APPENDIX A

CTC Information and Shortcuts

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

This appendix describes the Cisco Transport Controller (CTC) views, menus and tool options, shortcuts, and table display options. This appendix also describes the shelf inventory data presented in CTC. For more information about CTC, refer to the *Cisco ONS 15454 Reference Manual*.

Note If network discovery is enabled on the node, CTC searches each node in the network for more recent versions of the CTC software. If a more recent version is discovered, CTC gives you the option of downloading the Java archive (JAR) files to your PC.

Display Node, Card, and Network Views

CTC provides three views of the ONS 15454 and the ONS network:

- Node view appears when you first log into an ONS 15454. This view shows a graphic of the ONS 15454 shelf and provides access to tabs and subtabs that you use to manage the node.
- Card view provides access to individual ONS 15454 cards. This view provides a graphic of the card and provides access to tabs and subtabs that you use to manage the card.
- Network view shows all the nodes in a ring. A Superuser can set up this feature so each user will see the same network view, or the user can create a custom view with maps. This view provides access to tabs and subtabs that you use to manage the network. Network view can contain domains. A domain is used to isolate nodes or groups of nodes for easier maintenance. Double-clicking a domain shows all the nodes in the domain; nodes connected to the domain are grayed out.

Table A-1 lists different actions for changing CTC views.

Table A-1 Change CTC Views

To display:	Perform one of the following:
Node view	• Log into a node; node view is the default view. • In network view, double-click a node icon, or right-click the node and choose **Open Node** from the shortcut menu. • In network view, single-click a node icon, then choose **Go To Selected Object View** from the View menu. • From the View menu, choose **Go To Other Node**, then choose the node you want from the shortcut menu. • Use the arrows on the CTC toolbar to navigate up or down views. For example, in network view, click a node, then click the down arrow.
Home view (node view of the first node you logged into in a network)	• From the CTC View menu, choose **Go To Home View**.
Network view	• In node view, click the up arrow or the Network View tool on the CTC toolbar. • From the View menu, choose **Go To Network View**.
Card view	• In node view, double-click a card or right-click the card and choose **Open Card**. • In node view, single-click a card icon, then choose **Go To Selected Object View** from the View menu. • Use the arrows on the CTC toolbar to navigate up or down views. For example, in node view, click a card, then click the down arrow.

Table A-2 lists the node icons on the network view map.

Table A-2 Description of Node Icons on Network View Map

Node Name	Icon	Description
SONET Hybrid OADM Hybrid line amplifier Hybrid terminal Passive hybrid terminal Amplified TDM		A SONET, hybrid, or amplified time-division multiplexing (TDM) node icon is represented as a cylinder with crossed arrows. • A SONET or SDH node can include OC-N cards, electrical cards, cross-connects, Storage Access Management (SAM) cards, and Ethernet cards. • A hybrid optical add/drop multiplexing (OADM) node contains at least one AD-xC-xx.x card or one AD-xB-xx.x card and two TCC2/TCC2P cards. TDM cards can be installed in any available slot. • A hybrid line amplifier node contains amplifiers and both TDM and dense wavelength division multiplexing (DWDM) cards. • A hybrid terminal node contains at least one 32MUX-O card, one 32DMX-O card, amplifiers, two TCC2/TCC2P cards, and TDM cards. Alternatively, the node may contain at least one 40-MUX-C, one 40-DMX-C card, amplifiers, two TCC2/TCC2P cards, and TDM cards. • A passive hybrid terminal node has the same equipment as the hybrid terminal node, but does not contain amplifiers. • An amplified TDM node is a node that increases the span length between two ONS 15454 nodes that contain TDM cards and optical amplifiers. Amplified TDM nodes contain either OPT-BST amplifiers or AD-1C-xx.x cards. For DWDM node information, refer to the *Cisco ONS 15454 DWDM Reference Manual*.
Hub		A DWDM hub node icon is represented as a three-dimensional cylinder with amplifiers. A hub node contains at least two 32-channel demultiplexers and two 32-channel multiplexers. The hub node may alternatively contain at least two 40-DMX-C cards and two 40-MUX-C cards. No OADM cards are provisioned. For DWDM node information, refer to the *Cisco ONS 15454 DWDM Reference Manual*.
OADM		A DWDM OADM node icon is represented as a three-dimensional cylinder with arrows. An OADM node contains at least one channel OADM (AD-xC) or one band OADM (AD-xB). No 32MUX-O, 32DMX-O, 32DMX, 40-MUX-C, or 40-DMX-C cards are provisioned. For DWDM node information, refer to the *Cisco ONS 15454 DWDM Reference Manual*.

Table A-2 Description of Node Icons on Network View Map (continued)

Node Name	Icon	Description
ROADM		A reconfigurable OADM (ROADM) node icon is represented as a three-dimensional cylinder with two amplifier symbols that have arrows between them. An ROADM node contains at least one 32WSS or 40-WSS-C card. A single-slot 32DMX or double-slot 32DMX-O can be installed, but is not required. Alternatively, a 40-DMX-C can be installed, but is not required. Transponders (TXPs) and muxponders (MXPs) can be installed in Slots 6 and 12. If amplification is not used, TXPs or MXPs can be installed in Slots 1 and 17. If OPT-BST cards are not installed, OSC-CSM cards are installed in Slots 2 and 16 and Slots 8 and 10 are empty.
Terminal		A terminal node is represented as a three-dimensional cylinder with a white rectangle in the center. • A terminal node contains one 32DMX or 32DMX-O card and one 32-MUX-O card. Alternatively, a terminal node contains one 40-DMX-C card and one 40-MUX-C card. No OADM cards are provisioned. • A flexible terminal node contains a series of OADM and amplifier cards. For DWDM node information, refer to the *Cisco ONS 15454 DWDM Reference Manual*.
Line Amplifier OSC regeneration		Line amplifier and optical service channel (OSC) regeneration nodes are represented as a three-dimensional cylinder with one arrow pointing west and another arrow pointing east. • A line amplifier node only has OPT-PRE or OPT-BST amplifiers provisioned. • An OSC regeneration node contains two OSC-CSM cards. For DWDM node information, refer to the *Cisco ONS 15454 DWDM Reference Manual*.
Unknown		An unknown DWDM node icon is represented as a three-dimensional cylinder with one arrow pointing north. An unknown node means that the provisioned cards do not allow the node to fit any of the defined DWDM node categories. For DWDM node information, refer to the *Cisco ONS 15454 DWDM Reference Manual*.

Manage the CTC Window

Different navigational methods are available within the CTC window to access views and perform management actions. You can double-click and right-click objects in the graphic area and move the mouse over nodes, cards, and ports to view popup status information.

CTC Menu and Toolbar Options

The CTC window menu bar and toolbar provide primary CTC functions. Table A-3 shows the actions that are available from the CTC menu and toolbar.

Table A-3 CTC Menu and Toolbar Options

Menu	Menu Option	Toolbar	Description
File	Add Node		Adds a node to the current session. See the "DLP-A62 Add a Node to the Current Session or Login Group" task on page 17-66.
	Delete Selected Node		Deletes a node from the current session.
	Lock CTC		Locks CTC without closing the CTC session. A user name and password are required to open CTC.
	Print		Prints CTC data. See the "DLP-A531 Print CTC Data" task on page 22-31.
	Export		Exports CTC data. See the "DLP-A532 Export CTC Data" task on page 22-33.
	Exit	—	Closes the CTC session.
Edit	Preferences		Displays the Preferences dialog box, which shows the following tabs: • General—Allows you to change event defaults and manage preferences. • Login Node Groups—Allows you to create login node groups. See the "DLP-A61 Create Login Node Groups" task on page 17-65. • Map—Allows you to customize the network view. See the "DLP-A145 Change the Network View Background Color" task on page 18-18 and the "DLP-A268 Apply a Custom Network View Background Map" task on page 19-51. • Circuit—Allows you to change the color of circuit spans. See the "DLP-A232 Change Active and Standby Span Color" task on page 19-21. • Firewall—Sets the Internet Inter-ORB Protocol (IIOP) listener ports and the Secure Sockets Layer Inter-ORB Protocol (SSLIOP) for access to the ONS 15454 through a firewall. See the "NTP-A27 Set Up the ONS 15454 for Firewall Access" procedure on page 4-9. • JRE—Allows you to select another Java Runtime Environment (JRE) version. See the "DLP-A431 Change the JRE Version" task on page 21-9.

Table A-3 CTC Menu and Toolbar Options (continued)

Menu	Menu Option	Toolbar	Description
View	Go To Previous View		Displays the previous CTC view.
	Go To Next View		Displays the next CTC view. Available only after you navigate to a previous view. Go to Previous View and Go to Next View are similar to forward and backward navigation in a web browser.
	Go To Parent View		References the CTC view hierarchy: network view, node view, and card view. In card view, this command displays the node view; in node view, the command displays network view. Not available in network view.
	Go To Selected Object View		Displays the object selected in the CTC window.
	Go To Home View		Displays the login node in node view.
	Go To Network View		Displays the network view.
	Go To Other Node		Displays a dialog box allowing you to type in the node name or IP address of a a network node that you want to view.
	Show Status Bar	—	Click this item to display or hide the status bar at the bottom of the CTC window.
	Show Tool Bar	—	Click this item to display or hide the CTC toolbar.
—	—		Zooms out the network view area (toolbar only).
—	—		Zooms in the network view area (toolbar only).
—	—		Zooms in a selected network view area (toolbar only).

Table A-3 CTC Menu and Toolbar Options (continued)

Menu	Menu Option	Toolbar	Description
Tools	Circuits	—	Displays the following options: • Repair Circuits—Repairs incomplete circuits following replacement of the ONS 15454 alarm interface panel (AIP). Refer to the *Cisco ONS 15454 Troubleshooting Guide* for more information. • Reconfigure Circuits—Allows you to reconfigure circuits. See the "NTP-A298 Reconfigure Circuits" procedure on page 7-12 for more information. • Set Path Selector Attributes—Allows you to edit path protectioncircuit path selector attributes. See the "DLP-A233 Edit Path Protection Circuit Path Selectors" task on page 19-22. • Set Circuit State—Allows you to change a circuit state. See the "DLP-A230 Change a Circuit Service State" task on page 19-19. • Roll Circuit—Allows you to reroute live traffic without interrupting service. See the "NTP-A334 Bridge and Roll Traffic" section on page 7-11. • Delete Rolls—Removes rolls that are not deleted by CTC after a roll has been completed. See the "DLP-A468 Delete a Roll" task on page 21-56. • Upgrade OCHNC—(ONS 15454 only) Upgrades OCHNCs created in earlier software releases to OCHCCs. Refer to the *Cisco ONS 15454 DWDM Procedure Guide* for more information. • Show RPR Circuit Ring—Shows the RPR ring for the circuit selected on the Circuits window. See the "NTP-A348 Display IEEE 802.17 RPR Circuits" procedure on page 7-14.

Table A-3 CTC Menu and Toolbar Options (continued)

Menu	Menu Option	Toolbar	Description
Tools	Overhead Circuits	—	Displays the Repair IP Tunnels option, which fixes circuits that are in the INCOMPLETE state as a result of node IP address changes. See the "DLP-A336 Repair an IP Tunnel" task on page 20-24.
	Topology Upgrade	—	Displays the following options: • Convert Path Protection to BLSR—Converts a path protection configuration to a bidirectional line switch ring (BLSR). See the "NTP-A267 Convert a Path Protection Configuration to a Two-Fiber BLSR Automatically" procedure on page 13-13. • Convert Unprotected to Path Protection—Converts a point-to-point or linear add/drop multiplexer (ADM) to a path protection configuration. See the "NTP-A342 Convert a Point-to-Point or Linear ADM to a Path Protection Configuration Automatically" procedure on page 13-11.
	Manage VLANs	—	Displays a list of VLANs that have been created and allows you to create and delete VLANS. See the "NTP-A325 Manage VLANs" procedure on page 7-13.
	Open TL1 Connection		Displays the TL1 session dialog box so you can create a TL1 session to a specific node. Refer to the *Cisco ONS SONET TL1 Command Guide* and the *Cisco ONS SONET TL1 Reference Guide*.
	Open IOS Connection		Displays the Cisco IOS command line interface dialog box if a Cisco IOS capable card (any ML-Series card) is installed in the node. Refer to the *Ethernet Card Software Feature and Configuration Guide*.
	Update CTC	—	Allows you to update CTC to a newer version if a newer version was found during network discovery.
Help	Contents and Index	—	Displays the online help window.
	User Manuals	—	Displays the Cisco ONS 15454 documentation.
	About CTC	—	Displays the software version and the nodes in the CTC session.
—	Network Scope	—	Displays the selected network scope. The network scope drop-down list has three options: DWDM, TDM, or All. If you choose DWDM, DWDM and hybrid nodes appear on the network view map. If you choose TDM, TDM and hybrid nodes appear on the network view map. If you choose All, every node on the network appears on the network view map.
—	Link Filter		Opens the Link Filter dialog box, which allows you to choose which link classes appear on the non-detail network map. The available classes vary according to the selected network scope. • ALL—DCC, GCC, OTS, PPC, server trail • DWDM—GCC, OTS, PPC • TDM—DCC, PPC, server trail

Table A-3 CTC Menu and Toolbar Options (continued)

Menu	Menu Option	Toolbar	Description
—	—		Opens the Collapse/Expand Links dialog box, which allows you to globally expand or consolidate network view links based on link type.
—	—	 	Opens the CTC Alerts dialog box, which shows the status of certain CTC background tasks. When the CTC Alerts toolbar icon contains a red triangle, unread notifications exist. When there are no unread notifications, the CTC Alerts toolbar icon contains a gray triangle. Notifications include: • Network disconnection • Send-PDIP inconsistency—CTC discovers a new node that does not have a SEND-PDIP setting consistent with the login node. • Circuit deletion status—Reports when the circuit deletion process completes if you choose "Notify when complete" as described in the "NTP-A278 Modify and Delete Overhead Circuits and Server Trails" procedure on page 7-5. The CTC Alerts window always reports circuit deletion errors. • Conditions retrieval error • Software download failure You can save a notification by clicking the Save button in the CTC Alerts dialog box and navigating to the directory where you want to save the text file. By default, the CTC Alerts dialog box opens automatically. To disable automatic popup, see the "DLP-A327 Configure the CTC Alerts Dialog Box for Automatic Popup" task on page 20-16.

CTC Mouse Options

In addition to the CTC menu bar and toolbar, you can invoke actions by double-clicking CTC window items with your mouse, or by right-clicking an item and selecting actions from shortcut menus. Table A-4 lists the CTC window mouse shortcuts.

Table A-4 CTC Window Mouse Shortcuts

Technique	Description
Double-click	• Node in network view—Displays the node view. • Domain in network view—Displays the domain view. • Card in node view—Displays the card view. • Alarm/Event—Displays the object that raised the alarm or event. • Circuits—Displays the Edit Circuit window.
Right-click	• Network view graphic area—Displays a menu that you can use to create a new domain; change the position and zoom level of the graphic image; save the map layout (if you have a Superuser security level); reset the default layout of the network view; set, change, or remove the background image and color; collapse and expand links; and save or reset the node position. • Domain in network view—Displays a menu that you can use to open a domain, show the domain overview, rename the domain, and delete the domain. • Node in network view—Displays a menu that you can use to open the node, reset the node icon position to the longitude and latitude set on the Provisioning > General tab, delete the node, fix the node position for auto layout, provision circuits, provision channels, and update circuits or channels with a new node. • Span in network view—Displays a menu that you can use to view information about the span's source and destination ports, the protection scheme, and the optical or electrical level. You can display the Circuits on Spans dialog box, which displays additional span information and allows you to perform path protection switching. If a BLSR is provisioned, you can display the PCA circuits. You can also perform span upgrades from this menu, and expand and collapse links. • Card in node view—Displays a menu that you can use to open, delete, reset, and change cards. The card that you choose determines the commands that appear. • Card in card view—Displays a menu that you can use to reset the card, or go to the parent view (node view). • Empty slot in node view—Displays a menu with cards that you can choose to preprovision the slot.

Table A-4 CTC Window Mouse Shortcuts (continued)

Technique	Description
Move mouse cursor	• Over node in network view—Displays a summary of node alarms and provides a warning if the node icon has been moved out of the map range. • Over span in network view—Displays circuit (node, slot, port) bandwidth and protection information. For DWDM spans, the optical direction and optical ring ID appear. If the span terminates on the trunk port of a TXP/MXP, the associated DWDM wavelength also appears. • Over card in node view—Displays card type, card status, and alarm profile status. For DWDM cards, the number of bands or channels also appear, depending on the card type. • Over domain in network view—Displays domain name and the number of nodes in the domain. • Over card port in node view—Displays port number and/or name, port service state, and alarm profile status. • Over card port in card view—Displays port name (if applicable), port service state, protection status (if applicable), and alarm profile status. For DWDM cards, the port number is labeled as channel, band, or line depending on the card type along with the port state and alarm profile status.

Node View Shortcuts

Table A-5 shows actions on ONS 15454 cards that you can perform by moving your mouse over the CTC window.

Table A-5 Node View Card-Related Shortcuts

Action	Shortcut
Display card information	In node view, move your mouse over cards in the graphic to display tooltips with the card type, card status (active or standby), the highest level of alarm (if any), and the alarm profile used by the card.
Open, reset, or delete a card	In node view, right-click a card. Choose **Open Card** to display the card in card view, **Delete Card** to delete it, or **Reset Card** to reset the card.
Preprovision a slot	In node view, right-click an empty slot. Choose the card type for which you want to provision the slot from the shortcut menu.
Change a card	In node view, right-click an OC-N card or a DS3 card, and choose **Change Card**. In the Change Card dialog box, choose the card type. Change Card retains all card provisioning, including data communications channel (DCC) terminations, protection, circuits, and ring.
Change view	Right-click on the area outside the node to display a menu that allows you to return to the parent view.

Network View Shortcuts

Right-click the network view graphic area or a node, span, or domain to display shortcut menus. Table A-6 lists the actions that are available from the network view.

Table A-6 Network Management Tasks in Network View

Action	Task
Open a node	Any of the following: • Double-click a node icon. • Right-click a node icon and choose **Open Node** from the shortcut menu. • Click a node and choose **Go To Selected Object View** from the View menu. • From the View menu, choose **Go To Other Node**. Choose a node from the Select Node dialog box. • Double-click a node alarm or event in the Alarms or History tab.
Move a node icon	Press the **Ctrl** key and the left mouse button simultaneously and drag the node icon to a new location.
Consolidate links	Right-click on a link and choose **Consolidate/Expand** from the shortcut menu. For more detailed instructions, refer to Chapter 11, "Change Node Settings."
Reset node icon position	Right-click a node and choose **Reset Node Position** from the shortcut menu. The node icon moves to the position defined by the longitude and latitude fields on the Provisioning > General tab in node view.
Provision a circuit	Right-click a node. From the shortcut menu, choose **Provision Circuit To** and choose the node where you want to provision the circuit. For circuit creation procedures, see Chapter 6, "Create Circuits and VT Tunnels."
Update circuits with new node	Right-click a node and choose **Update Circuits With New Node** from the shortcut menu. Use this command when you add a new node and want to pass circuits through it.
Display a link end point	Right-click a span. From the shortcut menu, choose **Go To** [<node> | <port> | <slot>] for the drop port you want to view. CTC displays the card in card view.
Display span properties	Do any of the following: • Move the mouse over a span; the properties appear near the span. • Click a span; the properties appear in the upper left corner of the window. • Right-click a span; the properties appear at the top of the shortcut menu.
Perform a path protection switch for an entire span	Right-click a network span and click **Circuits**. In the Circuits on Span dialog box, switch options appear in the Path Protection Span Switching field.
Display DWDM span properties	Right-click a DWDM network span and click **Circuits**. The optical channel network connection (OCHNC), optical direction, and circuit appear.

Table A-6 Network Management Tasks in Network View (continued)

Action	Task
Upgrade a span	Right-click a span and choose **Upgrade Span** from the shortcut menu. **Note** For detailed span upgrade information and instructions, see Chapter 12, "Upgrade Cards and Spans."
Upgrade terminal to linear	Right-click a span and choose **Upgrade Protection > Terminal to Linear** from the shortcut menu. See the "NTP-A335 Convert a 1+1 Point-to-Point to a Linear ADM Automatically" task on page 13-2.

Table Display Options

Right-clicking a table column displays a menu. Table A-7 shows table display options, which include rearranging or hiding CTC table columns and sorting table columns by primary or secondary keys.

Table A-7 Table Display Options

Task	Click	Right-Click Shortcut Menu
Resize column	Click while dragging the column separator to the right or left.	—
Rearrange column order	Click while dragging the column header to the right or left.	—
Reset column order	—	Choose **Reset Columns Order/Visibility**.
Hide column	—	Choose **Hide Column**.
Show column	—	Choose **Show Column >** *column_name*.
Display all hidden columns	—	Choose **Reset Columns Order/Visibility**.
Sort table (primary)	Click a column header; each click changes sort order (ascending or descending).	Choose **Sort Column**.
Sort table (secondary sorting keys)	Press the **Shift** key and simultaneously click the column header.	Choose **Sort Column (incremental)**.
Reset sorting	—	Choose **Reset Sorting**.
View table row count	—	View the number after **Row count=**; it is the last item on the shortcut menu.

Equipment Inventory

In node view, the Inventory tab displays information about the ONS 15454 equipment, including:

- Delete button—After highlighting a card with your mouse, use this button to delete the card from node view.
- Reset button—After highlighting a card with your mouse, use this button to reset the card.

- Location—Identifies where the equipment is installed, either chassis or slot number.
- Eqpt Type—Displays the type of equipment but not the specific card name, for example, OC-12 or DS-1.
- Actual Eqpt Type—Displays the specific card name, for example, OC12 IR/STM4 SH 1310.
- Admin State—Changes the card service state unless network conditions prevent the change. For more information about card states, refer to the "Administrative and Service States" appendix of the *Cisco ONS 15454 Reference Manual.*
  - IS—Puts the card in the In-Service and Normal (IS-NR) service state.
  - OOS,MA—Puts the card in the Out-of-Service and Autonomous, Maintenance (OOS-AU,MT) service state.
- Service State—Displays the current card service state, which is an autonomously generated state that gives the overall condition of the card. Service states appear in the format: Primary State-Primary State Qualifier, Secondary State. For more information about card states, refer to the "Administrative and Service States" appendix of the *Cisco ONS 15454 Reference Manual.*
- HW Part #—Displays the hardware part number; this number is printed on the top of the card or equipment piece.
- HW Rev—Displays the hardware revision number.
- Serial #—Displays the equipment serial number; this number is unique to each card.
- CLEI Code—Displays the Common Language Equipment Identifier code.
- Bootroom Rev—Displays the boot read-only memory (ROM) revision number.
- Product ID—Displays the manufacturing product identifier for a hardware component, such as a fan tray, chassis, or card. The Product ID column displays "N/A" for equipment existing before Software Release 4.6.
- Version ID—Displays the manufacturing version identifier for a fan tray, chassis, or card. The Version ID column displays "N/A" for equipment existing before Software Release 4.6.