



Change DWDM Card Settings

This chapter explains how to change line, performance monitoring (PM), and threshold settings on Cisco ONS 15454 optical service, amplifier, multiplexer, demultiplexer, 32WSS, and AIC-I cards. To install DWDM cards, see the [“NTP-G30 Install the DWDM Cards” procedure on page 3-39](#).



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 Troubleshooting Guide* or the *Cisco ONS 15454 SDH Troubleshooting Guide* as necessary.



Caution

Changing card settings can be service affecting. You should make all changes during a scheduled maintenance window.

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

1. [NTP-G90 Modify OSCM and OSC-CSM Line Settings and PM Parameters and Thresholds, page 11-2](#)—As needed, complete this procedure to change the OSCM and OSC-CSM card settings.
2. [NTP-G91 Modify OPT-PRE and OPT-BST Line Settings and PM Parameters and Thresholds, page 11-12](#)—As needed, complete this procedure to change the amplifier card settings.
3. [NTP-G92 Modify 32MUX-O, 32DMX-O, 32DMX, and 4MD Line Settings and PM Thresholds, page 11-23](#)—As needed, complete this procedure to change the multiplexer and demultiplexer card settings.
4. [NTP-G93 Modify the 32WSS Thresholds and Settings, page 11-33](#)—As needed, complete this procedure to change the 32WSS card settings.
5. [NTP-G101 Modify Alarm Interface Controller–International Settings, page 11-41](#)—As needed, complete this procedure to change settings for external alarms, controls, and orderwire for the AIC-I card.
6. [NTP-G102 Change Card Service State, page 11-44](#)—As needed, complete this procedure to change the card service state.

NTP-G90 Modify OSCM and OSC-CSM Line Settings and PM Parameters and Thresholds

Purpose	This procedure changes the optical service channel (OC-3/STM-1) and PM parameters and thresholds for the OSCM and OSC-CSM cards.
Tools/Equipment	None
Prerequisite Procedures	NTP-G30 Install the DWDM Cards, page 3-39
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

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- Step 1** Complete the “[DLP-G46 Log into CTC](#)” task on [page 2-25](#) at the node where you want to change the OSCM or OSC-CSM card settings. If you are already logged in, proceed to [Step 2](#).
- Step 2** Complete the “[NTP-G103 Back Up the Database](#)” procedure on [page 13-2](#).
- Step 3** Perform any of the following tasks as needed:
- [DLP-G199 Change the OSCM and OSC-CSM Optical Service Channel Settings, page 11-2](#)
 - [DLP-G200 Change the OSCM and OSC-CSM Optical Service Channel Thresholds, page 11-5](#)
 - [DLP-G201 Change Optical Line Parameters for OSCM and OSC-CSM Cards, page 11-6](#)
 - [DLP-G202 Change the OSCM and OSC-CSM Optical Line Threshold Settings, page 11-8](#)
 - [DLP-G203 Change the OSCM and OSC-CSM ALS Maintenance Settings, page 11-10](#)
- Step 4** Complete the “[NTP-G103 Back Up the Database](#)” procedure on [page 13-2](#).
- Stop. You have completed this procedure.**
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DLP-G199 Change the OSCM and OSC-CSM Optical Service Channel Settings

Purpose	This task changes the OC-3/STM-1 optical service channel settings for OSCM and OSC-CSM cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

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- Step 1** In node view, double-click the OSCM or OSC-CSM card where you want to change the OC-3 optical line settings.
- Step 2** Click the **Provisioning > OC3 Line > OC3 Line** tabs.
- Step 3** Modify any of the settings described in [Table 11-1](#). The provisionable parameters are listed in the Options column in the table.

Table 11-1 *OSCM and OSC-CSM Card OC-3 Settings*

Parameter	Description	Options
Port #	Displays the port number.	Display only
Port Name	Provides the ability to assign the specified port a name.	User-defined. Name can be up to 32 alphanumeric/special characters. Blank by default. See the “DLP-G104 Assign a Name to a Port” task on page 7-10.
SF BER	Sets the signal fail bit error rate.	From the drop-down list, choose one of the following: • 1E-3 • 1E-4 • 1E-5
SD BER	Sets the signal degrade bit error rate.	From the drop-down list, choose one of the following: • 1E-5 • 1E-6 • 1E-7 • 1E-8 • 1E-9
Provides Synch	(Display only) If checked, the card is provisioned as a network element (NE) timing reference.	• Checked • Unchecked
SynMsgIn	Enables synchronization status messages (SSM) on the S1 byte, which allow the node to choose the best timing source.	• Checked • Unchecked
Send Do Not Use	When checked, sends a Do Not Use for Synchronization (DUS) message on the S1 byte.	• Checked • Unchecked
PJSTSMon #	(Display only) Sets the STS that will be used for pointer justification. If set to 0, no STS is monitored. Only one STS can be monitored on each OC-N port.	From the drop-down list, choose one of the following: • On • Off

Table 11-1 *OSCM and OSC-CSM Card OC-3 Settings (continued)*

Parameter	Description	Options
Admin State	Sets the port service state unless network conditions prevent the change. For more information about administrative states, see Appendix C, “DWDM Administrative and Service States.”	- IS (ANSI) or Unlocked (ETSI)—Puts the port in service. The port service state changes to IS-NR (ANSI) or Unlocked-enabled (ETSI). - IS,AINS (ANSI) or Unlocked,automaticInService (ETSI)—Puts the port in automatic in-service. The port service state changes to OOS-AU,AINS (ANSI) or Unlocked-disabled,automaticInService (ETSI). - OOS,DSBLD (ANSI) or Locked,disabled (ETSI)—Removes the port from service and disables it. The port service state changes to OOS-MA,DSBLD (ANSI) or Locked-enabled,disabled (ETSI). - OOS,MT (ANSI) or Locked,maintenance (ETSI)—Removes the port from service for maintenance. The port service state changes to OOS-MA,MT (ANSI) or Locked-enabled,maintenance (ETSI).
Service State	Identifies the autonomously generated state that gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about service states, see Appendix C, “DWDM Administrative and Service States.”	- IS-NR (In-Service and Normal [ANSI]) or Unlocked-enabled (ETSI)—The port is fully operational and is performing as provisioned. - OOS-AU,AINS (Out-Of-Service and Autonomous, Automatic In-Service [ANSI]) or Unlocked-disabled,automaticInService (ETSI)—The port is out of service, but traffic is carried. Alarm reporting is suppressed. The ONS node monitors the ports for an error-free signal. After an error-free signal is detected, the port stays in the OOS-AU,AINS/Unlocked-disabled,automaticInService state for the duration of the soak period. After the soak period ends, the port service state changes to IS-NR/Unlocked-enabled. - OOS-MA,DSBLD (Out-of-Service and Management, Disabled [ANSI]) or Locked-enabled,disabled (ETSI)—The port is out of service and unable to carry traffic. - OOS-MA,MT (Out-of-Service and Management, Maintenance [ANSI]) or Locked-enabled,maintenance (ETSI)—The port is out of service for maintenance. Alarm reporting is suppressed, but traffic is carried and loopbacks are allowed.

Table 11-1 *OSCM and OSC-CSM Card OC-3 Settings (continued)*

Parameter	Description	Options
AINS Soak	Sets the automatic in-service soak period.	- Duration of valid input signal, in hh.mm format, after which the card becomes in service (IS) automatically 0 to 48 hours, 15-minute increments
Type	Defines the port as SONET or SDH. The Enable Sync Msg field and the Send Do Not Use field must be disabled before the port can be set to SDH.	From the drop-down list, choose one of the following: - SONET - SDH

Step 4 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 5 Return to your originating procedure (NTP).

DLP-G200 Change the OSCM and OSC-CSM Optical Service Channel Thresholds

Purpose	This task changes the OC-3 (STM-1) SONET (SDH) thresholds settings for the OSC signal transmitted by the OSCM and OSC-CSM cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 In node view, double-click the OSCM or OSC-CSM card where you want to change the optical line threshold settings.

Step 2 Click the **Provisioning > OC3 Line > SONET Thresholds** tabs.

Step 3 Modify any of the settings described in [Table 11-2](#). The provisionable parameters are listed in the options column in the table.

Table 11-2 *OSCM and OSC-CSM Cards SONET Threshold Settings*

Parameter	Description	Options
Port	Displays the port number	Display only
CV	Coding violations	Numeric. Can be set for 15-minute or one-day intervals for Line or Section (Near and Far End). Select the bullet and click Refresh .
ES	Errored seconds	Numeric. Can be set for 15-minute or one-day intervals for Line or Section (Near and Far End). Select the bullet and click Refresh .

Table 11-2 OSCM and OSC-CSM Cards SONET Threshold Settings (continued)

Parameter	Description	Options
SES	Severely errored seconds	Numeric. Can be set for 15-minute or one-day intervals for Line or Section (Near and Far End). Select the bullet and click Refresh .
SEFS	Severely errored framing seconds	Numeric. Can be set for Far End, for 15-minute or one-day intervals for Section only. Select the bullet and click Refresh .
FC	Failure count	Numeric. Can be set for 15-minute or one-day intervals for Line or Section. Select the bullet and click Refresh or Path (Near and Far End).
UAS	Unavailable seconds	Numeric. Can be set for 15-minute or one-day intervals for Line or Section (Near and Far End). Select the bullet and click Refresh .

Step 4 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 5 Return to your originating procedure (NTP).

DLP-G201 Change Optical Line Parameters for OSCM and OSC-CSM Cards

Purpose	This task changes the optical line parameters for OSCM and OSC-CSM cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

- Step 1** In node view, double-click the OSCM or OSC-CSM card where you want to change the optical line parameters.
- Step 2** Click the **Provisioning > Optical Line > Parameters** tabs.
- Step 3** Modify any of the settings described in [Table 11-3](#). The provisionable parameters are listed in the options column in the table.

Table 11-3 OSCM and OSC-CSM Card Optical Line Parameter Settings

Parameter	Description	Options
Port #	Displays the port number and TX or RX.	Display only
Port Name	Provides the ability to assign the specified port a name.	User-defined. Name can be up to 32 alphanumeric/special characters. Blank by default. See the “ DLP-G104 Assign a Name to a Port ” task on page 7-10.

Table 11-3 *OSCM and OSC-CSM Card Optical Line Parameter Settings (continued)*

Parameter	Description	Options
Admin State	Sets the port service state unless network conditions prevent the change. For more information about administrative states, see Appendix C, “DWDM Administrative and Service States.”	From the drop-down list, choose one of the following: - IS/Unlocked - IS,AINS/Unlocked,automaticInService - OOS,DSBLD/Locked,disabled - OOS,MT/Locked,maintenance
Line Direction	Provides the ability to associate a card with the line direction. CTC automatically configures the line direction during node setup. To change this setting, you must change the Cisco MetroPlanner site plan and import it to the node.	From the drop-down list, choose one of the following: - East to West - West to East
Service State	Identifies the autonomously generated state that gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about service states, see Appendix C, “DWDM Administrative and Service States.”	- IS-NR/Unlocked-enabled - OOS-AU,AINS/Unlocked-disabled, automaticInService - OOS-MA,DSBLD/Locked-enabled,disabled - OOS-MA,MT/Locked-enabled,maintenance
Type	(Display only) Identifies the type of port.	- Input Com - Output Com - Input Line - Output Line - Input OSC - Output OSC
Power	(Display only) Shows the current power level per port.	—
VOA Mode	(Display only) Shows the functional mode of the variable optical attenuator (VOA), when present.	- Constant Attenuation - Constant Power
VOA Power Ref	(Display only) Shows the optical power setpoint that must be reached when a VOA is present and VOA Mode is set to Constant Power. This parameter can only be modified by Automatic Node Setup (ANS).	—
VOA Power Calib	Modifies the optical power value of the VOA when VOA Mode is set to Constant Power.	Numeric. Double-click the parameter, enter a value, and press Enter .
VOA Attenuation Ref	(Display only) Shows the VOA attenuation value when VOA Mode is set to Constant Attenuation. This parameter can only be modified by ANS.	—
VOA Attenuation Calib	Modifies the attenuation value of the VOA when the VOA Mode is set to Constant Attenuation.	Numeric. Double-click the parameter, enter a value, and press Enter .

- Step 4** Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.
- Step 5** Return to your originating procedure (NTP).

DLP-G202 Change the OSCM and OSC-CSM Optical Line Threshold Settings

Purpose	This task changes the optical line threshold settings for OSCM and OSC-CSM cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

- Step 1** In node view, double-click the OSCM or OSC-CSM card where you want to change the optical channel threshold settings.
- Step 2** Click the **Provisioning > Optical Line > Optics Thresholds** tabs.
- Step 3** Under Types, choose the type of threshold you want to change, either **Warning** or **Alarm**.



Caution

Warning thresholds are not monitored by CTC. They must be user-provisioned and monitored through custom alarm profiles.

- Step 4** Click **Refresh**.
- Step 5** Modify any of the warning or alarm threshold settings. [Table 11-4](#) shows the thresholds for warnings. [Table 11-5](#) shows the thresholds for alarms.

Table 11-4 *OSCM and OSC-CSM Cards Optical Channel Warning Thresholds Settings*

Parameter	Description	Options
Port	(Display only) Displays the port number.	Display only
opwrMin (dBm)	Sets the low power warning level.	Numeric. Can be set for 15-minute or one-day intervals. The default is -50 dBm. Double-click the parameter, enter a value, and press Enter .
opwrMax (dBm)	Sets the high power warning level.	Numeric. Can be set for 15-minute or one-day intervals. The default is 30 dBm. Double-click the parameter, enter a value, and press Enter .

Table 11-5 OSCM and OSC-CSM Cards Optical Channel Alarm Thresholds Settings

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
Power Failure Low (dBm)	Shows the optical power failure low threshold for the port. The threshold is calculated automatically when you run ANS. If the VOA Mode is Constant Attenuation, you can manually change the threshold. The value must be within the optical power range that is specified for the card. (See Appendix B, “Hardware Specifications.”) If VOA Mode is Constant Power, you cannot change the threshold manually because it is based on the Power setpoint (Optics Thresholds tab). To change the threshold, you must change the VOA Power Calib value. This adjusts the Power setpoint. The threshold is automatically set to a value that is 5 dB higher than the Power setpoint.	Numeric.
Power Degrade High (dBm)	Shows the power degrade high threshold. This power value applies to the corresponding port and is automatically calculated when ANS is run. This threshold applies to a port that is associated to a VOA (OSC-VOA). In Constant Power mode, the port is always active and the threshold is automatically linked to the Power Setpoint (VOA Power Ref + VOA Power Calib). To change the threshold, change the Power Setpoint. The threshold will always be 2 dB higher than the Power Setpoint.	Numeric.
Power Degrade Low (dBm)	Shows the power degrade low threshold. This power value applies to the corresponding port and is automatically calculated when ANS is run. This threshold applies to a port associated to a VOA (OSC-VOA) always active in Constant Power mode. In this case, the threshold is automatically linked to the Power Setpoint (VOA Power Ref + VOA Power Calib) provisioned. Changing the setpoint will result in changing the threshold (always 2 dB lower).	Numeric.

Table 11-5 *OSCM and OSC-CSM Cards Optical Channel Alarm Thresholds Settings (continued)*

Parameter	Description	Options
VOA Degrade High (dBm)	Does not apply to OSCM and OSC-CSM cards.	—
VOA Degrade Low (dBm)	Does not apply to OSCM and OSC-CSM cards.	—

Step 6 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 7 Return to your originating procedure (NTP).

DLP-G203 Change the OSCM and OSC-CSM ALS Maintenance Settings

Purpose	This task changes the automatic laser shutdown (ALS) maintenance settings for the OSC-CSM and OSCM cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 In node view, double-click the OSC-CSM or OSCM card where you want to change the ALS maintenance settings.

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

Step 3 Modify any of the settings described in [Table 11-6](#). The provisionable parameters are listed in the options column in the table.

Table 11-6 *OSC-CSM and OSCM Maintenance Settings*

Parameter	Description	Options
OSRI	Optical safety remote interlock. When set to On, the OSC TX output power is shut down.	From the drop-down list, choose one of the following: - On - Off
ALS Mode	Automatic laser shutdown. For OSCM cards ALS provides the ability to shut down the OSC TX laser when the OSC RX detects a loss of signal (LOS). For OSC-CSM cards, ALS provides the same functions as the OSCM card and also enables an optical safety mechanism at the DWDM network layer. See the “16.8.5.13 Automatic Laser Shutdown” section on page 16-105 for more information.	From the drop-down list, choose one of the following: - Disable—Deactivates ALS. - Auto Restart—(Default) ALS is active. The power is automatically shut down when needed and automatically tries to restart using a probe pulse until the cause of the failure is repaired. - Manual Restart - Manual Restart for Test
Recovery Pulse Duration	(Display only) Displays the duration of the optical power pulse that begins when an amplifier restarts.	—
Recovery Pulse Interval	(Display only) Displays the interval between optical power pulses.	—
Currently Shutdown	(Display only) Displays the current status of the laser.	—
Request Laser Restart	If checked, allows you to restart the laser for maintenance.	Checked or unchecked

Step 4 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 5 Return to your originating procedure (NTP).

NTP-G91 Modify OPT-PRE and OPT-BST Line Settings and PM Parameters and Thresholds

Purpose	This procedure changes the line and threshold settings for the OPT-PRE and OPT-BST amplifier cards.
Tools/Equipment	None
Prerequisite Procedures	NTP-G30 Install the DWDM Cards, page 3-39
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

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- Step 1** Complete the “[DLP-G46 Log into CTC](#)” task on [page 2-25](#) at the node where you want to change the OPT-PRE or OPT-BST amplifier card settings. If you are already logged in, proceed to [Step 2](#).
- Step 2** Complete the “[NTP-G103 Back Up the Database](#)” procedure on [page 13-2](#).
- Step 3** Perform any of the following tasks as needed:
- [DLP-G204 Change Optical Line Settings for OPT-PRE and OPT-BST Amplifiers, page 11-12](#)
 - [DLP-G205 Change Optical Line Threshold Settings for OPT-PRE and OPT-BST Amplifiers, page 11-14](#)
 - [DLP-G206 Change Optical Amplifier Line Settings for OPT-PRE and OPT-BST Amplifiers, page 11-16](#)
 - [DLP-G207 Change Optical Channel Threshold Settings for OPT-PRE and OPT-BST Amplifiers, page 11-18](#)
 - [DLP-G322 Change the OPT-BST ALS Maintenance Settings, page 11-22](#)
- Step 4** Complete the “[NTP-G103 Back Up the Database](#)” procedure on [page 13-2](#).
- Stop.** You have completed this procedure.
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DLP-G204 Change Optical Line Settings for OPT-PRE and OPT-BST Amplifiers

Purpose	This task changes the optical line settings for OPT-PRE and OPT-BST amplifier cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

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- Step 1** In node view, double-click the OPT-PRE or OPT-BST amplifier where you want to change the optical line settings.
- Step 2** Click the **Provisioning > Optical Line > Parameters** tabs.

Step 3 Modify any of the settings described in [Table 11-7](#). The provisionable parameters are listed in the options column in the table.

Table 11-7 *OPT-PRE and OPT-BST Amplifier Optical Line Settings*

Parameter	Description	Options
Port #	(Display only) Displays the port number.	Displays port number and TX or RX.
Port Name	Provides the ability to assign the specified port a name.	User-defined. Name can be up to 32 alphanumeric/special characters. Blank by default. Double-click, enter the name, and press Enter . See the “ DLP-G104 Assign a Name to a Port ” task on page 7-10.
Admin State	Sets the port service state unless network conditions prevent the change. For more information about administrative states, see Appendix C, “DWDM Administrative and Service States.”	From the drop-down list, choose one of the following: - IS/Unlocked - IS,AINS/Unlocked,automaticInService - OOS,DSBLD/Locked,disabled - OOS,MT/Locked,maintenance
Line Direction	Provides the ability to associate a card with the line direction. CTC automatically configures the line direction during node setup. To change this setting, you must change the Cisco MetroPlanner site plan and import it to the node.	From the drop-down list, choose one of the following: - East to West - West to East
Service State	(Display only) Identifies the autonomously generated state that gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about service states, see Appendix C, “DWDM Administrative and Service States.”	- IS-NR/Unlocked-enabled - OOS-AU,AINS/Unlocked-disabled, automaticInService - OOS-MA,DSBLD/Locked-enabled,disabled - OOS-MA,MT/Locked-enabled,maintenance
Type	(Display only) Identifies the type of port.	For OPT-BST cards: - Input Com - Output Com - Input Line - Output Line - Input OSC - Output OSC For OPT-PRE cards: - Input Com - Input DCU - Output DCU
Power	(Display only) Shows the current power level per port.	—
AINS Soak	(Display only) Shows the soak time.	—

- Step 4** Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.
- Step 5** Return to your originating procedure (NTP).

DLP-G205 Change Optical Line Threshold Settings for OPT-PRE and OPT-BST Amplifiers

Purpose	This task changes the optical line threshold settings for OPT-PRE and OPT-BST amplifier cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher



Caution

Warning thresholds are not monitored by CTC. They must be user-provisioned and monitored through custom alarm profiles.

- Step 1** In node view, double-click the OPT-PRE or OPT-BST amplifier where you want to change the optical line threshold settings.
- Step 2** Click the **Provisioning > Optical Line > Optics Thresholds** tabs.
- Step 3** Under Types, choose the type of threshold you want to change, either **Warning** or **Alarm**.
- Step 4** Click **Refresh**.
- Step 5** Modify any of the warning or alarm threshold settings. [Table 11-8](#) shows the thresholds for warnings. [Table 11-9](#) shows the thresholds for alarms. The provisionable parameters are listed in the options column in the table.

Table 11-8 *OPT-PRE and OPT-BST Card Optical Channel Warning Thresholds Settings*

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
opwrMin (dBm)	Sets the low power warning level.	Numeric. Can be set for 15-minute or one-day intervals. The default is -50 dBm. Double-click, enter the name, and press Enter .
opwrMax (dBm)	Sets the high power warning level.	Numeric. Can be set for 15-minute or one-day intervals. The default is 30 dBm. Double-click, enter the name, and press Enter .

Table 11-9 *OPT-PRE and OPT-BST Card Optical Channel Alarm Threshold Settings*

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
Power Failure Low (dBm)	Shows the optical power failure low threshold for the port. The threshold is calculated automatically when you run ANS. You can manually change the threshold. The value must be within the optical power range that is specified for the card. (See Appendix B, “Hardware Specifications.”) For OPT-BST cards, this parameter applies to Port 2 (Output COM) and Port 4 (Output OSC) are related to Optical Safety mechanism at DWDM Network layer (see Chapter 16: “16.4 Network Optical Safety - Automatic Laser Shutdown” for a detailed description).	Numeric.
Power Degrade High (dBm)	Does not apply to OPT-BST and OPT-PRE line parameters.	Numeric.
Power Degrade Low (dBm)	Does not apply to OPT-BST and OPT-PRE line parameters.	Numeric.
VOA Degrade High (dBm)	Does not apply to OPT-BST and OPT-PRE line parameters.	—
VOA Degrade Low (dBm)	Does not apply to OPT-BST and OPT-PRE line parameters.	—

Step 6 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 7 Return to your originating procedure (NTP).

DLP-G206 Change Optical Amplifier Line Settings for OPT-PRE and OPT-BST Amplifiers

Purpose	This task changes the optical amplifier line settings for OPT-PRE and OPT-BST amplifier cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

- Step 1** In node view, double-click the OPT-PRE or OPT-BST amplifier where you want to change the optical amplifier line settings.
- Step 2** Click the **Provisioning > Opt. Ampli. Line > Parameters** tabs.
- Step 3** Modify any of the settings described in [Table 11-10](#). The provisionable parameters are listed in the options column in the table.

Table 11-10 *OPT-PRE and OPT-BST Optical Amplifier Line Settings*

Parameter	Description	Options
Port #	(Display only) Displays the port number.	Displays port number and TX or RX.
Port Name	Provides the ability to assign the specified port a name.	User-defined. Name can be up to 32 alphanumeric/special characters. Blank by default. See the “ DLP-G104 Assign a Name to a Port ” task on page 7-10 .
Admin State	Sets the port service state unless network conditions prevent the change. For more information about administrative states, see Appendix C, “DWDM Administrative and Service States.”	From the drop-down list, choose one of the following: - IS/Unlocked - IS,AINS/Unlocked,automaticInService - OOS,DSBLD/Locked,disabled - OOS,MT/Locked,maintenance
Line Direction	Provides the ability to associate a card with the line direction. CTC automatically configures the line direction during node setup. To change this setting, you must change the Cisco MetroPlanner site plan and import it to the node.	From the drop-down list, choose one of the following: - East to West - West to East
Service State	(Display only) Identifies the autonomously generated state that gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about service states, see Appendix C, “DWDM Administrative and Service States.”	- IS-NR/Unlocked-enabled - OOS-AU,AINS/Unlocked-disabled, automaticInService - OOS-MA,DSBLD/Locked-enabled,disabled - OOS-MA,MT/Locked-enabled,maintenance
Type	(Display only) Identifies the type of port.	Output Line

Table 11-10 *OPT-PRE and OPT-BST Optical Amplifier Line Settings (continued)*

Parameter	Description	Options
Total Output Power	(Display only) Shows the current power level per port.	—
Channel Power Ref.	(Display only) Shows the optical per-channel signal power setpoint that must be reached at the amplifier output when gain control is active.	—
Offset	Adjusts the Total Output Power unless network conditions prevent the adjustment, for example the port is in IS state.	—
Signal Output Power	Shows the current output power leaving the amplifier, including the amplified spontaneous emissions (ASE) contribution.	—
Channel Power Ref	(Display only) Shows the optical power per channel leaving the amplifier.	—
Channel Power Ref	(Display only) Shows the optical power per channel leaving the amplifier.	—
Power Calib	Allows you to manually change the total optical power going to the amplifiers.	Numeric
Gain	(Display only) The current gain of the amplifiers.	—
Gain Set Point	The value of the gain that the amplifier must achieve. Automatic Power Control (APC) can modify this value based on the number of optical channel network connection (OCHNC) circuits that are managed by the amplifier or to compensate for fiber aging insertion loss. See the “ 18.4 Automatic Power Control ” section on page 18-18 for more information.	Display only or numeric depending on mode setting. When the system is configured as metro core, this field is display only. When the system is configured as metro access, this field can be changed by the user.
Tilt Reference	(Display only) Shows the default value for the amplifier tilt. This field can only be modified by ANS.	—
Tilt Calibration	Allows you to manually change the amplifier tilt.	Numeric. Double-click the parameter, enter a value, and press Enter .
Mode	(Display only) Shows the working mode of the amplifier.	- Control gain - Control power
DCU Insertion Loss	(OPT-PRE cards only; display only) Shows the working mode of the amplifier.	- Control gain - Control power

Step 4 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 5 Return to your originating procedure (NTP).

DLP-G207 Change Optical Channel Threshold Settings for OPT-PRE and OPT-BST Amplifiers

Purpose	This task changes the optical channel threshold settings for OPT-PRE and OPT-BST amplifier cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher



Caution

Warning thresholds are not monitored by CTC. They must be user-provisioned and monitored through custom alarm profiles.

- Step 1** In node view, double-click the OPT-PRE or OPT-BST amplifier where you want to change the optical channel threshold settings.
- Step 2** Click the **Provisioning > Optical Line > Optics Thresholds** tabs.
- Step 3** Under Types, choose the type of threshold you want to change, either **Warning** or **Alarm**.
- Step 4** Click **Refresh**.
- Step 5** Modify any of the warning or alarm threshold settings. [Table 11-11](#) shows the amplifier line thresholds for warnings. [Table 11-12](#) shows the amplifier line thresholds for alarms. The provisionable parameters are listed in the options column in the table.

Table 11-11 OPT-PRE and OPT-BST Card Amplifier Line Warning Threshold Settings

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
opwrMin (dBm)	Sets the low power warning level.	Numeric. Can be set for 15-minute or one-day intervals. The default is –50 dBm. Double-click the parameter, enter a value, and press Enter .
opwrMax (dBm)	Sets the high power warning level.	Numeric. Can be set for 15-minute or one-day intervals. The default is 30 dBm. Double-click the parameter, enter a value, and press Enter .

Table 11-12 *OPT-PRE and OPT-BST Card Amplifier Line Alarm Threshold Settings*

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
Power Failure Low (dBm)	Shows the optical power failure low threshold for the port. The threshold is calculated automatically when you run ANS. You can manually change the threshold. The value must be within the optical power range that is specified for the card. (See Appendix B, “Hardware Specifications.”)	Numeric. Display only
Power Degrade High (dBm)	Shows the current value of the optical power degrade high threshold. This threshold applies only when the amplifier is active and in constant power mode. Power Degrade High refers to the port’s Signal Output Power value and is automatically calculated by the TCC2/TCC2P when the amplifier is turned up. The Power Degrade High threshold is linked to the Output Power Setpoint on the Parameters tab. Changing the setpoint changes the Power Degrade High threshold. The threshold value is always 2 dB higher than the Output Power Setpoint value. APC can modify this value based on the number of OCHNC circuits the amplifier is managing. See the “18.4 Automatic Power Control” section on page 18-18 for more information.	—

Table 11-12 *OPT-PRE and OPT-BST Card Amplifier Line Alarm Threshold Settings (continued)*

Parameter	Description	Options
Power Degrade Low (dBm)	Shows the current value of the optical power degrade high threshold configured in the card. This threshold applies only when the amplifier is active and in constant power mode. Power Degrade Low refers to the port's Signal Output Power value and is automatically calculated by the TCC2/TCC2P when the amplifier is turned up. The Power Degrade Low threshold is automatically linked to the Output Power Setpoint on the Parameters tab. Changing the setpoint changes the Power Degrade Low threshold. The threshold value is always 2 dB lower than the Output Power Setpoint. APC can modify this value based on the number of OCHNC circuits the amplifier is managing.	—

Table 11-12 *OPT-PRE and OPT-BST Card Amplifier Line Alarm Threshold Settings (continued)*

Parameter	Description	Options
Gain Degradate High (dBm)	Shows the current value of the gain degrade high threshold configured in the card. This threshold applies only when the amplifier is active and in constant gain mode. Gain Degradate High refers to the port's Gain value and is automatically calculated by the TCC2/TCC2P and when the amplifier is turned up. The Gain Degradate High threshold is linked to the Gain setpoint. Changing the setpoint changes the Gain Degradate High threshold. The threshold value is always 2 dB higher than the Gain Setpoint value. APC can modify this value based on the number of OCHNC circuits the amplifier is managing and to compensate for insertion loss due to fiber aging.	—
Gain Degradate Low (dBm)	Shows the current value of the gain degrade low threshold configured in the card. This threshold applies only when the amplifier is active and in constant gain mode. Gain Degradate Low refers to the port's Gain value and is automatically calculated by the TCC2/TCC2P and when the amplifier is turned up. The Gain Degradate Low threshold is automatically linked to the Gain Setpoint that is provisioned. Changing the setpoint changes the Gain Degradate Low threshold. The threshold value is always 2 dB lower than the Gain Setpoint value. APC can also modify this value based on the number of OCHNC circuits the amplifier is managing.	—

Step 6 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 7 Return to your originating procedure (NTP).

DLP-G322 Change the OPT-BST ALS Maintenance Settings

Purpose	This task changes the ALS maintenance settings for the OPT-BST card.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

- Step 1** In node view, double-click the OPT-BST where you want to change the ALS maintenance settings.
- Step 2** Click the **Maintenance > ALS** tabs.
- Step 3** Modify any of the settings described in [Table 11-13](#). The provisionable parameters are listed in the options column in the table.

Table 11-13 OPT-BST Maintenance Settings

Parameter	Description	Options
OSRI	Optical safety remote interlock. When set to On, the OPT-BST TX output power is shut down.	From the drop-down list, choose one of the following: - On - Off
ALS Mode	Automatic laser shutdown mode. For OPT-BST cards, ALS provides the ability to shut down the OPT-BST TX laser when the OPT-BST RX detects an LOS. ALS also enables an optical safety mechanism at the DWDM network layer. See the “ 16.8.5.13 Automatic Laser Shutdown ” section on page 16-105 for more information.	From the drop-down list, choose one of the following: - Disable—Deactivates ALS. - Auto Restart—(Default) ALS is active. The power is automatically shut down when needed and automatically tries to restart using a probe pulse until the cause of the failure is repaired. - Manual Restart - Manual Restart for Test
Recovery Pulse Duration	(Display only) Displays the duration of the optical power pulse that begins when an amplifier restarts.	—
Recovery Pulse Interval	(Display only) Displays the interval between optical power pulses.	—
Currently Shutdown	(Display only) Displays the current status of the laser.	—
Request Laser Restart	If checked, allows you to restart the laser for maintenance.	Checked or unchecked

- Step 4** Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 5 Return to your originating procedure (NTP).

NTP-G92 Modify 32MUX-O, 32DMX-O, 32DMX, and 4MD Line Settings and PM Thresholds

Purpose	This procedure changes the line and PM parameter threshold settings for the multiplexer and demultiplexer cards. The cards included in this category are the 32MUX-O, 32DMX-O, 32DMX, and 4MD-xx.x cards.
Tools/Equipment	None
Prerequisite Procedures	NTP-G30 Install the DWDM Cards, page 3-39
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher



Note

Complete the “[DLP-G141 View Optical Power Statistics for 32MUX-O, 32-WSS, 32-DMX-O, and 32DMX Cards](#)” task on page 9-13 to view multiplexer and demultiplexer optical power statistics.

- Step 1** Complete the “[DLP-G46 Log into CTC](#)” task on page 2-25 at the node where you want to change the 32MUX-O, 32DMX-O, 32DMX, or 4MD-xx.x card settings. If you are already logged in, proceed to [Step 2](#).
- Step 2** Complete the “[NTP-G103 Back Up the Database](#)” procedure on page 13-2.
- Step 3** Perform any of the following tasks as needed:
- [DLP-G208 Change Optical Line Settings for Multiplexer and Demultiplexer Cards, page 11-24](#)
 - [DLP-G209 Change Optical Line Threshold Settings for Multiplexer and Demultiplexer Cards, page 11-26](#)
 - [DLP-G210 Change Optical Channel Settings for Multiplexer and Demultiplexer Cards, page 11-27](#)
 - [DLP-G211 Change Optical Channel Threshold Settings for Multiplexer and Demultiplexer Cards, page 11-30](#)
- Step 4** Complete the “[NTP-G103 Back Up the Database](#)” procedure on page 13-2.
- Stop. You have completed this procedure.**
-

DLP-G208 Change Optical Line Settings for Multiplexer and Demultiplexer Cards

Purpose	This task changes the optical line settings for 32MUX-O, 32DMX-O, 32DMX, and 4MD-xx.x multiplexer and demultiplexer cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

- Step 1** In node view, double-click the multiplexer or demultiplexer card where you want to change the optical line settings.
- Step 2** Click the **Provisioning > Optical Line > Parameters** tabs.
- Step 3** Modify any of the settings described in [Table 11-14](#). In the Options column, the SONET option is followed by the SDH option. The provisionable parameters are listed in the options column in the table.

Table 11-14 Multiplexer and Demultiplexer Card Optical Line Settings

Parameter	Description	Options
Port #	(Display only) Displays the port number.	Displays port number and TX or RX.
Port Name	Provides the ability to assign the specified port a name.	User-defined. Name can be up to 32 alphanumeric/special characters. Blank by default. Double-click, enter the name, and press Enter . See the “ DLP-G104 Assign a Name to a Port ” task on page 7-10 .
Admin State	Sets the port service state unless network conditions prevent the change. For more information about administrative states, see Appendix C, “DWDM Administrative and Service States.”	From the drop-down list, choose one of the following: - IS/Unlocked - IS,AINS/Unlocked,automaticInService - OOS,DSBLD/Locked,disabled - OOS,MT/Locked,maintenance
Line Direction	Provides the ability to associate a card with the line direction. CTC automatically configures the line direction during node setup. To change this setting, you must change the Cisco MetroPlanner site plan and import it to the node.	From the drop-down list, choose one of the following: - East to West - West to East
Service State	Identifies the autonomously generated state that gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about service states, see Appendix C, “DWDM Administrative and Service States.”	Display only - IS-NR/Unlocked-enabled - OOS-AU,AINS/Unlocked-disabled, automaticInService - OOS-MA,DSBLD/Locked-enabled,disabled - OOS-MA,MT/Locked-enabled,maintenance

Table 11-14 *Multiplexer and Demultiplexer Card Optical Line Settings (continued)*

Parameter	Description	Options
Type	(Display only) Identifies the type of port.	- Input Com - Output Com
Power	(Display only) Shows the current power level per port.	—
VOA Mode	(32DMX only; display only) Shows the functional mode of the VOA, when present.	- Constant Attenuation - Constant Power
VOA Power Ref	(32DMX only; display only) Shows the optical power setpoint that must be reached when a VOA is present and VOA Mode is set to Constant Power. This parameter can only be modified by ANS.	—
VOA Power Calib	(32DMX only) Modifies the optical power value of the VOA when VOA Mode is set to Constant Power.	Numeric. Double-click the parameter, enter a value, and press Enter .
VOA ATTenuation Ref	(32DMX only; display only) Shows the VOA attenuation value when VOA Mode is set to Constant Attenuation. This parameter can only be modified by ANS.	—
VOA Attenuation Calib	(32DMX only) Modifies the attenuation value of the VOA when the VOA Mode is set to Constant Attenuation.	Numeric. Double-click the parameter, enter a value, and press Enter .
AINS Soak	(Display only) Sets the automatic in-service soak period.	- Duration of valid input signal, in hh.mm format, after which the card becomes in service (IS) automatically 0 to 48 hours, 15-minute increments

Step 4 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 5 Return to your originating procedure (NTP).

DLP-G209 Change Optical Line Threshold Settings for Multiplexer and Demultiplexer Cards

Purpose	This task changes the optical line threshold settings for 32MUX-O, 32DMX-O, 32DMX, and 4MD-xx.x multiplexer and demultiplexer cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

- Step 1** In node view, double-click the multiplexer or demultiplexer card where you want to change the optical line threshold settings.
- Step 2** Click the **Provisioning > Optical Line > Optics Thresholds** tabs.
- Step 3** Under Types, choose the type of threshold you want to change, either **Warning** or **Alarm**.
- Step 4** Click **Refresh**.
- Step 5** Modify any of the warning or alarm threshold settings. [Table 11-15](#) shows the amplifier line thresholds for warnings. The provisionable parameters are listed in the options column in the table.

Table 11-15 Multiplexer and Demultiplexer Card Amplifier Line Warning Threshold Settings

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
opwrMin (dBm)	Sets the low power warning level.	Numeric. Can be set for 15-minute or one-day intervals. The default is -50 dBm. Double-click the parameter, enter a value, and press Enter .
opwrMax (dBm)	Sets the high power warning level.	Numeric. Can be set for 15-minute or one-day intervals. The default is 30 dBm. Double-click the parameter, enter a value, and press Enter .



Caution

Warning thresholds are not monitored by CTC. They must be user-provisioned and monitored through custom alarm profiles.

[Table 11-16](#) shows the amplifier line thresholds for alarms.

Table 11-16 Multiplexer and Demultiplexer Amplifier Line Alarm Threshold Settings

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
Power Failure Low (dBm)	Shows the optical power failure low threshold for the port. The threshold is calculated automatically when you run ANS. You can manually change the threshold. The value must be within the optical power range that is specified for the card. (See Appendix B, “Hardware Specifications.”)	Numeric. Double-click the parameter, enter a value, and press Enter .
Power Degrade High (dBm)	Not applicable to 32MUX-O, 32DMX-O, 32DMX, and 4MD cards.	—
Power Degrade Low (dBm)	Not applicable to 32MUX-O, 32DMX-O, 32DMX, and 4MD cards.	—
Power Add Failure Low (dBm)	Not applicable to 32MUX-O, 32DMX-O, 32DMX, and 4MD cards.	Numeric. Double-click the parameter, enter a value, and press Enter .

- Step 6** Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.
- Step 7** Return to your originating procedure (NTP).

DLP-G210 Change Optical Channel Settings for Multiplexer and Demultiplexer Cards

Purpose	This task changes the optical channel settings for 32MUX-O, 32DMX-O, 32DMX, and 4MD-xx.x multiplexer and demultiplexer cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

- Step 1** In node view, double-click the multiplexer or demultiplexer card where you want to change the optical channel settings.
- Step 2** Click the **Provisioning > Optical Chn > Parameters** tabs.
- Step 3** Modify any of the settings described in [Table 11-17](#). The provisionable parameters are listed in the options column in the table.

Table 11-17 *Multiplexer and Demultiplexer Card Optical Channel Settings*

Parameter	Description	Options
Port #	(Display only) Displays the port number.	Displays port number and TX or RX.
Port Name	Provides the ability to assign the specified port a name.	User-defined. Name can be up to 32 alphanumeric/special characters. Blank by default. Double-click, enter the name, and press Enter . See the “ DLP-G104 Assign a Name to a Port ” task on page 7-10.
Admin State	Sets the port service state unless network conditions prevent the change. For more information about administrative states, see Appendix C, “DWDM Administrative and Service States.”	From the drop-down list, choose one of the following: - IS/Unlocked - IS,AINS/Unlocked,automaticInService - OOS,DSBLD/Locked,disabled - OOS,MT/Locked,maintenance
Line Direction	Provides the ability to associate a card with the line direction. CTC automatically configures the line direction during node setup. To change this setting, you must change the Cisco MetroPlanner site plan and import it to the node.	From the drop-down list, choose one of the following: - East to West - West to East
Service State	(Display only) Identifies the autonomously generated state that gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about service states, see Appendix C, “DWDM Administrative and Service States.”	- IS-NR/Unlocked-enabled - OOS-AU,AINS/Unlocked-disabled, automaticInService - OOS-MA,DSBLD/Locked-enabled,disabled - OOS-MA,MT/Locked-enabled,maintenance
Type	(Display only) Identifies the type of port.	- ADD - DROP
Power	(Display only) Shows the current power level per port.	—
VOA Mode	(Display only; 32MUX-O, 32DMX-0, 4MD only) Shows the current functional mode of the VOA.	- Constant Power - Constant Attenuation
VOA Power Ref.	(Display only; 32MUX-O, 32DMX-0, 4MD only) Shows the Power setpoint that must be reached on the path where a VOA is present when the VOA Mode is Constant Power. Demultiplexers show the reference value of the desired optical power going to the client. Multiplexers show the reference value of the desired per-channel optical power. This parameter can only be modified by ANS.	—

Table 11-17 **Multiplexer and Demultiplexer Card Optical Channel Settings (continued)**

Parameter	Description	Options
VOA Power Calib.	(32MUX-O, 32DMX-0, 4MD only) The user can modify the optical output power to the VOA if necessary. The VOA power calibration offsets the VOA power reference. For demultiplexers, you can modify the optical output power to the client if necessary. For multiplexers, you can modify the output power per channel. This feature is normally used when the Network Type is configured as Access in the Provisioning > WDM-ANS tab.	Numeric. Double-click the parameter, enter a value and press Enter .
VOA Attenuation Ref.	(Display only; 32MUX-O, 32DMX-0, 4MD only) Shows the attenuation value of the VOA when the VOA is set in attenuation mode. This parameter can only be modified by ANS and APC.	—
VOA Attenuation Calib.	(32MUX-O, 32DMX-0, and 4MD only) Allows the user to modify the attenuation value of the VOA if necessary when the VOA mode is set for constant attenuation.	Numeric, double-click the parameter, enter a value and press Enter .
Actual Wavelength	(Display only) Shows the wavelength specified by the manufacturing data. This field cannot be set manually.	—
Expected Wavelength	Shows the preprovisioned wavelength. This field is used to preprovision cards.	Numeric. Double-click the parameter, enter a value and press Enter .

Step 4 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 5 Return to your originating procedure (NTP).

DLP-G211 Change Optical Channel Threshold Settings for Multiplexer and Demultiplexer Cards

Purpose	This task changes the optical channel threshold settings for 32MUX-O, 32DMX-O, 32DMX, and 4MD-xx.x multiplexer and demultiplexer cards.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher


Caution

Warning thresholds are not monitored by CTC. They must be user-provisioned and monitored through custom alarm profiles.

- Step 1** In node view, double-click the multiplexer or demultiplexer card where you want to change the optical threshold settings.
- Step 2** Click the **Provisioning > Optical Chn > Optics Thresholds** tabs.
- Step 3** Under Types, choose the type of threshold you want to change, either **Warning** or **Alarm**.
- Step 4** Click **Refresh**.
- Step 5** Modify any of the warning or alarm threshold settings. [Table 11-18](#) shows the amplifier line thresholds for warnings.

Table 11-18 Multiplexer and Demultiplexer Card Optical Channel Warning Threshold Settings

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
Power Low (dBm)	Set the low power settings.	Numeric. Can be set for 15-minute or one-day intervals. The default is –50 dBm. Double-click the parameter, enter a value, and press Enter .
Power High (dBm)	Set the high power settings.	Numeric. Can be set for 15-minute or one-day intervals. The default is 30 dBm. Double-click the parameter, enter a value, and press Enter .

[Table 11-19](#) shows the amplifier line thresholds for alarms.

Table 11-19 *Multiplexer and Demultiplexer Card Optical Channel Alarm Threshold Settings*

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
Power Failure Low (dBm)	Shows the power failure low threshold. This power value applies to the corresponding port and is automatically calculated when ANS is run. This threshold applies to a port associated to a VOA (OSC-VOA) always active in Constant Power mode. The threshold is automatically linked to the Power Setpoint (VOA Power Ref + VOA Power Calib) provisioned. Changing the setpoint results in changing the threshold (always 5 dB lower). The 32DMX is an exception. 32DMX Power Failure Low thresholds apply to ports not associated to a VOA. The threshold is calculated automatically when you run ANS. You can manually change the threshold. The value must be within the optical power range that is specified for the card. (See Appendix B, “Hardware Specifications.”)	Numeric. Double-click the parameter, enter a value, and press Enter .

Table 11-19 *Multiplexer and Demultiplexer Card Optical Channel Alarm Threshold Settings*

Parameter	Description	Options
Power Degrade High (dBm)	Shows the power degrade high threshold. This power value applies to the corresponding port and is automatically calculated when ANS is run. This threshold applies to a port associated to a VOA (OSC-VOA) always active in Constant Power mode. The threshold is automatically linked to the Power Setpoint (VOA Power Ref + VOA Power Calib) provisioned. Changing the setpoint will result in changing the threshold (always 3 dB higher). This threshold does not apply to the 32DMX card.	—
Power Degrade Low (dBm)	Shows the power degrade low threshold. This power value applies to the corresponding port and is automatically calculated when ANS is run. This threshold applies to a port associated to a VOA (OSC-VOA) always active in Constant Power mode. The threshold is automatically linked to the Power Setpoint (VOA Power Ref + VOA Power Calib) provisioned. Changing the setpoint will result in changing the threshold (always 2 dB lower). This threshold does not apply to the 32DMX card.	Numeric. Double-click the parameter, enter a value, and press Enter .

Step 6 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 7 Return to your originating procedure (NTP).

NTP-G93 Modify the 32WSS Thresholds and Settings

Purpose	This procedure changes the 32WSS card thresholds and settings.
Tools/Equipment	None
Prerequisite Procedures	NTP-G30 Install the DWDM Cards, page 3-39
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 2-25](#) at the node where you want to change the 32WSS card settings. If you are already logged in, continue with Step 2.
- Step 2** Complete the “[NTP-G103 Back Up the Database](#)” procedure on [page 13-2](#).
- Step 3** Perform any of the following tasks as needed:
- [DLP-G212 Change Optical Channel Parameters for the 32WSS Card, page 11-33](#)
 - [DLP-G213 Change the 32WSS Optical Channel Thresholds, page 11-36](#)
-  **Note** To use the alarm profile tab, including creating alarm profiles and suppressing alarms, see [Chapter 8, “Manage Alarms.”](#)
- [DLP-G214 Change Optical Line Parameters for the 32WSS Card, page 11-38](#)
 - [DLP-G215 Change the 32WSS Card Optical Line Thresholds, page 11-40](#)
- Step 4** Complete the “[NTP-G103 Back Up the Database](#)” procedure on [page 13-2](#).
- Stop. You have completed this procedure.**
-

DLP-G212 Change Optical Channel Parameters for the 32WSS Card

Purpose	This task changes the optical channel parameter settings for the 32WSS card.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

-
- Step 1** In node view, double-click the 32WSS card where you want to change the optical channel parameter settings.
- Step 2** Click the **Provisioning > Optical Chn: Optical Connector** tab for one of the four available groups of eight optical channels.

Step 3 Modify any of the settings described in [Table 11-20](#). The provisionable parameters are listed in the options column in the table.

Table 11-20 32WSS Optical Channel Parameter Settings

Parameter	Description	Options
Port	(Display only) Shows the port number. Each optical channel (wavelength) has two logical ports. However, only one is active at a time depending on the operating mode provisioned for the port on the card view Maintenance tab: either Add Drop or Pass Through. Ports 1 through 32 (RX) are assigned to optical channels configured as Add Channels. Ports 33 through 64 (PT) are assigned to optical channels configured as Pass-Through channels.	—
Port Name	Allows a logical name to be assigned for each of the port.	User-defined. Name can be up to 32 alphanumeric/special characters. Blank by default. Double-click, enter the name, and press Enter . See the “ DLP-G104 Assign a Name to a Port ” task on page 7-10 .
Admin State	Sets the port service state unless network conditions prevent the change. For more information about administrative states, see Appendix C, “DWDM Administrative and Service States.”	From the drop-down list, choose one of the following: • IS/Unlocked • IS,AINS/Unlocked,automaticInService • OOS,DSBLD/Locked,disabled • OOS,MT/Locked,maintenance
Service State	(Display only) Identifies the autonomously generated state that gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about service states, see Appendix C, “DWDM Administrative and Service States.”	• IS-NR/Unlocked-enabled • OOS-AU,AINS/Unlocked-disabled,automaticInService • OOS-MA,DSBLD/Locked-enabled,disabled • OOS-MA,MT/Locked-enabled,maintenance
Line Direction	(Display only) Displays the line direction associated with the port. The parameter is automatically configured during ANS.	From the drop-down list, choose one of the following: • East to West • West to East
Type	(Display only) Port type	• Add • Passthrough
Power	(Display only) Power value read by the photodiode located after the VOA associated to the port, and calibrated to the COM_TX port. For more information, see the “ 16.7.6 32WSS Card ” section on page 16-76 and the “ B.4.15 32WSS Card Specifications ” section on page B-32 .	Numeric value (dB)

Table 11-20 32WSS Optical Channel Parameter Settings (continued)

Parameter	Description	Options
VOA Mode	(Display only) Displays the active VOA working mode.	- Constant Power - Constant Attenuation
VOA Power Reference	(Display only) Shows the value of the optical power setpoint that must be reached on the path where a VOA is present, when VOA Mode is set to Constant Power. This value is the desired per-channel optical power. This parameter can only be modified by ANS.	Numeric value (dB)
VOA Power Calibration	Allows you to modify the VOA power value when VOA Mode is Constant Power.	Double-click the parameter, enter a value, and press Enter . - Numeric value (dB) –37 dB to –2 dB
VOA Attenuation Reference	(Display only) Shows the attenuation value of the VOA when the VOA Mode is Constant Attenuation. This parameter can only be modified by ANS.	Numeric value (dB)
VOA Attenuation Calibration	Allows you to modify the VOA attenuation value when VOA Mode is Constant Attenuation.	Double-click the parameter, enter a value, and press Enter . - Numeric value (dB) –30 dB to +30 dB
Actual Wavelength	(Display only) Displays the actual wavelength utilized by the channel.	- Actual measured value (nm) - UNKNOWN
Expected Wavelength	(Display only) Displays the expected wavelength assigned for the channel.	- Value (nm) from the ITU-T grid specification - UNKNOWN
Power ADD	(Display only) Displays a measurement of the optical power coming in on the ADD RX port. This is the power transmitted by the TX laser of the TXP or MXP card that is connected to the 32WSS. The measurement is performed by a photodiode before the selector and the VOA. The photodiode validates the power level of the incoming wavelength power.	Numeric value (dB)
Path Value	(Display only) Displays Path value.	Standby
AINS Soak	(Display only) Sets the automatic in-service soak period.	- Duration of valid input signal, in hh.mm format, after which the card becomes in service (IS) automatically 0 to 48 hours, 15-minute increments

Step 4 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 5 Return to your originating procedure (NTP).

DLP-G213 Change the 32WSS Optical Channel Thresholds

Purpose	This task changes the optical channel optics threshold settings for the 32WSS card.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher


Caution

Warning thresholds are not monitored by CTC. They must be user-provisioned and monitored through custom alarm profiles.

- Step 1** In node view, double-click the 32WSS card where you want to change the optical channel optics threshold settings.
- Step 2** Click the **Provisioning > Optical Chn: Optical Connector** tab for one of the four groups of eight optical channels that are available.
- Step 3** Under Types, choose the type of threshold you want to change, either **Warning** or **Alarm**.
- Step 4** Click **Refresh**.
- Step 5** Modify any of the warning or alarm threshold settings. [Table 11-21](#) shows the 32WSS optical line thresholds for warnings. The provisionable parameters are listed in the options column in the table.

Table 11-21 32WSS Optical Channel Warning Threshold Settings

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
Power Low (dBm)	Set the low power settings.	Numeric. Can be set for 15-minute or one-day intervals. Double-click the parameter, enter a value, and press Enter .
Power High (dBm)	Set the high power settings.	Numeric. Can be set for 15-minute or one-day intervals. Double-click the parameter, enter a value, and press Enter .

[Table 11-22](#) shows the 32WSS optical line thresholds for alarms.

Table 11-22 32WSS Optical Channel Alarm Threshold Settings

Parameter	Description	Options
Port	(Display only) Displays the port number. For each optical channel (wavelength), two logical ports are associated. Only one port can be active at a time, depending on the port's operating mode. The operating mode, provisioned on the card view Maintenance tab, is either Add Drop or Pass-Through. Ports 1 through 32 (RX) are associated to optical channels configured as Add Drop channels. Ports 33 through 64 (PT) are associated to optical channels configured as Pass-Through channels.	Display only
Power Failure Low (dBm)	Shows the power failure low threshold. This power value applies to the corresponding port and is automatically calculated when ANS is run. This threshold applies to a port associated to a VOA (OSC-VOA) always active in Constant Power mode. The threshold is automatically linked to the Power Setpoint (VOA Power Ref + VOA Power Calib) provisioned. Changing the setpoint results in changing the threshold (always 5 dB lower). The threshold is calculated automatically when you run ANS. You can manually change the threshold. The value must be within the optical power range that is specified for the card. (See Appendix B, "Hardware Specifications.")	Numeric. Double-click the parameter, enter a value, and press Enter .
Power Degrade High (dBm)	Shows the power degrade high threshold. This power value applies to the corresponding port and is automatically calculated when ANS is run. This threshold applies to a port associated to a VOA (OSC-VOA) always active in Constant Power mode. The threshold is automatically linked to the Power Setpoint (VOA Power Ref + VOA Power Calib) provisioned. Changing the setpoint results in changing the threshold (always 3 dB higher).	Display only

Table 11-22 32WSS Optical Channel Alarm Threshold Settings (continued)

Parameter	Description	Options
Power Degrade Low (dBm)	Shows the power degrade low threshold. This power value applies to the corresponding port and is automatically calculated when ANS is run. This threshold applies to a port associated to a VOA (OSC-VOA) always active in Constant Power mode. The threshold is automatically linked to the Power Setpoint (VOA Power Ref + VOA Power Calib) provisioned. Changing the setpoint results in changing the threshold (always 2 dB lower).	Numeric, display only
Power ADD Failure Low (dBm)	Shows the power add failure low threshold. This power value applies to the corresponding port and is automatically calculated when ANS is run. This threshold applies to the actual measurement of the optical power on the ADD RX port, that is, the power transmitted by the Trunk-Tx laser of the TXP/MXP card connected to the 32 WSS. The measurement is performed by a photodiode located before the selector and the VOA to validate the incoming wavelength power level. See the “16.7.6 32WSS Card” section on page 16-76 for more information.	Numeric. Double-click the parameter, enter a value, and press Enter .

Step 6 Click **Apply**. If the change affects traffic, a warning message displays. Click **Yes** to complete the change.

Step 7 Return to your originating procedure (NTP).

DLP-G214 Change Optical Line Parameters for the 32WSS Card

Purpose	This task changes the optical line parameter settings for the 32WSS card.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher

Step 1 In node view, double-click the 32WSS card where you want to change the optical line parameter settings.

Step 2 Click the **Provisioning > Optical Line > Parameters** tab.

Step 3 Modify any of the settings described in [Table 11-23](#). The provisionable parameters are listed in the options column in the table.

Table 11-23 32WSS Optical Line Parameter Settings

Parameter	Description	Options
Port	(Display only) Port designation information. See “16.7.6 32WSS Card” section on page 16-76 for more information.	—
Port Name	Allows you to assign a logical name for each of the ports shown.	User-defined. Name can be up to 32 alphanumeric/special characters. Blank by default. Double-click, enter the name, and press Enter . See the “DLP-G104 Assign a Name to a Port” task on page 7-10 .
Admin State	Sets the port service state unless network conditions prevent the change. For more information about administrative states, see Appendix C, “DWDM Administrative and Service States.”	From the drop-down list, choose one of the following: - IS/Unlocked - IS,AINS/Unlocked,automaticInService - OOS,DSBLD/Locked,disabled - OOS,MT/Locked,maintenance
Service State	(Display only) Identifies the autonomously generated state that gives the overall condition of the port. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about service states, see Appendix C, “DWDM Administrative and Service States.”	- IS-NR/Unlocked-enabled - OOS-AU,AINS/Unlocked-disabled,automaticInService - OOS-MA,DSBLD/Locked-enabled,disabled - OOS-MA,MT/Locked-enabled,maintenance
Line Direction	(Display only) Shows the line direction associated with the optical signal that passes through the port. This parameter is automatically configured during ANS.	From the drop-down list, choose one of the following: - West to East - East to West
Type	Port type	From the drop-down list, choose one of the following: - Output Express - Input Express - Out Com - Input Com - Drop
Power	Power value read by the photodiode associated with the port.	Numeric value (dB)
AINS Soak	Sets the automatic in-service soak period.	- Duration of valid input signal, in hh.mm format, after which the card becomes in service (IS) automatically 0 to 48 hours, 15-minute increments

Step 4 Return to your originating procedure (NTP).

DLP-G215 Change the 32WSS Card Optical Line Thresholds

Purpose	This task changes the 32WSS card optical line threshold settings.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher



Caution

Warning thresholds are not monitored by CTC. They must be user-provisioned and monitored through custom alarm profiles.

- Step 1** In node view, double-click the 32WSS card where you want to change the optical line optics warning threshold settings.
- Step 2** Click the **Provisioning > Optical Line > Optical Thresholds** tab for one of the four groups of eight optical channels that are available.
- Step 3** Under Types, choose the type of threshold you want to change, either **Warning** or **Alarm**.
- Step 4** Click **Refresh**.
- Step 5** Modify any of the warning or alarm threshold settings. [Table 11-24](#) shows the 32WSS optical line thresholds for warnings. The provisionable parameters are listed in the options column in the table.

Table 11-24 32WSS Optical Channel Warning Threshold Settings

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
Power Low (dBm)	Set the low power warning level.	Numeric. Can be set for 15-minute or one-day intervals. The default is -50 dBm.
Power High (dBm)	Set the high power warning level.	Numeric. Can be set for 15-minute or one-day intervals. The default is 30 dBm.

[Table 11-25](#) shows the 32WSS optical line thresholds for alarms.

Table 11-25 32WSS Optical Channel Alarm Threshold Settings

Parameter	Description	Options
Port	(Display only) Displays the port number.	—
Power Failure Low (dBm)	Shows the power failure low threshold. This power value applies to the corresponding port and is automatically calculated when ANS is run. You can manually change the threshold. The value must be within the optical power range that is specified for the card. (See Appendix B, “Hardware Specifications.”)	Numeric.
Power Degrade High (dBm)	Does not apply to 32WSS cards at the optical line level.	—
Power Degrade Low (dBm)	Does not apply to 32WSS cards at the optical line level.	Numeric

Step 6 Return to your originating procedure (NTP).

NTP-G101 Modify Alarm Interface Controller–International Settings

Purpose	This procedure provisions the AIC-I card to receive input from or send output to external devices wired to the backplane (called external alarms and controls or environmental alarms), or changes orderwire settings.
Tools/Equipment	None
Prerequisite Procedures	NTP-G72 Provision External Alarms and Controls on the Alarm Interface Controller-International Card , page 8-32 DLP-G109 Provision Orderwire , page 7-19
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 2-25 at the node where you want to change the AIC-I card settings. If you are already logged in, proceed to [Step 2](#).
- Step 2** Complete the “[NTP-G103 Back Up the Database](#)” procedure on page 13-2.
- Step 3** Perform any of the following tasks as needed:
- [DLP-G245 Change External Alarms Using the AIC-I Card](#), page 11-42
 - [DLP-G246 Change External Controls Using the AIC-I Card](#), page 11-43
 - [DLP-G247 Change AIC-I Card Orderwire Settings](#), page 11-44

- Step 4** Complete the “[NTP-G103 Back Up the Database](#)” procedure on page 13-2.
Stop. You have completed this procedure.
-

DLP-G245 Change External Alarms Using the AIC-I Card

Purpose	This task changes external alarm settings on the AIC-I card.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher



Note

The procedure is the same if you are using the alarm expansion panel (AEP). In this case, the number of contacts that are shown on the screen is changed accordingly.

- Step 1** Confirm that external-device relays are wired to the ENVIR ALARMS IN pins. See the “[DLP-G20 Install Alarm Wires on the MIC-A/P \(ETSI Only\)](#)” task on page 1-48 (ETSI) or “[DLP-G23 Install Alarm Wires on the Backplane \(ANSI Only\)](#)” task on page 1-53 (ANSI) for more information.
- Step 2** Double-click the AIC-I card to display it in card view.
- Step 3** Click the **Provisioning > External Alarms** tabs.
- Step 4** Modify any of the following fields for each external device wired to the ONS 15454 backplane. For definitions of these fields, see the “[NTP-G72 Provision External Alarms and Controls on the Alarm Interface Controller-International Card](#)” procedure on page 8-32.
- Enabled
 - Alarm Type
 - Severity
 - Virtual Wire
 - Raised When
 - Description
- Step 5** To provision additional devices, complete Step 4 for each additional device.
- Step 6** Click **Apply**.
- Step 7** Return to your originating procedure (NTP).
-

DLP-G246 Change External Controls Using the AIC-I Card

Purpose	This task changes external control settings on the AIC-I card.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher


Note

The task is the same if you are using the AEP. In this case, the number of contacts that are shown on the screen is changed accordingly.

-
- Step 1** Verify the external control relays to the ENVIR ALARMS OUT backplane pins. See the “[DLP-G20 Install Alarm Wires on the MIC-A/P \(ETSI Only\)](#)” task on [page 1-48](#) (ETSI) or “[DLP-G23 Install Alarm Wires on the Backplane \(ANSI Only\)](#)” task on [page 1-53](#) (ANSI) for more information.
- Step 2** In node view, double-click the AIC-I card to display it in card view.
- Step 3** On the External Controls subtab, modify any of the following fields for each external control wired to the ONS 15454 backplane. For definitions of these fields, see the “[NTP-G72 Provision External Alarms and Controls on the Alarm Interface Controller-International Card](#)” procedure on [page 8-32](#).
- Enabled
 - Trigger Type
 - Control Type
 - Description
- Step 4** To provision additional controls, complete [Step 3](#) for each additional device.
- Step 5** Click **Apply**.
- Step 6** Return to your originating procedure (NTP).
-

DLP-G247 Change AIC-I Card Orderwire Settings

Purpose	This task changes orderwire settings on the AIC-I card.
Tools/Equipment	None
Prerequisite Procedures	DLP-G46 Log into CTC, page 2-25
Required/As Needed	As needed
Onsite/Remote	Onsite or remote
Security Level	Provisioning or higher



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.



Tip

Before you begin, make a list of the ONS 15454 slots and ports that require orderwire communication.

-
- Step 1** In node view, double-click the AIC-I card to display it in card view.
- Step 2** Click the **Provisioning > Local Orderwire** tabs or the **Provisioning > Express Orderwire** tabs, depending on the orderwire path that you want to change. Provisioning steps are the same for both types of orderwire.
- Step 3** If needed, adjust the transmit (Tx) and receive (Rx) dBm values by moving the slider to the right or left for the headset type (four-wire or two-wire) that you will use. In general, you should not need to adjust the dBm values.
- Step 4** If you want to turn on the audible alert (buzzer) for the orderwire, check the **Buzzer On** check box.
- Step 5** Click **Apply**.
- Step 6** Return to your originating procedure (NTP).
-

NTP-G102 Change Card Service State

Purpose	This procedure changes a card service state.
Tools/Equipment	None
Prerequisite Procedures	NTP-G30 Install the DWDM Cards, page 3-39 or NTP-G32 Install the Transponder and Muxponder Cards, page 3-43
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 2-25](#) at the node where you want to change the card service state.

Step 2 Click the **Inventory** tab.

Step 3 Click **Admin State** for the card you want to change, and choose an Admin state from the drop-down list:

- **IS** (ANSI) or **Unlocked** (ETSI)
- **OOS,MT** (ANSI) or **Locked-enabled** (ETSI)

Step 4 Click **Apply**.

Step 5 If an error message appears indicating that the card state cannot be changed from its current state, click **OK**.

For information about the enhanced state model and card state transitions, refer to the [“DWDM Administrative and Service States” section on page C-1](#).

Stop. You have completed this procedure.
