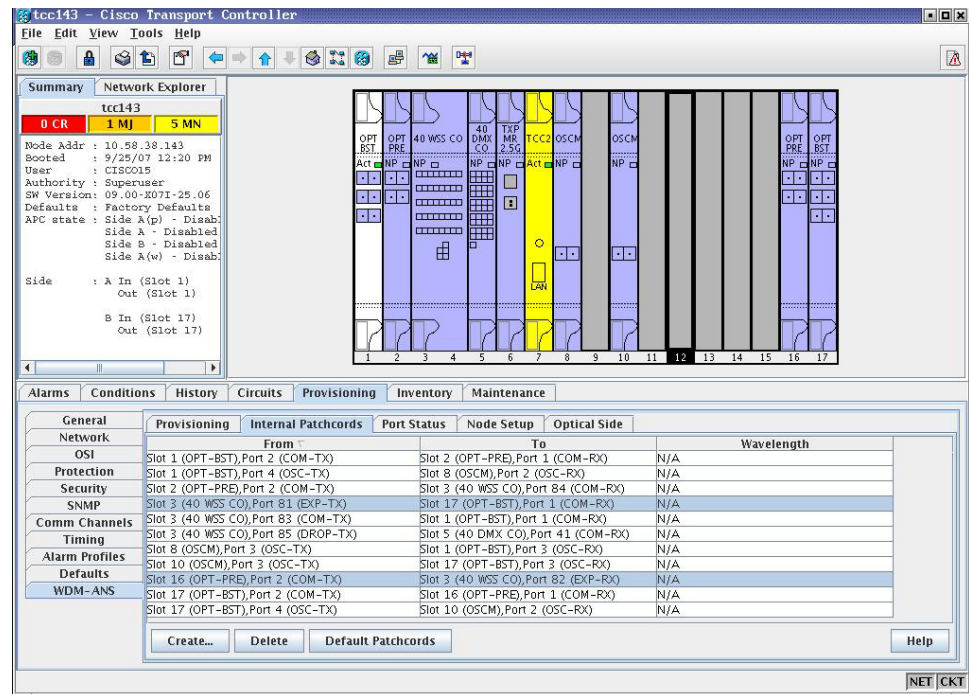
This procedure applies to two ROADM nodes, where ROADM Node 1 has amplifier cards (such as, OPT-BST and OPT-PRE) or optical service channel cards (OSCM or OSC-CSM) installed on both the sides of the shelf and 40-WSS-C/40-DMX-C card (or the 32WSS/32DMX and 32WSS-L/32DMX-L cards) installed in Side A (Slots 1 through 6) and the ROADM Node 2 has amplifier cards (such as, OPT-BST and OPT-PRE) or optical service channel cards (OSCM or OSC-CSM) installed on both the sides of the shelf and 40-WSS-C/40-DMX-C card (or the 32WSS/32DMX and 32WSS-L/32DMX-L cards) installed in Side B (Slots 12 through 17).

**Note**

In this procedure, ROADM Node 1 will be used as node controller and ROADM Node 2 will be added to the multishelf configuration as a subtending shelf.

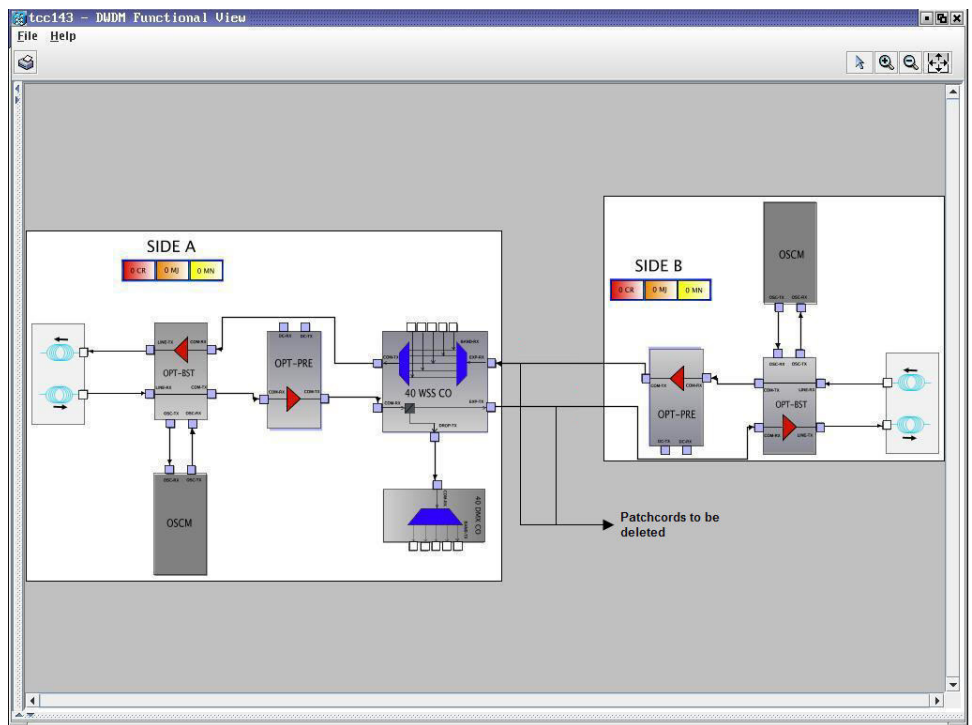
- Step 1** Complete the “[NTP-G139 Verify Cisco MetroPlanner Reports and Files](#)” procedure on page 3-3 to verify that you have the files and reports prepared by Cisco TransportPlanner for the ROADM nodes.
- Step 2** Complete the “[DLP-G46 Log into CTC](#)” task on page 2-27 at the ROADM Node 1. [Figure 12-1](#) shows the shelf view of ROADM Node 1 and [Figure 12-2](#) shows the functional view of ROADM Node 1.

Figure 12-1 ROADM Node 1 Shelf View



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Figure 12-2 ROADM Node 1 Functional View



Step 3 Click the **Circuits** tab.

Step 4 Make a list of all the OCHNCs, OCH trails, and OCHCCs that pass through or terminate (add/drop) at the amplifier or optical service channel cards installed in Side B of ROADM Node 1.



Caution

You will delete only the pass-through circuits in the next step and use the list to recreate the circuits later. Do not proceed until you complete the circuit list. The add/drop circuits will not be deleted and continues to transport traffic.

Step 5 If OCHNCs and/or OCHCCs identified in [Step 4](#) are routed on the active path of a splitter or Y-cable protection group, complete the following steps. If not, continue with [Step 6](#).

- a. Display the node containing the amplifier or optical service channel cards with the Y-cable or splitter protection.
- b. Force the traffic to the protect path in the opposite side of the ring using the “[DLP-G179 Apply a Force Y-Cable or Splitter Protection Switch](#)” task on page 10-42.

Step 6 Delete the circuits identified in [Step 4](#) using one or more of the following tasks:

- [DLP-G347 Delete Optical Channel Client Connections](#), page 7-10
- [DLP-G418 Delete an Optical Channel Trail](#), page 7-18
- [DLP-G106 Delete Optical Channel Network Connections](#), page 7-23

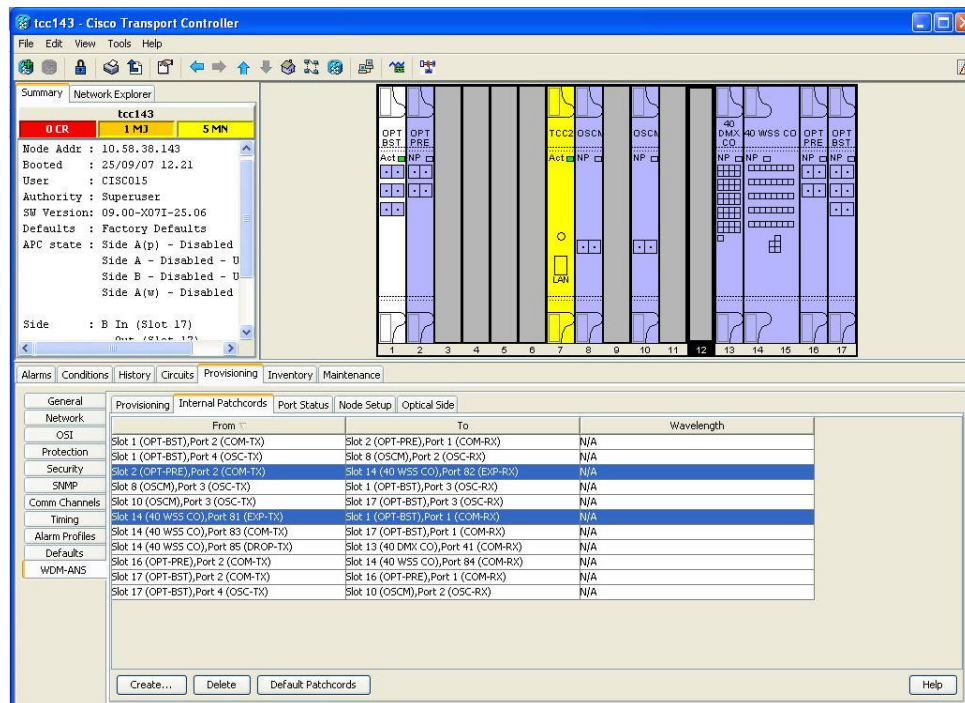
Step 7 Click the **Provisioning > WDM-ANS > Optical Side** tab.

Step 8 In the optical sides table, click the optical side corresponding to the amplifier or optical service channel cards installed in Side B of ROADM Node 1.

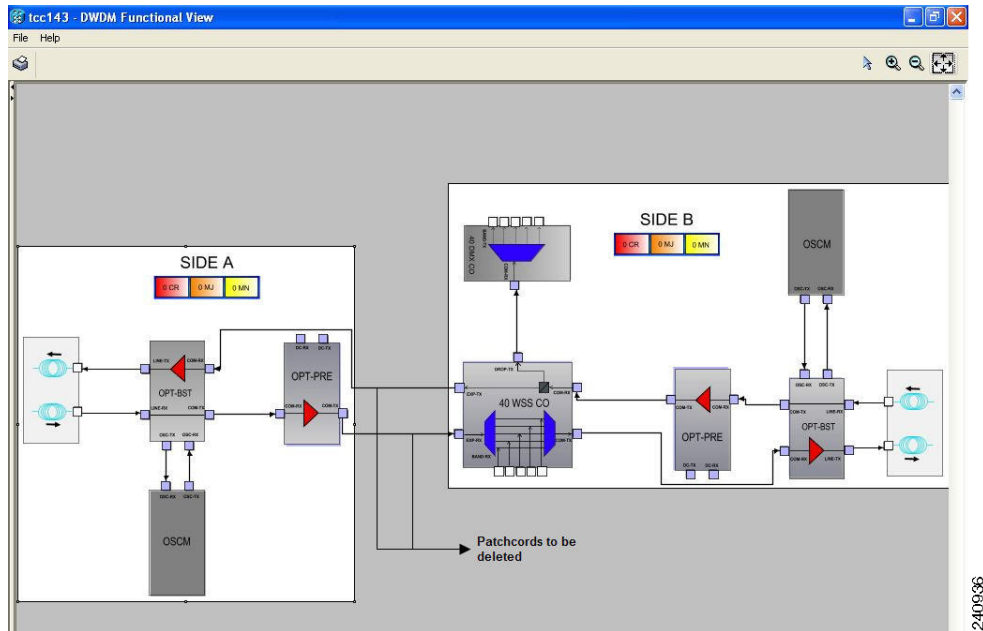
Step 9 Click **Delete**.

- Step 10** In the confirmation dialog box, click **Yes**.
- Step 11** Click the **Provisioning > WDM-ANS > Internal Patchcords** tab.
- Step 12** Look in the To column of the internal patchcords table and make a list of internal patchcords that connect the amplifier or optical service channel cards in Side B to the 40-WSS-C/40-DMX-C card (or the 32WSS/32DMX and 32WSS-L/32DMX-L cards) in Side A of ROADM Node 1.
- Step 13** Click **Delete**.
- Step 14** In the confirmation dialog box, click **Yes**.
- Step 15** Remove the physical fiber and attenuators, if present, that connect the amplifier or optical service channel cards in Side B to the 40-WSS-C/40-DMX-C card (or the 32WSS/32DMX and 32WSS-L/32DMX-L cards) in Side A of ROADM Node 1.
- Step 16** Complete the [NTP-G107 Remove Permanently or Remove and Replace DWDM Cards](#), page 12-2 to delete the amplifier or optical service channel cards installed in Side B of ROADM Node 1.
- Step 17** Complete the “[DLP-G46 Log into CTC](#)” task on page 2-27 at the ROADM Node 2. [Figure 12-1](#) shows the ROADM Node 2 shelf view and [Figure 12-4](#) shows the functional view of ROADM Node 1.

Figure 12-3 ROADM Node 2 Shelf View



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Figure 12-4 ROADM Node 2 Functional View

Step 18 Click the **Circuits** tab.

Step 19 Make a list of all the OCHNCs, OCH trails, and OCHCCs that pass through or terminate (add/drop) at the amplifier or optical service channel cards installed in Side A of ROADM Node 2.

**Caution**

You will delete all the pass-through and add/drop circuits in the next step and use the list to recreate the circuits later. Do not proceed until you complete the circuit list.

Step 20 If OCHNCs and/or OCHCCs identified in [Step 19](#) are routed on the active path of a splitter or Y-cable protection group, complete the following steps. If not, continue with [Step 21](#).

- a. Display the node containing the amplifier or optical service channel cards with the Y-cable or splitter protection.
- b. Force the traffic to the protect path in the opposite side of the ring using the “[DLP-G179 Apply a Force Y-Cable or Splitter Protection Switch](#)” task on [page 10-42](#).

Step 21 Delete the circuits identified in [Step 19](#) using one or more of the following tasks:

- [DLP-G347 Delete Optical Channel Client Connections](#), [page 7-10](#)
- [DLP-G418 Delete an Optical Channel Trail](#), [page 7-18](#)
- [DLP-G106 Delete Optical Channel Network Connections](#), [page 7-23](#)

Step 22 If overhead circuits exist in the amplifier or optical service channel cards installed in Side A of ROADM Node 2, complete “[DLP-G112 Delete Overhead Circuits](#)” task on [page 7-66](#) to delete these overhead circuits.

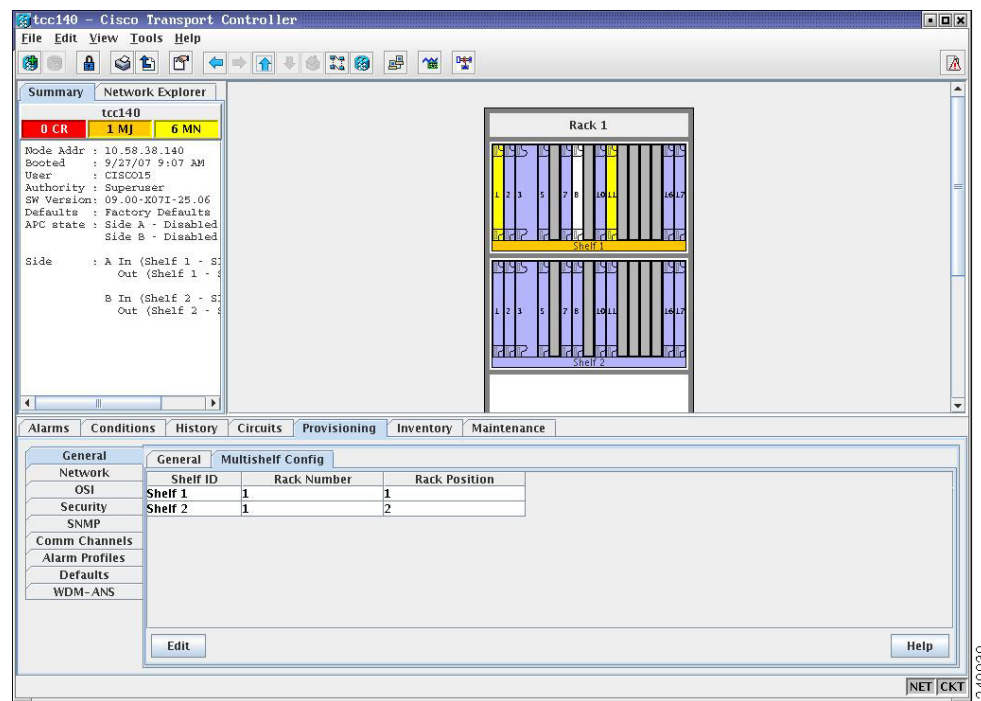
Step 23 Click the **Provisioning > WDM-ANS > Optical Side** tab.

Step 24 In the optical sides table, click the optical side corresponding to the amplifier or optical service channel cards installed in Side A of ROADM Node 2.

Step 25 Click **Delete**.

- Step 26** In the confirmation dialog box, click **Yes**.
- Step 27** Click the **Provisioning > WDM-ANS > Internal Patchcords** tab.
- Step 28** Look in the To column of the internal patchcords table and make a list of internal patchcords that connect the amplifier or optical service channel cards in Side A to the 40-WSS-C/40-DMX-C card (or the 32WSS/32DMX and 32WSS-L/32DMX-L cards) in Side B of ROADM Node 2.
- Step 29** Click **Delete**.
- Step 30** In the confirmation dialog box, click **Yes**.
- Step 31** Remove the physical fiber and attenuators, if present, that connect the amplifier or optical service channel cards in Side A to the 40-WSS-C/40-DMX-C card (or the 32WSS/32DMX and 32WSS-L/32DMX-L cards) in Side B of ROADM Node 2.
- Step 32** If there are pluggable port modules (PPMs) that terminate on the ROADM Node 2, complete the “DLP-G280 Delete a PPM” task on page 5-15 to delete these PPMs.
- Step 33** Complete the [NTP-G107 Remove Permanently or Remove and Replace DWDM Cards](#), page 12-2 to delete the amplifier or optical service channel cards installed in Side A of ROADM Node 2.
- Step 34** Complete the [NTP-G163 Upgrade Nodes in Single-Shelf Mode to Multishelf Mode](#), page 3-103 to upgrade ROADM Node 1 to a multishelf configuration and add ROADM Node 2 as a subtending shelf. Figure 12-5 shows the final multishelf view of the node.

Figure 12-5 Final Multishelf View of the Node



- Step 35** In the multishelf view, click the **Provisioning > WDM-ANS > Internal Patchcords** tab.
- Step 36** Click **Create**. The Internal Patchcord Creation wizard appears.
- Step 37** In the Internal Patchcord Attributes page, choose OTS/OCH to OTS/OCH option and select the Bidirectional checkbox.
- Step 38** Click **Next**.

- Step 39** In the Internal Patchcord Origination page, provision the internal patchcord origination parameters.
- Shelf—Choose the shelf where the internal patchcord originates.
 - Slot—Choose one of the two 40-WSS-C card (or the 32WSS/32DMX and 32WSS-L/32DMX-L cards) where the internal patchcord originates.
 - Tx Port—Choose the EXP TX port where the internal patchcord originates.
- Step 40** Click **Next**.
- Step 41** In the Internal Patchcord Termination page, provision the internal patchcord origination parameters.
- Shelf—Choose the shelf where the internal patchcord terminates.
 - Slot—Choose the other 40-WSS-C card (or the 32WSS/32DMX and 32WSS-L/32DMX-L cards) where the internal patchcord terminates.
 - Rx Port—Choose the EXP RX port where the internal patchcord terminates.
- Step 42** Click **Next**.
- Step 43** Review the display-only information on the Internal Patchcord Origination Reverse page. This page shows the shelf, slot, and port that CTC will use for the opposite internal patchcord origination route.
- Step 44** Click **Next**.
- Step 45** Review the information displayed on the Internal Patchcord Termination Reverse page. This display-only page shows the shelf, slot, and port that CTC will use for the reverse internal patchcord termination route.
- Step 46** Click **Finish**. The new internal patchcord appears on the Internal Patchcord table.
- Step 47** Complete the [“NTP-G37 Run Automatic Node Setup” procedure on page 3-99](#).
- Step 48** In node view, click the **Circuits** tab.
- Step 49** Complete one or more of the following procedures to recreate circuits identified in Steps 4 and 19:
- [DLP-G105 Provision Optical Channel Network Connections, page 7-21](#)
 - [DLP-G346 Provision Optical Channel Client Connections, page 7-4](#)
 - [DLP-G395 Create an Optical Channel Trail, page 7-16](#)



Note Cisco recommends that you recreate the circuits one at a time.

- Step 50** Complete the [“NTP-G60 Create and Delete Overhead Circuits” procedure on page 7-59](#) to recreate circuits deleted in [Step 22](#).
- Step 51** Verify that each circuit appears on the Circuits table with a DISCOVERED status and an IS/Unlocked state. If not, repeat Steps 48 and 49.
- If the circuits still do not appear with a DISCOVERED status and IS/Unlocked state, contact your next level of support.
- Step 52** Click the **Provisioning > Pluggable Port Module > Pluggable Port Module** tab and click **Create** to recreate the PPMs deleted in [Step 32](#).
- Step 53** Complete the [“DLP-G180 Clear a Manual or Force Y-Cable or Splitter Protection Switch” task on page 10-43](#) for OCHNCs and/or OCHCCs that were switched to the opposite side of the ring as part of a splitter or Y-cable protection group to return the traffic to its original condition.

Stop. You have completed this procedure.

NTP-G177 Upgrade ANS Parameters on a DWDM Node

Purpose	This procedure upgrades the ANS parameters on a DWDM node.
Tools/Equipment	None
Prerequisite Procedures	Chapter 3, “Turn Up a Node” An updated Cisco MetroPlanner NE Update file recalculated for the node.
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher



Note

Do not begin this procedure until the Cisco MetroPlanner NE Update file is prepared for the node. You will import the new NE Update file and run ANS to recalculate the ANS parameters for the node.



Caution

Upgrading ANS parameters on one node requires ANS upgrades on all the other nodes within the network. Do not begin this procedure until you are prepared to complete the upgrade on all network nodes.



Caution

This procedure will affect the service of unprotected circuits that pass through the node.

- Step 1** Complete the [“DLP-G46 Log into CTC” task on page 2-27](#) at the node you want to update.
- Step 2** Click the **Circuits** tab.
- Step 3** Make a list of the OCHCCs, OCHNCs, and OCH trails that:
 - Terminate (add/drop) at the node.
 - Pass through the node on the express path for both the Side B-to-Side A and Side A-to-Side B directions.
- Step 4** If OCHNCs, OCH trails, and/or OCHCCs identified in [Step 3](#) are routed on the active path of a splitter or Y-cable protection group, complete the following steps. If not, continue with [Step 5](#).
 - a. Display the node containing the TXP, MXP, ADM-10G, GE_XP, 10GE_XP, or ITU-T line card with the Y-cable or splitter protection.
 - a. Force the traffic to the protect path in the opposite side of the ring using the [“DLP-G179 Apply a Force Y-Cable or Splitter Protection Switch” task on page 10-42](#).
- Step 5** For each circuit identified in [Step 3](#) that was not switched in [Step 4](#), place the circuit out of service using one or more of the following tasks.
 - [DLP-G394 Change an OCHCC Administrative State, page 7-12](#)
 - [DLP-G419 Change an OCH Trail Administrative State, page 7-20](#)
 - [DLP-G420 Change an OCHNC Administrative State, page 7-25](#)
- Step 6** Complete the [“NTP-G143 Import the Cisco MetroPlanner NE Update Configuration File” procedure on page 3-42](#).
- Step 7** Complete the [“NTP-G37 Run Automatic Node Setup” procedure on page 3-99](#).

Step 8 In node view, click the **Circuits** tab.

Step 9 If you placed circuits out of service in [Step 5](#), complete one or more of the following tasks to put them in service.

- [DLP-G394 Change an OCHCC Administrative State, page 7-12](#)
- [DLP-G419 Change an OCH Trail Administrative State, page 7-20](#)
- [DLP-G420 Change an OCHNC Administrative State, page 7-25](#)

Step 10 Verify that each circuit appears on the Circuits table with a DISCOVERED status and an IS/Unlocked state. If not, complete one or more of the following tasks to recreate the circuits.

- [“DLP-G105 Provision Optical Channel Network Connections” task on page 7-21](#)
- [“DLP-G346 Provision Optical Channel Client Connections” task on page 7-4](#)
- [“DLP-G395 Create an Optical Channel Trail” task on page 7-16](#)



Note Cisco recommends that you recreate the circuits one at a time.

If the circuits still do not appear with a DISCOVERED status and IS/Unlocked state, contact your next level of support.

Stop. You have completed this procedure.
