Create Channels and Circuits

This chapter explains how to create Cisco ONS 15454 dense wavelength division multiplexing (DWDM) optical channel client connections (OCHCCs), optical channel network connections (OCHNCs), and overhead circuits. It also tells you how to upgrade OCHNCs to OCHCCs.

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.

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

1. NTP-G151 Create and Delete Optical Channel Client Connections, page 7-2—Complete as needed.
2. NTP-G59 Create and Delete Optical Channel Network Connections, page 7-9—Complete as needed.
3. NTP-G150 Upgrade Optical Channel Network Connections to Optical Channel Client Connections, page 7-13—Complete as needed.
4. NTP-G60 Create and Delete Overhead Circuits, page 7-20—Complete as needed to create IP-encapsulated, firewall, and proxy tunnels, to create generic communications channel (GCC) terminations, to provision orderwire, or to create user data channel (UDC) circuits.
5. NTP-G62 Create a J0 Section Trace, page 7-28—Complete as needed to monitor interruptions or changes to traffic between two nodes.
6. NTP-G58 Locate and View Optical Channel Network and Client Connections, page 7-30—Complete as needed to find, view, and filter OCHCCs and OCHNCs.

NTP-G151 Create and Delete Optical Channel Client Connections

Purpose	This procedure creates and deletes DWDM OCHCC circuits.
Tools/Equipment	None
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 As needed, identify the OCHCC to be provisioned using the "DLP-G350 Use the Cisco MetroPlanner Traffic Matrix Report" task on page 6-8.

Step 2 Complete the "DLP-G46 Log into CTC" task on page 2-27 at a node on the network where you want to create and delete OCHCCs. If you are already logged in, continue with Step 3.

Step 3 If you want to assign a name to the OCHCC source and destination ports before you create the circuit, complete the "DLP-G104 Assign a Name to a Port" task on page 7-3. If not, continue with Step 4.

Note Naming the client ports facilitates the OCHCC creation by helping you more quickly identify the correct client ports.

Step 4 If the client transponder (TXP), muxponder (MXP), or ITU-T line cards are installed in a multishelf node, continue with Step 5. If not, complete the following steps:

a. Use the information obtained from the Cisco MetroPlanner traffic matrix report in Step 1 to complete the "DLP-G344 Verify Provisionable Patchcords" task on page 7-16. If provisionable patchcords (PPCs) are created between the nodes containing the TXP/MXP/ITU-T line cards and the DWDM nodes at each end of the OCHCC, continue with Step 5. If not, continue with Step b.

b. Complete the "DLP-G99 Create a Provisionable Patchcord" task on page 7-18 to create the PPCs between the OCHCC source and destination nodes.

Step 5 If the client TXP/MXP/ITU-T line cards are installed in a multishelf node, use the information obtained from the Cisco MetroPlanner traffic matrix report in Step 1 to create internal patchcords between the 32DMX, 32DMX-O, or 32DMX-L ports and the TXP/MXP trunk ports using the "DLP-G354 Create an Internal Patchcord Manually" task on page 3-82. Create the internal patchcords on both the source and destination nodes of each OCHCC path. If the TXP/MXP/ITU-T line cards are not installed in a multishelf node, continue with Step 6.

Step 6 Complete the "DLP-G345 Verify OCHCC Client Ports" task on page 7-3.

Step 7 Complete the "DLP-G346 Provision Optical Channel Client Connections" task on page 7-4 as needed.

Step 8 Complete the "DLP-G347 Delete Optical Channel Client Connections" task on page 7-8 as needed.

Stop. You have completed this procedure.

DLP-G104 Assign a Name to a Port

Purpose	This task assigns a name to a port on any ONS 15454 card.
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 Double-click the card that has the port that you want to provision. This can be any port on a traffic-carrying card.

Step 2 Click the **Provisioning** tab.

Step 3 Double-click the **Port Name** table cell for the port number to which you are assigning a name. The cell activates and a blinking cursor appears to indicate where you are to type the port name.

Step 4 Type the port name.

The port name can be up to 32 alphanumeric/special characters. The field is blank by default.

Step 5 Click **Apply**.

Step 6 Return to your originating procedure (NTP).

DLP-G345 Verify OCHCC Client Ports

Purpose	This task verifies the OCHCC client ports.
Tools/Equipment	DLP-G46 Log into CTC, page 2-27
Prerequisite Procedures	Chapter 3, “Turn Up a Node”
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher

Step 1 Display the TXP, MXP, or ITU-T line card in card view.

Step 2 Click the **Provisioning > Maintenance** tabs.

Step 3 Verify that the administrative state of the client and trunk ports is Out of Service and Disabled (OOS,DSBLD) (ANSI) or Locked,disabled (ETSI). If so, continue with Step 4. If not, complete the following steps:

a. Click the Admin State table cell and choose **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI) for the client and trunk ports.

b. Click **Apply**.

Step 4 Click the **Provisioning > Pluggable Port Modules** tabs.

Step 5 Verify that a pluggable port module has been created and that the port rate under the Pluggable Port area is provisioned. If so, continue with Step 6. If not, complete the "DLP-G277 Provision a Multirate PPM" task on page 5-6 and the "DLP-G278 Provision the Optical Line Rate" task on page 5-9.

Step 6 Repeat Steps 1 through 5 for each TXP, MXP, or ITU-T line card containing OCHCC ports that you want to verify.

Step 7 Return to your originating procedure (NTP).

DLP-G346 Provision Optical Channel Client Connections

Purpose	This task creates an OCHCC between two TXP, MXP, or ITU-T-compliant line card ports.
Tools/Equipment	Cisco MetroPlanner Traffic Matrix Report
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27 DLP-G345 Verify OCHCC Client Ports, page 7-3
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher

Step 1 From the View menu, choose **Go to Network View**.

Step 2 Click the **Circuits** tab, then click **Create**.

Step 3 In the Circuit Creation dialog box, choose **OCHCC** from the Circuit Type list.

Step 4 Click **Next**.

Step 5 In the Circuit area of the Circuit Attributes page (Figure 7-1), provision the OCHCC circuit attributes:

- Name—Assign a name to the OCHCC. The name can be alphanumeric and up to 48 characters (including spaces). Circuit names should be 44 characters or less if you want the ability to create monitor circuits. If you leave the field blank, Cisco Transport Controller (CTC) assigns a default name to the circuit.
- Type—(Display only) OCHCC.
- Size—Defines the circuit payload type and rate. Two fields are provided. The first specifies the payload type. Choose a payload type, then choose the rate in the next field. Table 7-1 provides the OCHCC payload types and rates.

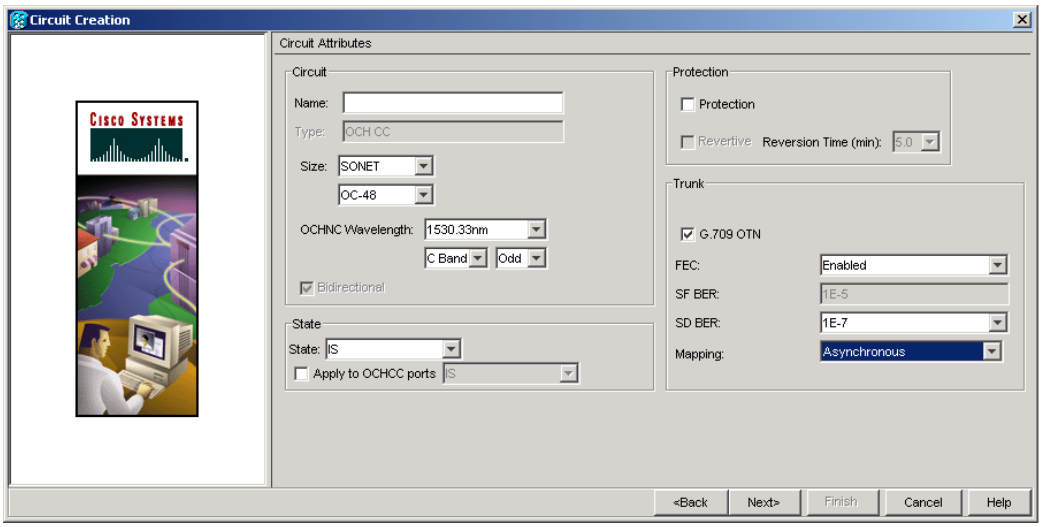
Note The payload type and rate must match the PPM provisioning on the client cards at the source and destination nodes.

Table 7-1 OCHCC Client Rates

Payload Type	Rates
SONET/SDH	OC-192 (ANSI)/STM-64 (ETSI)—9.92 Gbps
	OC-48 (ANSI)/STM-12 (ETSI)—2.48 Gbps
	0C-12 (ANSI)/STM-4 (ETSI)—622 Mbps
	OC-3 (ANSI)/STM-1 (ETSI)—155 Mbps
Ethernet	10GE—One Gigabit Ethernet 11.25 Gbps
	1GE—One Gigabit Ethernet 1.125 Gbps
FC/FICON	10GFC—Fibre Channel 10Gpbs
	4GFC—Fibre Channel 4Gbps
	2GFC—Fibre Channel 2.125Gbps
	1GFC—Fibre Channel 1.06 Gbps
	4GFICON—FICON 4Gbps
	2GFICON—FICON 2.125 Gbps
	1GFICON—FICON 1.06 Gbps
Data Storage	ESCON—Enterprise System Connection 200 Mbps (IBM signal)
	ISC Peer—InterSystem Coupling Link 3 (ISC3)
	ISC3 Peer 1G—InterSystem Coupling Link 3 (ISC3) 1 Gpbs
	ISC3 Peer 2G—InterSystem Coupling Link 3 (ISC3) 2 Gpbs
	ISC COMPAT—InterSystem Coupling Link 1 (ISC1)
Video	HDTV—High Definition Television
	SDI/DI—Serial Digital Interface and Digital Video signal type 1
	DV6000—Proprietary signal from video vendor
Other	Pass Through—Creates a pass-through OCHCC

- OCHNC Wavelength—Provides three fields to define the wavelength that the OCHCC will use to travel across the OCH network. Choose a wavelength from the first field. In the second field, you can change the wavelength band by choosing either **C Band** or **L Band**. In the third field, you can indicate whether odd or even C-band or L-band wavelengths are displayed.
- Bidirectional—(Display only) OCHCCs are bidirectional. This field cannot be changed.

Figure 7-1 OCHCC Attributes Page



Step 6 In the State area of the Circuit Attributes page, provision the OCHCC state attributes:

- State—Provisions the OCHCC circuit state. The state can be **IS** (ANSI)/**Unlocked** (ETSI) or **OOS,DSBLED** (ANSI)/**Locked,Disabled** (ETSI).
- Apply to OCHCC ports—If checked, applies the state chosen in the Apply to OCHCC ports drop-down list to the OCHCC client ports. For TXP, MXP, TXPP, or MXPP cards, this will be the client and all trunk ports. For ITU-T-compliant line cards, this will be the trunk port only. The states that you can apply include: IS (ANSI)/Unlocked (ETSI), OOS,DSBLED (ANSI)/Locked,Disabled (ETSI), and IS,AINS (ANSI)/Unlocked,AutomaticInService (ETSI).

Step 7 In the Protection area of the Circuit Attributes page, provision the OCHCC protection attributes:

- Protection—Check this box if the source and destination client cards are TXPP or MXPP cards. Checking the box restricts the source and destination choices to those cards and allows you to provision the reversion parameters.
- Reversion—If Protection is checked, checking this box turns on the TXPP or MXPP reversion parameter.
- Reversion Time—If Reversion is checked, set the time before the protection will switch to the active port after conditions that caused the switch are remedied.

Step 8 In the Trunk area of the Circuit Attributes page, provision the OCHCC trunk attributes:

Note For information about the trunk fields supported by the TXP, MXP, or ITU-T line card, refer to Chapter 11, "Change DWDM Card Settings," and to the "Card Reference" chapter in the *ONS 15454 DWDM Reference Manual*.

- G.709 OTN—If checked, enables the ITU-T G.709 optical transport network on the client cards, if permitted by the client card and payload.
- FEC—Allows you to enable or disable forward error correction (FEC) on the client cards, if permitted by the client card and payload.
- SF BER—Allows you to set the signal fail bit error rate for payloads and client cards that allow the parameter to be provisioned.

- SD BER—Allows you to set the signal degrade bit error rate for payloads and client cards that allow the parameter to be provisioned.
- Mapping—Sets the mapping for the TXP_MR_10E, TXP_MR_10E_C, TXP_MR_10E_L, MXP_MR_10DME_C, and MXP_MR_DME_L cards. If you set mapping to **Synchronous**, the client signal is mapped into the OTU2 signal without justification of the payload because the client signal timing (the timing source) is the same as the trunk output timing. If you set mapping to **Asynchronous**, the trunk timing is disconnected from the client timing (because the network element [NE] is the timing source), so justification is needed to map the client signal (OC192/STM64) to OTU2 trunk output.

Step 9 Click **Next**.

Step 10 In the Source area, choose the source node from the Node drop-down list, then choose the source shelf (multishelf nodes only), source slot, and, if needed, source port from the Shelf, Slot, and Port drop-down lists.

If no nodes appear in the Node drop-down list, complete the following steps:

a. Click **Back** and review your circuit attribute settings. Verify that they are set to the client attributes provisioned on the client cards. If necessary, click **Cancel** and complete the "DLP-G345 Verify OCHCC Client Ports" task on page 7-3 to verify the client settings.

b. If the source and/or destination nodes are not configured for multishelf, complete the "DLP-G344 Verify Provisionable Patchcords" task on page 7-16 to verify that the patchcords were created accurately.

If these steps do not solve the problem, refer to your next level of support.

Step 11 Click **Next**.

Step 12 In the Destination area, choose the destination node from the Node drop-down list, then choose the destination shelf (multishelf nodes only), destination slot and, if needed, destination port from the Shelf, Slot, and Port drop-down lists.

If no nodes appear in the Node drop-down list, complete the following steps:

a. Click **Back** and review your circuit attribute settings. Verify that they are set to the client attributes provisioned on the client cards. If necessary, click **Cancel** and complete the "DLP-G345 Verify OCHCC Client Ports" task on page 7-3 to verify the client settings.

b. If the source and/or destination nodes are not configured for multishelf, complete the "DLP-G344 Verify Provisionable Patchcords" task on page 7-16 to verify that the patchcords were created accurately.

If these steps do not solve the problem, refer to your next level of support.

Step 13 Click **Finish**. The OCHCC and its OCH trail appear in the Circuits window. After the circuit status has been verified, the DISCOVERED status appears in the Status column.

If the OCHCC status does not change to DISCOVERED within a 2 to 3 minutes, refer to the *ONS 15454 DWDM Troubleshooting Guide* for troubleshooting procedures.

Step 14 Return to your originating procedure (NTP).

DLP-G347 Delete Optical Channel Client Connections

Purpose	This task deletes DWDM OCHCC circuits.
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

Note If you are deleting more than half of all the active OCHCCs, Cisco recommends that you delete them two at a time to allow for proper power compensation. This does not apply if you are deleting all the active OCHCCs.

Step 1 Complete the "NTP-G103 Back Up the Database" procedure on page 13-2 and record the circuit information if it will be recreated.

Step 2 Consult your network operations center (NOC) or other appropriate personnel to verify that the OCHCC can be safely deleted.

Step 3 Investigate all network alarms and resolve any problems that might be affected by the OCHCC deletion.

Step 4 Choose **View > Go to Network View**.

Step 5 Click the **Circuits** tab.

Step 6 Choose one or more OCHCCs, identified under the Type column, that you want to delete, then click **Delete**.

Step 7 In the Delete Circuits confirmation dialog box, complete the following:

- Change drop port admin state—Check this box if you want to change the circuit source and destination ports administrative state. After checking the box, choose one of the following administrative states:
  - **IS** (ANSI) or **Unlocked** (ETSI)—Puts the ports in service.
  - **IS,AINS** (ANSI) or **UnlockedAutomaticInService** (ETSI)—Puts the ports in automatic in service.
  - **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI)—Removes the ports from service and disables them.
  - **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI)—Removes the ports from service for maintenance.
- Notify when completed—If checked, the CTC Alerts confirmation dialog box indicates when the OCHCC is deleted. During this time, you cannot perform other CTC functions. If you are deleting many OCHCCs, waiting for confirmation might take a few minutes. Circuits are deleted whether or not this check box is checked.

Note The CTC Alerts dialog box will not automatically open to show a deletion error unless you checked All alerts or Error alerts only in the CTC Alerts dialog box. For more information, see the "DLP-G53 Configure the CTC Alerts Dialog Box for Automatic Popup" task on page 2-34. If the CTC Alerts dialog box is not set to open automatically with a notification, the red triangle inside the CTC Alerts toolbar icon indicates that a notification exists.

Step 8 Complete one of the following:

- If you checked Notify when completed, the CTC Alerts dialog box appears. If you want to save the information, continue with Step 9. If you do not want to save the information, continue with Step 10.
- If you did not check Notify when completed, the Circuits window appears. Continue with Step 10.

Step 9 If you want to save the information in the CTC Alerts dialog box, complete the following steps. If you do not want to save it, continue with Step 11.

a. Click **Save**.

b. Click **Browse** and navigate to the directory where you want to save the file.

c. Type the file name using a TXT file extension, and click **OK**.

Step 10 Click **Close** to close the CTC Alerts dialog box.

Step 11 Complete the "NTP-G103 Back Up the Database" procedure on page 13-2 if you require a backup of your changes.

Step 12 Return to your originating procedure (NTP).

NTP-G59 Create and Delete Optical Channel Network Connections

Purpose	This procedure creates and deletes DWDM OCHNC channels.
Tools/Equipment	None
Prerequisite Procedures	Chapter 3, "Turn Up a Node"
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at a node on the network where you want to create and delete OCHNCs. If you are already logged in, continue with Step 2.

Step 2 If you want to assign a name to the OCHNC source and destination ports before you create the circuit, complete the "DLP-G104 Assign a Name to a Port" task on page 7-3. If not, continue with the next step.

Step 3 Complete the "DLP-G105 Provision Optical Channel Network Connections" task on page 7-10 as needed.

Step 4 Complete the "DLP-G106 Delete Optical Channel Network Connections" task on page 7-12 as needed.

Stop. You have completed this procedure.

DLP-G105 Provision Optical Channel Network Connections

Purpose	This task creates an OCHNC between ONS 15454s that are provisioned for DWDM.
Tools/Equipment	None
Prerequisite Procedures	• DLP-G46 Log into CTC, page 2-27 • An OCHNC add port on the source node and an OCHNC drop port on destination node of the same wavelength • Cisco MetroPlanner Traffic Matrix Report
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher

Step 1 Choose **View > Go to Network View**.

Step 2 Click the **Circuits** tab, then click **Create**.

Step 3 In the Circuit Creation dialog box, choose **OCHNC** from the Circuit Type list.

Step 4 Click **Next**.

Step 5 In the Circuit area of the Circuit Attributes, provision the OCHNC circuit attributes:

- Name—Assign a name to the OCHNC. The name can be alphanumeric and up to 48 characters (including spaces). Circuit names should be 44 characters or less if you want the ability to create monitor circuits. If you leave the field blank, CTC assigns a default name to the circuit.
- Type—(Display only) OCHNC.
- Size—Equipped non specific is the default. You cannot change it.
- OCHNC Wavelength—Choose a band (either **C Band** or **L Band**) in the lower drop-down list. Then, choose the wavelength that you want to provision in the upper drop-down list. Table 7-2 lists the thirty-two available wavelengths.

Table 7-2 OCHNC Channels

Channel No.	Channel ID	Frequency (GHz)	Wavelength (nm)
1	30.3	195.9	1530.33
2	31.2	195.8	1531.12
3	31.9	195.7	1531.90
4	32.6	195.6	1532.68
5	34.2	195.4	1534.25
6	35.0	195.3	1535.04
7	35.8	195.2	1535.82
8	36.6	195.1	1536.61
9	38.1	194.9	1538.19
10	38.9	194.8	1538.98
11	39.7	194.7	1539.77

Table 7-2 OCHNC Channels (continued)

Channel No.	Channel ID	Frequency (GHz)	Wavelength (nm)
12	40.5	194.6	1540.56
13	42.1	194.4	1542.14
14	42.9	194.3	1542.94
15	43.7	194.2	1543.73
16	44.5	194.1	1544.53
17	46.1	193.9	1546.12
18	46.9	193.8	1546.92
19	47.7	193.7	1547.72
20	48.5	193.6	1548.51
21	50.1	193.4	1550.12
22	50.9	193.3	1550.92
23	51.7	193.2	1551.72
24	52.5	193.1	1552.52
25	54.1	192.9	1554.13
26	54.9	192.8	1544.94
27	55.7	192.7	1555.75
28	56.5	192.6	1556.55
29	58.1	192.4	1558.17
30	58.9	192.3	1558.98
31	59.7	192.2	1559.79
32	60.6	192.1	1560.61

- Use OCHNC Direction—Choose the OCHNC direction, either **East to West** or **West to East**. If you choose West to East, the channel will exit the node through the LINE-TX port of the east OSC-CSM, OPT-BST, or OPT-BST-E card, named the East Side Card by Cisco MetroPlanner (typically, these cards are hosted by Slot 17). If you choose East to West, the channel will exit the node through the LINE-TX port of the west OSC-CSM, OPT-BST, or OPT-BST-E card, named the West Side Card by Cisco MetroPlanner (typically, these cards are hosted by Slot 1).

  Note OCHNC direction is not used in Software Release 7.2.

- Bidirectional—Check this check box to create a bidirectional OCHNC; uncheck it to create a unidirectional OCHNC.
- State—Provisions the OCHNC circuit state. The state can be **IS** (ANSI)**/Unlocked** (ETSI) or **OOS,DSBLED** (ANSI)**/Locked,Disabled** (ETSI).

Step 6 Click **Next**.

Step 7 In the Circuit Source area, choose the source node from the Node drop-down list, then choose the source shelf (multishelf only), source slot, and if needed, source port from the Shelf, Slot, and Port drop-down lists.

The source In and Out shelf (multishelf only), slot, and port appear under the OTS Lines area to show the optical transport signal (OTS) in and out shelf, slot, and ports.

Step 8 Click **Next**.

Step 9 In the Circuit Destination area, choose the destination node from the Node drop-down list, then choose the destination shelf (multishelf only), destination slot, and if needed, destination port from the Shelf, Slot, and Port drop-down lists.

The destination In and Out shelf (multishelf only), slot and port appear under the OTS Lines area to show the destination in and out shelf, slots, and ports.

Step 10 Click **Finish**. After the circuit status has been verified, the DISCOVERED status appears in the Status column. (The circuit might take a few minutes to come up, depending on the size of the network.) If problems occur, refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* as necessary.

Step 11 Return to your originating procedure (NTP).

DLP-G106 Delete Optical Channel Network Connections

Purpose	This task deletes DWDM OCHNC circuits.
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

Note If you are deleting more than half of all the active OCHNCs, Cisco recommends that you delete them two at a time to allow for proper power compensation. This does not apply if you are deleting all the active OCHNCs.

Step 1 Complete the "NTP-G103 Back Up the Database" procedure on page 13-2 and record the circuit information if it will be recreated.

Step 2 Consult your NOC or other appropriate personnel to verify that the OCHNC can be safely deleted.

Step 3 Investigate all network alarms and resolve any problems that might be affected by the OCHNC deletion.

Step 4 Choose **View > Go to Network View**.

Step 5 Click the **Circuits** tab.

Step 6 On the Circuits table, use the Circuit Name and Type columns to click the OCHNCs that you want to delete. (To choose more than one OCHNC, press the **Shift** key as you click the circuits.)

Step 7 Click **Delete**.

Step 8 In the Delete Circuits confirmation dialog box, check **Notify when completed**, as needed.

If checked, the CTC Alerts confirmation dialog box indicates when the OCHNC is deleted. During this time, you cannot perform other CTC functions. If you are deleting many OCHNCs, waiting for confirmation might take a few minutes. Circuits are deleted whether or not this check box is checked.

Note The CTC Alerts dialog box will not automatically open to show a deletion error unless you checked All alerts or Error alerts only in the CTC Alerts dialog box. For more information, see the "DLP-G53 Configure the CTC Alerts Dialog Box for Automatic Popup" task on page 2-34. If the CTC Alerts dialog box is not set to open automatically with a notification, the red triangle inside the CTC Alerts toolbar icon indicates that a notification exists.

Step 9 Complete one of the following:

- If you checked Notify when completed, the CTC Alerts dialog box appears. If you want to save the information, continue with Step 10. If you do not want to save the information, continue with Step 11.
- If you did not check Notify when completed, the Circuits window appears. Continue with Step 12.

Step 10 If you want to save the information in the CTC Alerts dialog box, complete the following steps. If you do not want to save it, continue with Step 11.

a. Click **Save**.

b. Click **Browse** and navigate to the directory where you want to save the file.

c. Type the file name using a.txt file extension, and click **OK**.

Step 11 Click **Close** to close the CTC Alerts dialog box.

Step 12 Complete the "NTP-G103 Back Up the Database" procedure on page 13-2 if you require a backup of your changes.

Step 13 Return to your originating procedure (NTP).

NTP-G150 Upgrade Optical Channel Network Connections to Optical Channel Client Connections

Purpose	This procedure upgrades OCHNCs created in earlier software releases to OCHCCs.
Tools/Equipment	None
Prerequisite Procedures	DLP-G105 Provision Optical Channel Network Connections, page 7-10
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at a node on the network where you want to upgrade the OCHNCs. If you are already logged in, continue with Step 2.

Step 2 From the View menu, choose **Go to Network View**.

Step 3 Click the **Circuits** tab and find the OCHNC you want to upgrade.

Step 4 Record the following information:

- OCHNC Wlen (OCHNC wavelength)

- Source slot and port (both east and west nodes)
- Destination slot and port (both east and west nodes)

Step 5 Use the information recorded in Step 4 to complete one of the following tasks:

- "DLP-G344 Verify Provisionable Patchcords" task on page 7-16—Complete this task if provisionable patchcords exist on the network but you are not sure whether one was created for the OCHNC that you want to upgrade.
- "DLP-G99 Create a Provisionable Patchcord" task on page 7-18—Complete this task if you know that PPCs were not created between the OCHNC node and the client node. If you recently upgraded from a previous release, you must create PPCs between the source client and OCHNC node, and between the destination client and OCHNC node.

Step 6 In network view, click the OCHNC that you want to upgrade.

Step 7 From the Tools menu, choose **Circuits > Upgrade OCHNC**. If the Upgrade OCHNC Initialization "Completed" status appears (Figure 7-2), continue with Step 8. If the "Failed" status appears (Figure 7-3), complete the following steps:

a. Click each failure reason to view the failure details. A common cause of initialization failures is the absence or incorrect completion of PPCs between the client nodes and the optical channel (OCH) nodes.

b. Repeat Steps 2 through 7, verifying that the OCHNC ports and PPC path match on both sides. If the upgrade "Failed" status appears again, click **Save** to save the results to a local or network computer. (The file can be opened with any text editor.) Then, contact your next level of support.

Figure 7-2 Upgrade OCHNC Initialization—Completed

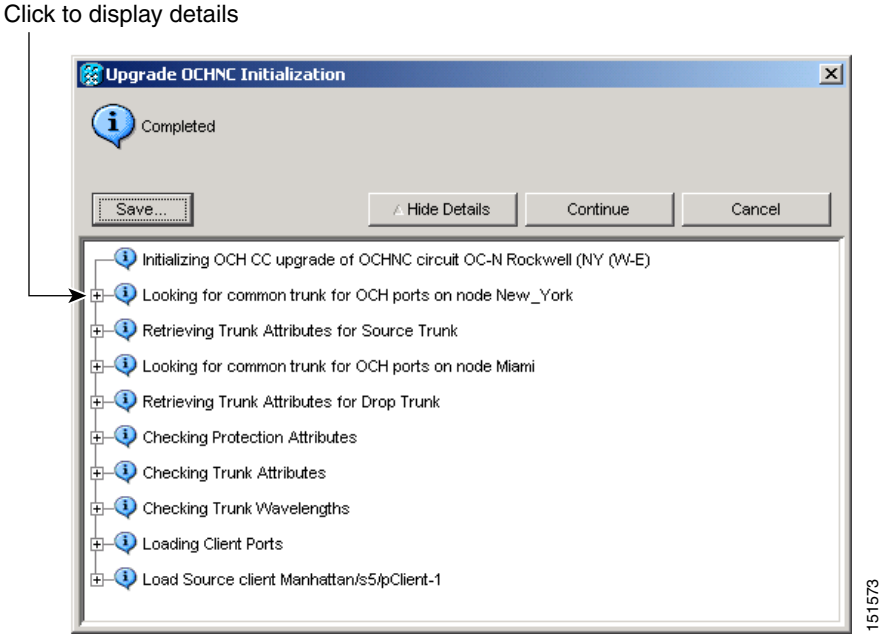
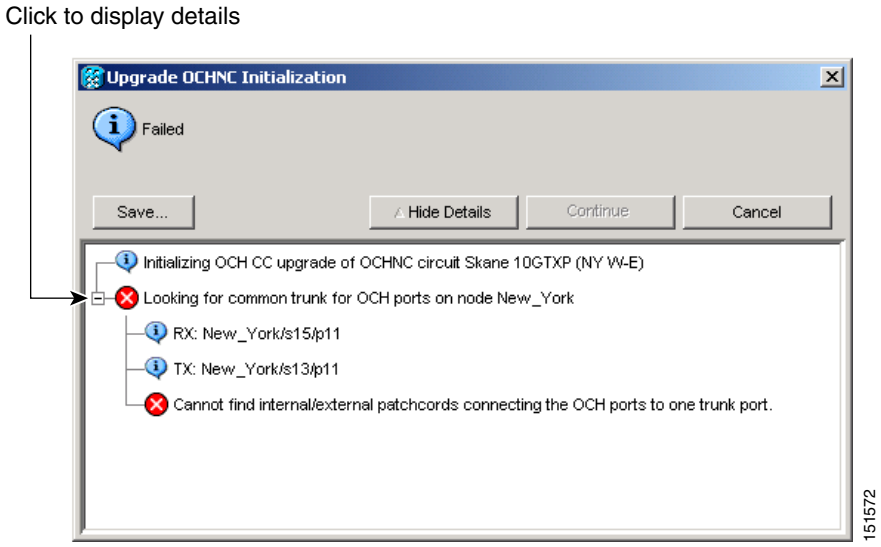


Figure 7-3 Upgrade OCHNC Initialization—Failed



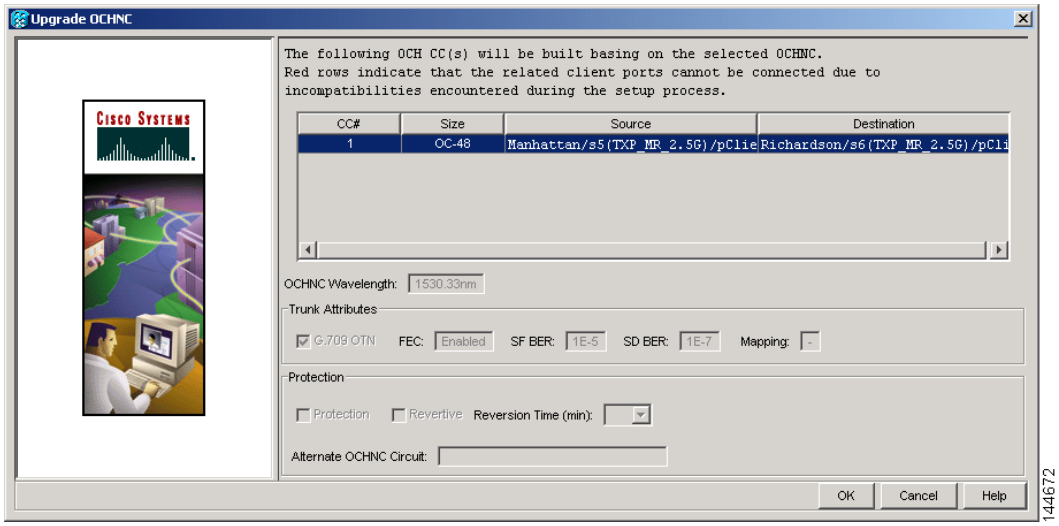
Step 8 Click each result to review the details. If you want to save the results, click Save and save the results to a file on a local or network computer. Click **Continue**.

Step 9 Review the information in the Upgrade OCHNC dialog box (Figure 7-4) then click **OK**.

Step 10 Click **Yes** in the confirmation dialog box, then click **OK** on the Completed Upgrade OCHNC wizard page.

Tip To see all of the information in the Source and Destination table cells, increase the column widths by clicking and dragging the column heading borders to the right or left.

Figure 7-4 Upgrade OCHNC Dialog Box



Step 11 View the OCHCC and its OCH trail in the Circuits window. For information and procedures for viewing and editing OCHCC and OCH trails, see the "NTP-G58 Locate and View Optical Channel Network and Client Connections" procedure on page 7-30.

Stop. You have completed this procedure.

DLP-G344 Verify Provisionable Patchcords

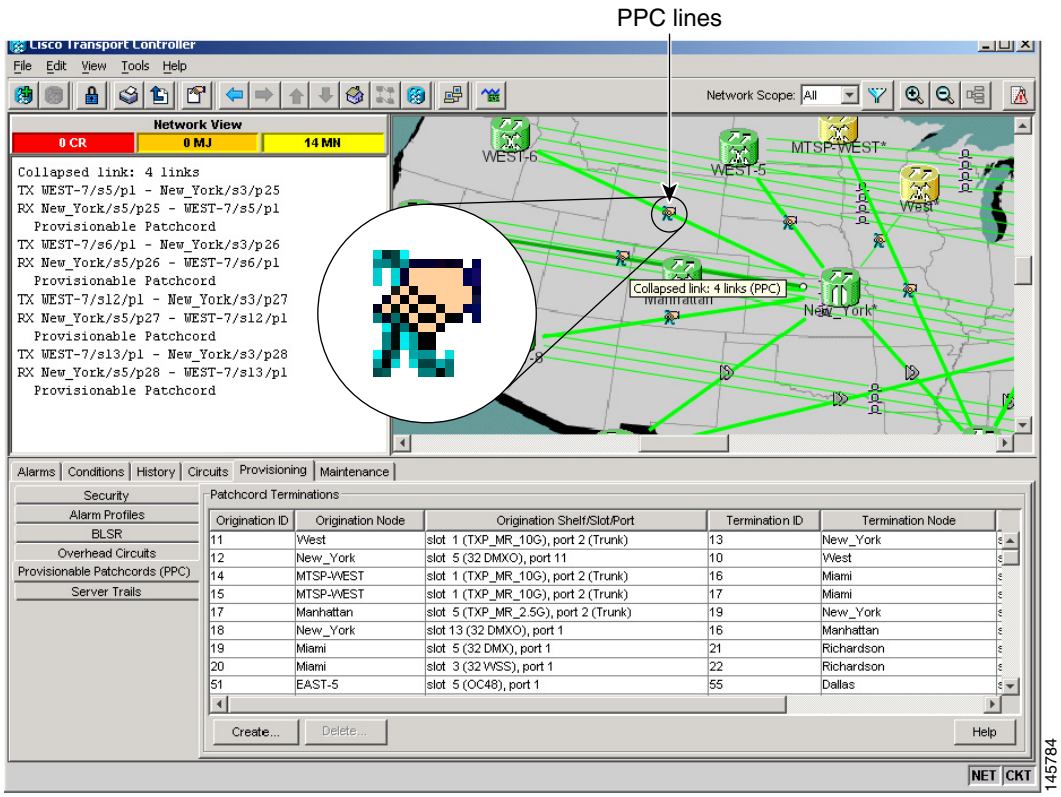
Purpose	This task verifies the PPCs that are required between client TXP/MXP/ITU-T line cards and OCH DWDM nodes for OCHCCs. This task is not required for OCHNCs.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > Provisionable Patchcords (PPC)** tabs.

Step 2 Use one of the following methods to verify that PPCs exist from the client TXP/MXP/ITU-T line card node, slot, and port to the DWDM OCH node, slot, port, and wavelength:

- Review the Patchcord Terminations table. PPCs should exist from the client TXP/MXP/ITU-T line card node to the OCH node, slot, and port recorded in the referring procedure.
- Review the network graphic (see Figure 7-5). PPCs are indicated by a small hand holding a lambda symbol. Clicking the PPC line on the graphic displays the PPC source and destination nodes, slots, and ports in the CTC information area. The information in the information area should match the node, slot, and port recorded in the referring procedure.

Figure 7-5 Viewing the Provisionable Patchcords Table



Step 3 Return to your originating procedure (NTP).

DLP-G99 Create a Provisionable Patchcord

Purpose	This task creates a PPC, also called a virtual link. PPCs appear as dashed lines in CTC network view. PPCs are required for OCHCCs when the TXP, MXP, or ITU-T line cards are not installed in the same node (either single or multishelf node) as the OCH (DWDM) cards. (PPCs are not required for OCHNCs.) PPCs create a virtual connection between the OCH and client nodes. For the specific situations in which a patchcord is necessary, refer to the "Management Network Connectivity" chapter in the *Cisco ONS 15454 DWDM Reference Manual*.
Tools/Equipment	OC-N, TXP, MXP, OADM, ROADM, multiplexer (MUX), and demultiplexer (DMX) cards
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

Note This task requires data communications channel (DCC) or GCC connectivity between the OCH node and the subtended TXP, MXP, or ITU-T line card client shelves.

Note An optical port requires two patchcords when the remote end is Y-cable protected or is an add/drop multiplexer or multiplexer/demultiplexer port.

Step 1 Complete the following tasks, as needed, to verify the cabling between the TXP/MXP/line cards in the client node and the OCH cards in the DWDM node:

- DLP-G349 Use the Cisco MetroPlanner Internal Connections Report, page 3-60
- DLP-G350 Use the Cisco MetroPlanner Traffic Matrix Report, page 6-8

Step 2 In node view (single-shelf move) or multishelf view (multishelf mode), click the **Provisioning > Comm Channels > PPC** tabs. If you are in network view, click the **Provisioning > PPC** tabs.

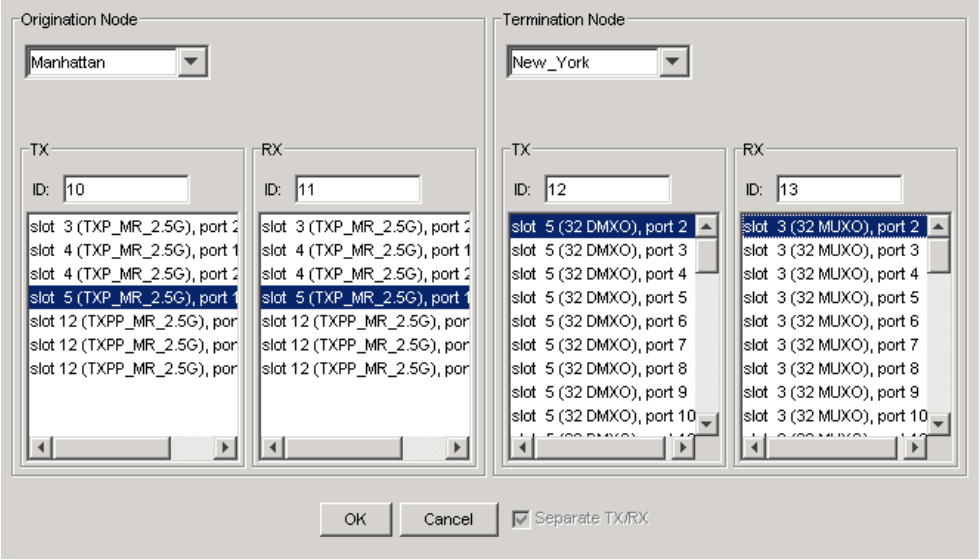
Step 3 Click **Create**. The Provisionable Patchcord dialog box appears.

Step 4 In the Origination Node area, choose the origination node. If you are in node view (single-shelf mode) or multishelf view (multishelf mode), the origination node defaults to the current node. If you are in network view, click the desired origination node from the drop-down list.

Step 5 In the Termination Node area, click the desired termination node from the drop-down list. If the remote node has not previously been discovered by CTC but is accessible by CTC, type the name of the remote node.

After you enter a termination node, the dialog box expands so that the TX and RX ports appear (Figure 7-6) for both the origination and termination nodes.

Figure 7-6 Create Provisionable Patchcord - Single Shelf to Single Shelf



Step 6 Type patchcord identifiers (0 through 32767) in the TX and RX ID fields for the origination node and the termination node. The identifiers are used for your internal tracking and to help identify PPCs. All TX and RX IDs must be unique.

Step 7 In the Origination Node area, click the desired origination slot/port from the list of available slots/ports. The origination ports and termination ports must be different. The TX and RX port selections will align automatically, depending on the card. For example, if you choose a TXP card in Slot 5 for the RX port, the TX will automatically change to Slot 5.

Step 8 In the Termination Node area, click the desired termination slot/port from the list of available slots/ports. The origination ports and the termination ports must be different.

Step 9 If you need to provision transmit (Tx) and receive (Rx) separately for MUX/DMX cards, check the **Separate Tx/Rx** check box. If not, continue with Step 10.

Step 10 Click **OK**.

Step 11 If you provisioned a patchcord on a port in a 1+1 protection group, a dialog box appears to ask if you would like to provision the peer patchcord. Click **Yes**. Repeat Steps 4 through 10.

Step 12 Return to your originating procedure (NTP).

NTP-G60 Create and Delete Overhead Circuits

Purpose	This procedure creates overhead circuits on an ONS 15454 network. Overhead circuits include ITU-T GCCs, the AIC-I card orderwire, and the AIC-I card UDC.
Tools/Equipment	None
Prerequisite Procedures	None
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Note The DCCs, GCCs, and OSCs should not be provisioned between SONET (ANSI) and SDH (ETSI) nodes using CTC or TL1 because they cannot operate between SONET and SDH nodes. These communication channels should be provisioned on similar nodes, such as SONET-to-SONET or SDH-to-SDH.

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at the node where you will create the overhead circuit. If you are already logged in, continue with Step 2.

Step 2 As needed, complete the "DLP-G76 Provision DCC/GCC Terminations" task on page 7-21.

Step 3 As needed, complete the "DLP-G97 Provision a Proxy Tunnel" task on page 7-23.

Step 4 As needed, complete the "DLP-G98 Provision a Firewall Tunnel" task on page 7-24.

Step 5 As needed, complete the "DLP-G109 Provision Orderwire" task on page 7-26.

Step 6 As needed, complete the "DLP-G110 Create a User Data Channel Circuit" task on page 7-27.

Step 7 As needed, complete the "DLP-G112 Delete Overhead Circuits" task on page 7-28.

Stop. You have completed this procedure.

DLP-G76 Provision DCC/GCC Terminations

Purpose	This task creates the DWDM DCC/GCC terminations required for network setup when using the TXP and MXP cards. Perform this task before you create OCHCC or OCHNC circuits for these cards. In this task, you can also set up the node so that it has direct IP access to a far-end non-ONS node over the DCC/GCC network.
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

Note The DCCs, GCCs, and OSCs should not be provisioned between SONET (ANSI) and SDH (ETSI) nodes using CTC or TL1 because they cannot operate between SONET and SDH nodes. These communication channels should be provisioned on similar nodes, such as SONET-to-SONET or SDH-to-SDH.

Step 1 If you are provisioning DCC termination on the TXP and MXP card, set the termination mode of the card as appropriate. For details, see the section "Termination Modes" in the chapter "Card Reference" of *Cisco ONS 15454 DWDM Reference Manual*.

Step 2 If you are provisioning DCC termination, ensure that the OTN is disabled on OTN interfaces (usually trunk ports). If OTN is enabled, provision GCC instead of DCC termination. For more information about managing OTN setting on the card, see the procedures for changing card OTN settings in Chapter 5, "Provision Transponder and Muxponder Cards".

Step 3 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > Comm Channels > GCC** tabs.

Step 4 Select the DCC or GCC tabs as necessary. Available tabs are:

- GCC (both ANSI and ETSI)
- DCC
  - SDCC and LDCC (for ANSI)
  - RS-DCC and MS-DCC (for ETSI)

Step 5 Click the **Create** button. The Create Terminations dialog box appears.

Step 6 Select the ports where you want to create the DCC/GCC termination. To select more than one port, press the **Shift** key or the **Ctrl** key.

Step 7 Under Port Admin State area, select one of the following:

- **Leave unchanged**—Does not change the DCC/GCC termination port administrative state.
- **Set to IS** or **Set to Unlocked** —Puts the DCC/GCC termination port in service.
- **Set OOS,DSLBD to IS,AINS** (for ANSI) or **Set Locked,disabled to Unlocked,automaticInService** (for ETSI)—Changes a port that is currently out of service or locked to automatic in service.
- **Set OOS,DSLBD to OOS,MT** (for ANSI) or **Set Locked,disabled to Locked,maintenance** (for ETSI)—Changes a port that is currently out of service or locked to out of service for maintenance.

Note For GCC termination, the GCC Rate is set as 192 kbps by default. This rate currently cannot be changed.

Step 8 Verify that the Disable OSPF on Link is unchecked. If this check box is checked, node discovery through the link termination will not happen.

Step 9 If the DCC/GCC termination includes a non-ONS node, check the **Far End is Foreign** check box. This automatically sets the far-end node IP address to 0.0.0.0, which means that any address can be specified by the far end. To change the default to a specific the IP address, see the "DLP-G184 Change a DCC/GCC Termination" task on page 10-44.

Step 10 In the Layer 3 area, perform one of the following:

- Check the **IP** box only if the DCC/GCC is between the ONS 15454 and another ONS node and only ONS nodes reside on the network. The DCC/GCC will use Point-to-Point Protocol (PPP).
- Check both the **IP** box and the **OSI** box if the DCC/GCC is between the ONS 15454 and another ONS node, and third party NEs that use the OSI protocol stack are on the same network. The DCC/GCC will use PPP.

Step 11 If you checked OSI, complete the following steps. If you checked IP only, continue with Step 12.

a. Click **Next**.

b. Provision the following fields:

- Router—Choose the OSI router.
- ESH—Sets the End System Hello (ESH) propagation frequency. End system (ES) NEs transmit ESHs to inform other ESs and intermediate systems (ISs) about the Network Service Access Points (NSAPs) that they serve. The default is 10 seconds. The range is 10 to 1000 seconds.
- ISH—Sets the Intermediate System Hello (ISH) PDU propagation frequency. IS NEs send ISHs to other ESs and ISs to inform them about the IS NEs that they serve. The default is 10 seconds. The range is 10 to 1000 seconds.
- IIH—Sets the Intermediate System to Intermediate System Hello (IIH) PDU propagation frequency. The IS-IS Hello protocol data units (PDUs) establish and maintain adjacencies between ISs. The default is 3 seconds. The range is 1 to 600 seconds.
- IS-IS Cost—Sets the cost for sending packets on the LAN subnet. The IS-IS protocol uses the cost to calculate the shortest routing path. The default metric cost for LAN subnets is 60. It normally should not be changed.

Step 12 Click **Finish**. The following alarms appear until all the network DCC/GCC terminations are created and the ports are in service:

- GCC-EOC for GCC termination
- EOC for SDCC termination
- EOC-L for LDCC termination

Step 13 Return to your originating procedure (NTP).

DLP-G97 Provision a Proxy Tunnel

Purpose	This task sets up a proxy tunnel to communicate with a non-ONS far-end node. Proxy tunnels are only necessary when the proxy server is enabled and a foreign GCC termination exists, or if static routes exist so that the GCC network is used to access remote networks or devices. You can provision a maximum of 12 proxy server tunnels.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27 DLP-G76 Provision DCC/GCC Terminations, page 7-21
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Note If the proxy server is disabled, you cannot set up a proxy tunnel.

Step 1 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > Network > Proxy** tabs.

Step 2 Click **Create**.

Step 3 In the Create Tunnel dialog box, complete the following:

- Source Address—Type the IP address of the source node (32 bit length) or source subnet (any other length).
- Length—Choose the length of the source subnet mask.
- Destination Address—Type the IP address of the destination node (32 bit length) or destination subnet (any other length).
- Length—Choose the length of the destination subnet mask.

Step 4 Click **OK**.

Step 5 Continue with your originating procedure (NTP).

DLP-G98 Provision a Firewall Tunnel

Purpose	This task provisions destinations that will not be blocked by the firewall. Firewall tunnels are only necessary when the proxy server is enabled and a foreign GCC termination exists, or if static routes exist so that the GCC network is used to access remote networks or devices. You can provision a maximum of 12 firewall tunnels.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-27 DLP-G76 Provision DCC/GCC Terminations, page 7-21
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Superuser

Note If the proxy server is configured as proxy-only or is disabled, you cannot set up a firewall tunnel.

Step 1 In node view (single-shelf mode) or multishelf view (multishelf mode), click the **Provisioning > Network > Firewall** tabs.

Step 2 Click **Create**.

Step 3 In the Create Tunnel dialog box, complete the following:

- Source Address—Type the IP address of the source node (32 bit length) or source subnet (any other length).
- Length—Choose the length of the source subnet mask.
- Destination Address—Type the IP address of the destination node (32 bit length) or destination subnet (any other length).
- Length—Choose the length of the destination subnet mask.

Step 4 Click **OK**.

Step 5 Continue with your originating procedure (NTP).

DLP-G108 Change the Service State for a Port

Purpose	This task puts a port in service or removes a port from service. After creating an IP-encapsulated tunnel, put the ports that are hosting the IP-encapsulated tunnel 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

Step 1 In node view (single-shelf mode) or shelf view (multishelf mode) on the shelf graphic, double-click the card with the port(s) you want to put in or out of service. The card view appears.

Step 2 Click the **Provisioning > Line** tabs.

Step 3 In the Admin State column for the desired port, choose one of the following from the drop-down list:

- **IS** (ANSI) or **Unlocked** (ETSI)—Puts the port in the IS-NR (ANSI) or Unlocked-enabled (ETSI) service state.
- **OOS,DSBLD** (ANSI) or **Locked,disabled** (ETSI)—Puts the port in the OOS-MA,DSBLD (ANSI) or Locked-enabled,disabled (ETSI) service state.

  For ANSI nodes, traffic is not passed on the port until the service state is changed to IS-NR; OOS-MA,MT; or Out-of-Service and Autonomous, Automatic In-Service (OOS-AU,AINS). For ETSI nodes, traffic is not passed on the port until the service state is changed to Unlocked-enabled; Locked-enabled,maintenance; or Unlocked-disabled,automaticInService.
- **OOS,MT** (ANSI) or **Locked,maintenance** (ETSI)—Puts the port in the OOS-MA,MT/Locked-enabled,maintenance service state. This service state does not interrupt traffic flow, but alarm reporting is suppressed and loopbacks are allowed. Raised fault conditions, whether or not their alarms are reported, can be retrieved from the CTC Conditions tab or by using the TL1 RTRV-COND command. Use the OOS-MA,MT/Locked-enabled,maintenance service state for testing or to suppress alarms temporarily. Change to the IS-NR/Unlocked-enabled or OOS-AU,AINS/Unlocked-disabled,automaticInService service states when testing is complete.
- **IS,AINS (ANSI)** or **Unlocked,automaticInService (ETSI)**—Puts the port in the OOS-AU,AINS/Unlocked-enabled,automaticInService service state. In this service state, alarm reporting is suppressed, but traffic is carried and loopbacks are allowed. After the soak period passes, the port changes to IS-NR/Unlocked-enabled. Raised fault conditions, whether their alarms are reported or not, can be retrieved from the CTC Conditions tab or by using the TL1 RTRV-COND command.

For more information about service states, refer to the "Administrative and Service States" appendix in the *Cisco ONS 15454 DWDM Reference Manual*.

Step 4 If you set the Admin State field to IS-AINS or Unlocked,automaticInService, set the soak period time in the AINS Soak field. This is the amount of time that the port will stay in the OOS-AU,AINS or Unlocked-enabled,automaticInService service state after a signal is continuously received. When the soak period elapses, the port changes to the IS-NR or Unlocked-enabled service state.

Step 5 Click **Apply**. The new port service state appears in the Service State column.

Step 6 As needed, repeat this task for each port.

Step 7 Return to your originating procedure (NTP).

DLP-G109 Provision Orderwire

Purpose	This task provisions orderwire on the AIC-I card.
Tools/Equipment	An AIC-I card must be installed in Slot 9. An OSCM, OSC-CSM, MXP_2.5_10E, MXP_2.5_10G, MXPP_MR_2.5G, or MXP_MR_2.5G card must be installed.
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 In network view, click the **Provisioning > Overhead Circuits** tabs.

Step 2 Click **Create**.

Step 3 In the Overhead Circuit Creation dialog box, complete the following fields in the Circuit Attributes area:

- Name—Assign a name to the circuit. The name can be alphanumeric and up to 48 characters (including spaces).
- Circuit Type—Choose either **Local Orderwire** or **Express Orderwire** depending on the orderwire path that you want to create. If regenerators are not used between ONS 15454 nodes, you can use either local or express orderwire channels. If regenerators exist, use the express orderwire channel. You can provision up to four ONS 15454 OC-N/STM-N ports for each orderwire path.
- PCM—Choose the Pulse Code Modulation voice coding and companding standard, either **Mu_Law** (North America, Japan) or **A_Law** (Europe). The provisioning procedures are the same for both types of orderwire.

Caution When provisioning orderwire for ONS 15454s residing in a ring, do not provision a complete orderwire loop. For example, a four-node ring typically has east and west ports provisioned at all four nodes. However, to prevent orderwire loops, provision two orderwire ports (east and west) at all but one of the ring nodes.

Step 4 Click **Next**.

Step 5 In the Circuit Source area, complete the following:

- Node—Choose the source node.
- Shelf—(Multishelf mode only) Choose the source shelf.
- Slot—Choose the source slot.
- Port—If applicable, choose the source port.

Step 6 Click **Next**.

Step 7 In the Circuit Destination area, complete the following:

- Node—Choose the destination node.

- Shelf—(Multishelf mode only) Choose the destination shelf.
- Slot—Choose the destination slot.
- Port—If applicable, choose the destination port.

Step 8 Click **Finish**.

Step 9 Return to your originating procedure (NTP).

DLP-G110 Create a User Data Channel Circuit

Purpose	This task creates a UDC circuit on the ONS 15454. A UDC circuit allows you to create a dedicated data channel between nodes.
Tools/Equipment	An OSCM, OSC-CSM, MXPP_MR_2.5G, or MXP_MR_2.5G card must be installed.
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 In network view, click the **Provisioning > Overhead Circuits** tabs.

Step 2 Click **Create**.

Step 3 In the Overhead Circuit Creation dialog box, complete the following fields in the Circuit Attributes area:

- Name—Assign a name to the circuit. The name can be alphanumeric and up to 48 characters (including spaces).
- Type—Choose either **User Data-F1** or **User Data D-4-D-12** from the drop-down list. (User Data D-4-D-12 is not available if the ONS 15454 is provisioned for DWDM.)

Step 4 Click **Next**.

Step 5 In the Circuit Source area, complete the following:

- Node—Choose the source node.
- Shelf—(Multishelf mode only) Choose the source shelf.
- Slot—Choose the source slot.
- Port—If applicable, choose the source port.

Step 6 Click **Next**.

Step 7 In the Circuit Destination area, complete the following:

- Node—Choose the destination node.
- Shelf—(Multishelf mode only) Choose the destination shelf.
- Slot—Choose the destination slot.
- Port—If applicable, choose the destination port.

Step 8 Click **Finish**.

Step 9 Return to your originating procedure (NTP).

DLP-G112 Delete Overhead Circuits

Purpose	This task deletes overhead circuits. Overhead circuits include IP-encapsulated tunnels, AIC-I card orderwire, and UDCs.
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

Caution Deleting overhead circuits is service affecting if the circuits are in service (IS). To put circuits out of service (OOS), see the "DLP-G108 Change the Service State for a Port" task on page 7-25.

Step 1 From the View menu, choose **Go to Network View**.

Step 2 Click the **Provisioning > Overhead Circuits** tabs.

Step 3 Click the overhead circuit that you want to delete: local or express orderwire, user data, IP-encapsulated tunnel, or DCC tunnel.

Step 4 Click **Delete**.

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

Step 6 Return to your originating procedure (NTP).

NTP-G62 Create a J0 Section Trace

Purpose	This procedure creates a repeated, fixed-length string of characters used to monitor interruptions or changes to traffic between nodes.
Tools/Equipment	One TXP or MXP card must be installed.
Prerequisite Procedures	NTP-G32 Install the Transponder and Muxponder Cards, page 3-51
Required/As Needed	As needed (optional if path trace is set)
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at a node on the network where you will create the section trace. If you are already logged in, continue with Step 2.

Step 2 In node view (single-shelf mode) or shelf view (multishelf mode), double-click the TXP or MXP card.

Step 3 Click the **Provisioning > Line > Section Trace** tabs.

Step 4 From the Port drop-down list, choose the port for the section trace.

Step 5 From the Received Trace Mode drop-down list, enable the section trace expected string by choosing **Manual**.

Step 6 In the Transmit Section Trace String Size area, click **1 byte** or **16 byte**. The 1 byte option allows you to enter one character and the 16 byte option allows a 15 character string.

Step 7 In the New Transmit String field, enter the string that you want to transmit. Enter a string that makes the destination port easy to identify, such as the node IP address, node name, or another string. If the New Transmit String field is left blank, the J0 transmits a string of null characters.

Step 8 If you set the Section Trace Mode field to Manual, enter the string that the destination port should receive from the source port in the New Expected String field.

Step 9 Click the **Disable AIS and RDI if TIM-P is detected** check box if you want to suppress the alarm indication signal (AIS) and remote defect indication (RDI) when the STS Section Trace Identifier Mismatch Path (TIM-P) alarm appears. Refer to the *Cisco ONS 15454 DWDM Troubleshooting Guide* for descriptions of alarms and conditions.

Step 10 Click **Apply**.

Step 11 After you set up the section trace, the received string appears in the Received field. The following options are available:

- Click **Hex Mode** to display section trace in hexadecimal format. The button name changes to ASCII Mode. Click it to return the section trace to ASCII format.
- Click the **Reset** button to reread values from the port.
- Click **Default** to return to the section trace default settings (Section Trace Mode is set to Off and the New Transmit and New Expected Strings are null).

Caution Clicking Default will generate alarms if the port on the other end is provisioned with a different string.

The expect and receive strings are updated every few seconds.

Stop. You have completed this procedure.

NTP-G58 Locate and View Optical Channel Network and Client Connections

Purpose	This procedure allows you to locate and view DWDM OCHNCs and OCHCCs. You can also export circuit data from the Circuits and Edit Circuits windows.
Tools/Equipment	None
Prerequisite Procedures	DLP-G105 Provision Optical Channel Network Connections, page 7-10 DLP-G346 Provision Optical Channel Client Connections, page 7-4
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Retrieve or higher

Step 1 Complete the "DLP-G46 Log into CTC" task on page 2-27 at a node on the network where you want to view the circuits. If you are already logged in, continue with Step 2.

Note Do not check Disable Circuit Management in the Login dialog box. No circuits appear if this option is checked.

Step 2 As needed, complete the "DLP-G100 Search for Optical Channel Network and Client Connections" task on page 7-31.

Step 3 As needed, complete the "DLP-G101 View Optical Channel Network and Client Connection Information" task on page 7-32.

Step 4 As needed, complete the "DLP-G102 Filter the Display of Optical Channel Network and Client Connections" task on page 7-35.

Step 5 As needed, complete the "DLP-G103 View Optical Channel Network Connections on a Span" task on page 7-37.

Step 6 As needed, complete the DLP-G114 Export CTC Data, page 9-4.

Stop. You have completed this procedure.

DLP-G100 Search for Optical Channel Network and Client Connections

Purpose	This task searches for DWDM OCHNCs, OCHCCs, and ONS 15454 circuits at the network, node, or card level.
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	Retrieve or higher

Step 1 Navigate to the appropriate CTC view:

- To search the entire network, choose **View > Go to Network View**.
- To search for circuits that originate, terminate, or pass through a specific node, choose **View > Go to Other Node**, then choose the node you want to search and click **OK**.
- To search for circuits that originate, terminate, or pass through a specific card, double-click the card on the shelf graphic in node view (single-shelf mode) or shelf view (multishelf mode) to open the card in card view.

Step 2 Click the **Circuits** tab.

Step 3 If you are in node or card view, choose the scope for the search, **Node** or **Network (All)**, in the Scope drop-down list located at the bottom right side of the screen. Choose **Node** to see all of the circuits on that node, or **Network (All)** to see all circuits in the network.

Step 4 Click **Search** if you need to search through the list of circuits.

Step 5 In the Circuit Name Search dialog box, complete the following:

- Find What—Enter the text of the circuit name you want to find. This field is not case-sensitive.
- Match whole word only—Check this check box to instruct CTC to select circuits only if the entire word matches the text in the Find What field.
- Match case—Check this check box to instruct CTC to select circuits only when the capitalization matches the capitalization entered in the Find What field.
- Direction—Choose the direction for the search. Searches are conducted up or down from the currently selected circuit.

Step 6 Click **Find Next**. If a match is found the circuit will be highlighted in the Circuits window. To continue the search, click **Find Next** again to find the next circuit.

Step 7 Repeat Steps 5 and 6 until you are finished, then click **Cancel**.

Step 8 Return to your originating procedure (NTP).

DLP-G101 View Optical Channel Network and Client Connection Information

Purpose	This task provides information about DWDM OCHNCs, OCHCCs, and ONS 15454 circuits.
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	Retrieve or higher

Step 1 Navigate to the appropriate CTC view:

- To view circuits for an entire network, choose **View > Go to Network View**.
- To view circuits that originate, terminate, or pass through a specific node, choose **View > Go to Other Node**, then choose the node you want to search and click **OK**.
- To view circuits that originate, terminate, or pass through a specific card, in node view (single-shelf mode) or shelf view (multishelf mode), double-click the card containing the circuits you want to view.

Note In node or card view, you can change the scope of the circuits that appear by choosing Card (in card view), Node, or Network from the Scope drop-down list in the bottom right corner of the Circuits window.

Step 2 Click the **Circuits** tab. The Circuits tab shows the following information:

Note The following order is the default column sequence, the order might be different on your screen, depending on your individual CTC setup.

- Circuit Name—Name of the circuit. The circuit name can be manually assigned or automatically generated.
- Type—Circuit types are OCHNC, OCHCC, and OCH-Trail.

Note The following circuit types are not applicable to DWDM nodes: STS, VT, VTT (VT tunnel), VAP (VT aggregation point), STS-v (STS VCAT circuit), VT-v (VT VCAT circuit), HOP (high-order circuit), LOP (low-order circuit), VCT (VC low-order tunnel), and VCA (low-order VCAT circuit).

- Size—Circuit size. OCHNC, OCHCC, and OCH-Trail sizes are Equipped not specific, Multi-rate, 2.5 Gbps No FEC, 2.5 Gbps FEC, 10 Gbps No FEC, and 10 Gbps FEC.

Note The following circuit types under the circuit size column are not applicable to DWDM nodes: STS, VT, VCAT, VC12, VC11, VC3, and VC4.

- OCHNC Wlen—The wavelength provisioned for the OCHNC, OCHCC, or OCH trail. See Table 7-2 on page 7-10 for a list of channels and wavelengths.

- Direction—The circuit direction, either two-way or one-way.
- OCHNC Dir—The line direction of the OCHNC, OCHCC, or OCH trail, either East to West or West to East. If the direction is West to East, the channel exits from the node through the LINE-TX port of the east OSC-CSM, OPT-BST-E, or OPT-BST-E card, named the East Side Card by Cisco MetroPlanner (typically these cards are hosted in Slot 17). If the direction is East to West, the channel exits from the node through the LINE-TX port of the west OSC-CSM, or OPT-BST, or OPT-BST-E card, named the West Side Card by Cisco MetroPlanner (typically these cards are hosted in Slot 1).
- Protection—The type of circuit protection. See Table 7-3 on page 7-33 for a list of protection types.
- Status—The circuit status. Table 7-4 on page 7-34 lists the circuit statuses that can appear.
- Source—The circuit source in the format: *node/slot/port "port name"*. The port name will appear in quotes only if a name was assigned to it. (To assign names to ports, see the "DLP-G104 Assign a Name to a Port" task on page 7-3.)
- Destination—The circuit destination in the format: *node/slot/port "port name"*. The port name will appear in quotes only if a name was assigned to it. (To assign names to ports, see the "DLP-G104 Assign a Name to a Port" task on page 7-3.)
- # of VLANS—The number of VLANs used by an Ethernet circuit. VLANs are not applicable to DWDM nodes.
- # of Spans—The number of internode links that constitute the circuit. Right-clicking the column title shows a shortcut menu from which you can choose Span Details to show or hide circuit span detail.
- State—The circuit service state, which is an aggregate of the service states of its cross-connects. For ANSI, the service state is IS, OOS, or OOS-PARTIAL. For ETSI, the service state is Unlocked, Locked, or Locked-partial. For more information about ANSI and ETSI service states, see the "Administrative and Service States" appendix in the *Cisco ONS 15454 DWDM Reference Manual*.
  - IS/Unlocked—All cross-connects are in service and operational.
  - OOS/Locked—For ANSI, all cross-connects are OOS-MA,MT and/or OOS-MA,DSBLD. For ETSI, all cross-connects are Locked-enabled,maintenance and/or Locked-enabled,disabled.
  - OOS-PARTIAL/Locked-partial—At least one cross-connect is IS-NR (ANSI) or Unlocked-enabled (ETSI) and others are out-of-service.

Note Right-clicking a column title (Circuit name, Type, etc.) opens a shortcut menu that allows you to show or hide the desired circuit details.

Table 7-3 Circuit Protection Types

Protection Type	Description
Y-cable	(OCHNC and OCH-Trail circuit types only) The circuit is protected by a transponder or muxponder card Y-cable protection group.
Splitter	The circuit is protected by the protect transponder splitter protection.
Unprot	A circuit with a source and destination on different nodes is not protected.
N/A	A circuit with connections on the same node is not protected.
Unknown	A circuit has a source and destination on different nodes and communication is down between the nodes. This protection type appears if not all circuit components are known.

Table 7-4 Cisco ONS 15454 Circuit Status

Status	Definition/Activity
CREATING	CTC is creating a circuit.
DISCOVERED	CTC created a circuit. All components are in place and a complete path exists from the circuit source to the circuit destination.
DELETING	CTC is deleting a circuit.
PARTIAL	A CTC-created circuit is missing a cross-connect or network span, a complete path from source to destination(s) does not exist, or an alarm interface panel (AIP) change occurred on one of the circuit nodes and the circuit is in need of repair. (AIPs store the node MAC address.) In CTC, circuits are represented using cross-connects and network spans. If a network span is missing from a circuit, the circuit status is PARTIAL. However, a PARTIAL status does not necessarily mean that a circuit traffic failure has occurred, because traffic might flow on a protect path. Network spans are in one of two states: up or down. On CTC circuit and network maps, up spans are shown as green lines, and down spans are shown as gray lines. If a failure occurs on a network span during a CTC session, the span remains on the network map but its color changes to gray to indicate the span is down. If you restart your CTC session while the failure is active, the new CTC session cannot discover the span and its span line will not appear on the network map. Subsequently, circuits routed on a network span that goes down will appear as DISCOVERED during the current CTC session, but they will appear as PARTIAL to users who log in after the span failure. This status does not appear for OCHNC circuit types.
DISCOVERED_TL1	A TL1-created circuit or a TL1-like CTC-created circuit is complete. A complete path from source to destination(s) exists. This status does not appear for OCHNC circuit types.
PARTIAL_TL1	A TL1-created circuit or a TL1-like CTC-created circuit is missing a cross-connect, and a complete path from source to destination(s) does not exist. This status does not appear for OCHNC circuit types.

Step 3 Return to your originating procedure (NTP).

DLP-G102 Filter the Display of Optical Channel Network and Client Connections

Purpose	This task filters the display of DWDM OCHNCs, OCHCCs, and SONET or SDH circuits in the Circuits window. You can filter the circuits in network, node, or card view based on circuit or OCHNC name, size, type, direction, and other attributes.
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	Retrieve or higher

Step 1 Navigate to the appropriate CTC view:

- To filter network circuits, choose **View > Go to Network View**.
- To filter circuits that originate, terminate, or pass through a specific node, choose **View > Go to Other Node**, then choose the node you want to search and click **OK**.
- To filter circuits that originate, terminate, or pass through a specific card, double-click the card on the shelf graphic in node view (single-shelf mode) or shelf view (multishelf mode) to open the card in card view.

Step 2 Click the **Circuits** tab.

Step 3 Set the attributes for filtering the circuit display:

a. Click the **Filter** button.

b. In the General tab of the Circuit Filter dialog box, set the following filter attributes, as necessary:

- Name—Enter a complete or partial circuit name to filter circuits based on the circuit name; otherwise leave the field blank.
- Direction—Choose one: **Any** (direction not used to filter circuits), **1-way** (display only one-way circuits), or **2-way** (display only two-way circuits).
- OCHNC Dir—(DWDM OCHNCs only) Choose one: **East to West** (displays only east-to-west circuits) or **West to East** (displays only west-to-east circuits).
- OCHNC Wlen—(DWDM OCHNCs only) Choose an OCHNC wavelength to filter the circuits. For example, choosing 1530.33 will display channels provisioned on the 1530.33-nm wavelength.
- Status—Choose one: **Any** (status not used to filter circuits) or **Discovered** (display only discovered circuits). Other statuses do not apply to OCHNCs.
- State—Choose one: **OOS** (ANSI) or **Locked** (ETSI) to display only out-of-service circuits; **IS** (ANSI) or **Unlocked** (ETSI) to display only in-service circuits (OCHNCs have IS/Unlocked states only); or **OOS-PARTIAL** (ANSI) or **Locked-partial** (ETSI) to display only circuits with cross-connects in mixed service states.
- Protection—Enter the circuit protection type to filter circuits based on their protection.
- Shelf—(multishelf nodes only)—Enter the shelf name to filter circuits based on that shelf.
- Slot—Enter a slot number to filter circuits based on the source or destination slot; otherwise leave the field blank.

- Port—Enter a port number to filter circuits based on the source or destination port; otherwise leave the field blank.
- Type—Choose one: **Any** (type not used to filter circuits), **OCHNC** (displays only OCHNCs), **OCHCC** (displays only OCHCCs), or **OCH-Trail** (displays only OCH trail circuits).

Note The following circuit types are not applicable to DWDM nodes: STS (displays only STS circuits), VT (displays only VT circuits), VT Tunnel (displays only VT tunnels), STS-V (displays STS VCAT circuits), VT-V (displays VT VCAT circuits), and VT Aggregation Point (displays only VT aggregation points), VC_HO_PATH_CIRCUIT (displays VC4 and VC4-Nc circuits), VC_LO_PATH_CIRCUIT (displays only VC3 and VC12 circuits), VC_LO_PATH_TUNNEL (displays only low-order tunnels), VC_LO_PATH_AGGREGATION (displays only log-order aggregation points), VC_HO_PATH_VCAT_CIRCUIT (displays high-order VCAT circuits), and VC_LO_PATH_VCAT_CIRCUIT (displays low-order VCAT circuits).

- Size—Click the appropriate check boxes to filter circuits based on size. The following sizes are available, depending on the circuit type: **Multi-rate**, **Equipment non specific**, **2.5 Gbps FEC**, **2.5 Gbps No FEC**, **10 Gbps FEC**, and **10 Gbps No FEC**.

Note VT1.5, STS-1, STS3c, STS-6c, STS-9c, STS-12c, STS-24c, STS-48c, and STS-192c are not applicable to ANSI DWDM nodes. VC12, VC3, VC4, VC4-2c, VC4-3c, VC4-4c, VC4-6c, VC4-8c, VC4-9c, VC4-16c, and VC4-64 are not applicable to ETSI DWDM nodes.

The check boxes shown depend on the Type field selection. If you chose Any, all sizes are available. If you chose OCHNC as the circuit type, only Multi-rate, Equipment non specific, 2.5 Gbps FEC, 2.5 Gbps No FEC, 10 Gbps FEC, and 10 Gbps No FEC appear. If you choose OCHCC, only OCHCC is available. If you choose OCH Trail, only Equipment non specific is available.

Step 4 To set the filter for ring, node, link, and source and drop type, click the **Advanced** tab and complete the following. If you do not want to make advanced filter selections, continue with Step 5.

a. If you made selections on the General tab, click **Yes** in the confirmation box to apply the settings.

b. In the Advanced tab of the Circuit Filter dialog box, set the following filter attributes as necessary:

- Ring—Choose the ring from the drop-down list.
- Node—Click the check boxes by each node in the network to filter circuits based on node.
- Link—Choose the desired link in the network.
- Source/Drop—Choose one of the following to filter circuits based on whether they have one or multiple sources and drops: **One Source and One Drop Only** or **Multiple Sources or Multiple Drops**.

Step 5 Click **OK**. Circuits matching the attributes in the Filter Circuits dialog box appear in the Circuits window.

Step 6 To turn filtering off, click the Filter icon in the lower right corner of the Circuits window. Click the icon again to turn filtering on, and click the **Filter** button to change the filter attributes.

Step 7 Return to your originating procedure (NTP).

DLP-G103 View Optical Channel Network Connections on a Span

Purpose	This task allows you to view OCHNCs and OCHCCs circuits on an ONS 15454 span.
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	Retrieve or higher

Step 1 In node view (single-shelf mode) or multishelf view (multishelf mode), choose **View > Go to Network View**. If you are already in network view, continue with Step 2.

Step 2 Right-click the green line between the nodes containing the circuits that you want to view and choose **Circuits** to view DWDM OCHNCs, OCHCCs, or unprotected circuits on the span.

Step 3 In the Circuits on Span dialog box, view information about the circuits that traverse the span. The information that appears depends on the circuit type. For DWDM OCHNCs, the following information appears:

- Type—The type of circuit: OCHNC, OCHCC, or OCH-Trail.
- Size—The circuit size.
- OCHNC Wavelength—The wavelength provisioned for the OCHNC.
- DIR—2-way or 1-way.
- Circuit—The OCHNC circuit name.
- OCHNC Dir—The direction provisioned for the OCHNC, either east-to-west or west-to-east.

Step 4 Return to your originating procedure (NTP).