4 Viewing and Configuring Objects

The Node, Link, Connection, and Ring Browsers provide access to relevant information about objects at different network layers. You can browse the tree structure for relevant information, and show or hide details by expanding or collapsing branches. Browsers are layer-sensitive—the information shown differs by selected layer. When you click on an element in a branch of a tree, the element expands and shows more detailed information. You can also edit some object settings by right-clicking on an object in the browser.

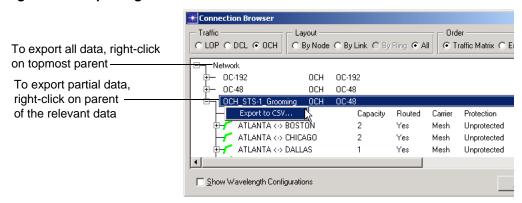
For information about specific browsers, see:

- Link Browser on page TrP-4-2
- Node Browser on page TrP-4-14
- Connection Browser on page TrP-4-23
- Ring Browser on page TrP-4-27

Exporting Browser Information to CSV Files

You can export browser data to a csv (comma-separated vector) file. This makes it easy to view and edit browser data in a spreadsheet application such as Excel. To export browser data, right-click on the parent element in the treeview and choose Export to CSV; this creates a data file that contains all the information in the selected tree element. To export all data in the browser, right-click on the top-level element in the treeview.

Figure 4-1 Exporting Browser Data to a CSV File



Link Browser

To open the Link Browser, choose Network > Link Browser or double-click on a link in the Project Editor workspace. The information shown in this window depends on the selected network layer, which you can set using the Layer buttons at the top of the browser window. For specific information, see:

- OTS Link Browser on page TrP-4-2
- OMS Link Browser on page TrP-4-5
- OCH Link Browser on page TrP-4-7
- DCL Link Browser on page TrP-4-11

OTS Link Browser

The OTS Link Browser, shown in Figure 4-2, shows physical characteristics such as the number of fiber pairs, the number of regenerator/amplification sites, and the fiber length per link. The fields and icons for this browser are described in Table 4-1 on page TrP-4-4.

The information shown at different levels of the treeview depends on the options selected at the bottom of the dialog box. The "Show fibers" and "Show in-line sites" dialog box options are mutually exclusive and result in more details for each OTS link regarding its fibers or in-line sites. Additionally, you can enable or disable the "Show designations" option for either "Show fibers" or "Show in-line sites" to see user-assigned designations as the name of a link resource or sub-resource rather than generic names or indices.

Figure 4-2 OTS Link Browser

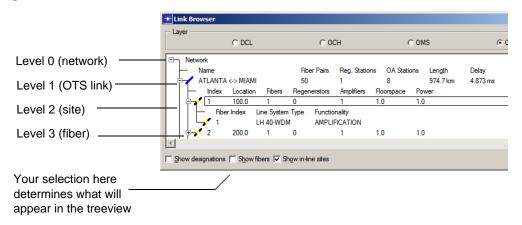


Table 4-1 OTS Link Browser: Treeview

Level	Object	Fields	Comments
1	OTS link	Name—Link nameFiber Pairs—Number of available fiber pairs	The view of this level does not change when you select the options "Show fibers" or "Show in-line sites."
		 Reg. Stations—Number of regeneration stations on link OA Stations—Number of optical amplification stations on link 	When you select "Show designations." however, the "Name" field changes to "Designation" and displays the user-assigned designation of the link.
		Length—Link length from start to end node	This level includes the following right-click menu operations:
		 Delay—Delay on link Designed—Yes or No shows whether the link has been designed or not User Cost—User-specified routing cost 	Set Fiber Length
			Set Total Fiber Pairs
			Set User Specified Cost
			Link Design
			Set Designation
			This level uses the following icons to indicate link types:
			optical link between OCC-OCC or EOCC-OCC nodes electrical link between ECC-ECC or EOCC-ECC nodes link between OCC or EOCC node and cable splitter link between ECC node and cable splitter
2 ¹	Amplification / regeneration site	 Index—Number of site Location—Distance between site and starting node Fibers—Number of fiber pairs used at site Regenerators—Number of regenerators at 	This level uses the following icons to indicate equipment types: amplification site regeneration site
		siteAmplifiers—Number of amplifiers at site	
		Floorspace—Amount of floor space required Devemo Devemos week for site.	
		 Power—Power supply for site 	

Table 4-1 OTS Link Browser: Treeview (Continued)

Level	Object	Fields	Comments
2 ²	Fiber pairs on the OTS link	#—Index of the fiber pair	This level includes the following right-click
		 Client—Name of the client OCH link that is using this fiber pair 	menu operations:
			 Set Designation
		When you select the "Show designations'	Browse Client Link.
		option, the Fields become	This level uses the following icon:
		 'Designation—User-assigned designation of the fiber pair 	Indicates whether a particular fiber
		 Client Designation—User-assigned designation of the client OCH link that is using this fiber pair 	pair is being used by an OCH link
3	Individual fiber	Fiber Index	This level is only applicable when the option
		Line System Type	"Show in-line sites" is selected.
		 Functionality—Regeneration or amplification 	
End of	Table 4-1		

- 1. With "Show in-line sites" option selected
- 2. With "Show fibers" option selected

OMS Link Browser

The OMS Link Browser shows the number of equipped and total fibers as well as the length and delay on the link. The OMS topology can differ from the OTS topology when certain fibers have been configured via cable splitters. For more information, see Cable Splitter on page TrP-3-19.

Figure 4-3 OMS Link Browser

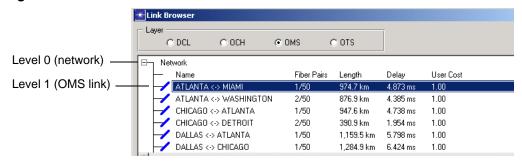


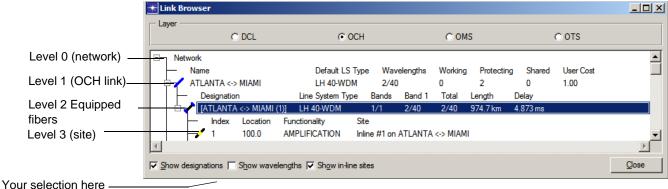
Table 4-2 OMS Link Browser: Treeview

Level	Object	Fields	Comments	
1	OMS link	Name—Link name Fiber Pairs—Number of equipped fiber pairs and total number of fiber pairs	This level includes the following right-click	
			menu operation:	
			 Set User Specified Cost 	
		 Length—Link length from start to end node 	This level uses the following icons to indicate	
		 Delay—Delay on link User Cost—User-specified routing cost 	link types:	
			direct optical link between OCC-OCC or EOCC-OCC nodes direct electrical link between ECC-ECC or EOCC-ECC nodes	
			optical link created using cable splitter	
			electrical link created using cable splitter	
End of	Table 4-2			

OCH Link Browser

The OCH Link Browser shows information about the wavelengths and in-line sites of the WDM line systems present on a link. It also shows information such as the used bands on a WDM line system and the number of wavelengths used for working, protection, or shared (that is, restoration or shared protection) capacity.

Figure 4-4 OCH Link Browser



determines what will appear in the treeview

Table 4-3 OCH Link Browser: Treeview

Level	Object	Fields	Comments
1	OCH link	Name—Link name Default L.C. Time. The default Line System	This level includes the following right-click menu operations:
		 Default LS Type—The default Line System to use when upgrading this link 	Equip Next Band
		Wavelengths—Number of wavelengths	Equip Fiber Pairs
		currently used and total number of available wavelengths	Strip Unused Fiber Pairs
		Working—Number of wavelengths used	Strip Unused Bands
		for working paths	Wavelength Filter—For more information,
		 Protecting—Number of wavelengths used for protection paths 	see Wavelength Filtering on page TrP-4-10
		 Shared—Number of wavelengths shared between protection paths of shared 	Set Default LS Type
			 Set User Specified Cost
		protection or restoration trafficUser Cost—User-specified routing cost	This level uses the following icons to indicate link types:
			direct optical link
			direct electrical link
			optical link created using fiber routing
			electrical link created using fiber routing
2	Equipped Fibers	Designation—User-assigned designation of the equipped fiber. Displayed when you	This level includes the following right-click menu operations:
		select the option "Show designations."	Equip Next Band
		• Line System Type—The type of WDM line	Unequip Fiber Pairs
		system with which the fiber is equipped	Unequip Last Band
		 Bands—Equipped/available number of bands on the line system 	Set Designation
		 Band X—Used/available number of wavelengths on band X 	This level uses the following icon to indicate the line system type:
		 Total—Used/available number of wavelengths on all bands 	WDM line system
		Length—Length of the equipped fiber	
		Delay—Delay on the equipped fiber	

Table 4-3 OCH Link Browser: Treeview (Continued)

Level	Object	Fields	Comments
31	Amplification / regeneration site	 Index—Site index Location—Site location (distance between starting node and site) Functionality—Regeneration or amplification Site—Site name 	This level uses the following icons to indicate equipment types: amplification site regeneration site
3 ²	Wavelength on the equipped fiber	#—Index of the wavelength Client—Name of the client OCH connection that is routed over the wavelength	This level includes the following right-click menu operation: Set Designation Browse Client Connection This level uses the following icons to indicate equipment types: amplification site regeneration site This level also uses the following icons to indicate which path of an OCH connection is routed over a particular wavelength: The path of an unprotected connection working path of a 1+1 protected connection protection path of a 1+1 protected connection working path of a shared protected connection working path of a shared path protection working path of a connection working path of a connection with link or path restoration shared capacity for link or path restoration
End of Ta	able 4-3		

- With "Show in-line sites" option selected
- 2. With "Show wavelengths" option selected

Adding/Removing OCH Capacity

The following operations are available by right-clicking on an OCH link in the link browser:

• Equip Fiber Pairs—Equips one or more fibers with a WDM system. All wavelength bands on the fiber are equipped.

- Strip Unused Fiber Pairs—Removes all fiber pairs on which no traffic is routed.
- Equip Next Band—Equips the next wavelength band on the WDM system. If the selected WDM system is not present on the link, or has no remaining bands, a new WDM system is added with only the first band equipped.
- Strip Unused Bands—Removes all wavelength bands on which no traffic is routed. The fiber itself is *not* removed if all wavelength bands of an entire fiber are removed.

Similar functions are available when you right-click on an individual equipped fiber

Wavelength Filtering

Some channels on a link might be unavailable due to transmission limitations or the spacing used between wavelengths. You can enable or disable these wavelengths on a per-link and per-WDM-system basis. To do this, right-click on a link in the OCH Link Browser and select Wavelength Filter.

In the Wavelength Filter dialog box, you can enable/disable wavelengths by clicking in the in the Yes/No toggle fields (for individual wavelength) or the buttons below the table. You can enable/disable wavelengths for each specified WDM line system (use the LS Type menu to select a different system). The wavelength filter applies to all fibers equipped on a specific link with the specified line system.

₩ Wavelength Filter Wavelength Enabled Wavelength Enabled Yes Yes Yes Yes Yes Yes Yes Yes Yes 10 Yes 11 Yes Yes 12 13 Yes 14 Yes 15 16 Yes Enable All Odd Disable All Odd Enable All Even Disable All Even LS Type LH 40-WDM

Figure 4-5 Wavelength Filter Dialog Box

DCL Link Browser

The DCL Link Browser shows information about the trunks on each link and the timeslots used on each trunk.

Figure 4-6 DCL Link Browser

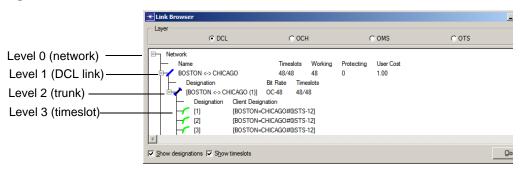


Table 4-4 DCL Link Browser: Treeview

Level	Object	Fields	Comments
1	DCL link	Name—Name of DCL link Timeslots—Number of used/available timeslots on link Working—Number of timeslots used by working paths Protecting—Number of workslots used by protecting paths User Cost—User-specified routing cost	This browser includes the following right-click menu operation for all DCL links: • Set User Specified Cost This browser includes the following
			right-click menu operation for physical DCL links: • Add capacity This level uses the following icons to indicate link types: logical mesh physical mesh logical ring physical ring
2	Trunk	 Designation—User-assigned designation of the DCL trunk. Displayed when you select the option "Show designations." Bit Rate Capacity Supporting Line System On Ring Ring Type 	This browser includes the following right-click menu operations for DCL trunks: • Change SONET bitrate • Remove capacity • Set Designation This level uses the following icon to indicate the trunk type: SDH/SONET trunk

Table 4-4 DCL Link Browser: Treeview (Continued)

Index of the timeslot nt—Name of the client DCL connection is routed over the timeslot you select the "Show designations" in, the Fields become: lignation—User-assigned designation in timeslot nt Designation—User-assigned ignation of the DCL connection that is ed over the timeslot	This level includes the following right-click menu operations: • Set Designation • Browse Client Connection This level also uses the following icons to indicate which path of a DCL connection is routed over a particular timeslot: The path of an unprotected connection working path of a 1+1 protected connection
is routed over the timeslot you select the "Show designations" h, the Fields become: ignation—User-assigned designation he timeslot nt Designation—User-assigned ignation of the DCL connection that is	 Set Designation Browse Client Connection This level also uses the following icons to indicate which path of a DCL connection is routed over a particular timeslot: The path of an unprotected connection working path of a 1+1 protected
you select the "Show designations" n, the Fields become: ignation—User-assigned designation ne timeslot nt Designation—User-assigned ignation of the DCL connection that is	Browse Client Connection This level also uses the following icons to indicate which path of a DCL connection is routed over a particular timeslot: The path of an unprotected connection working path of a 1+1 protected
n, the Fields become: ignation—User-assigned designation ne timeslot nt Designation—User-assigned ignation of the DCL connection that is	This level also uses the following icons to indicate which path of a DCL connection is routed over a particular timeslot: The path of an unprotected connection working path of a 1+1 protected
ignation—User-assigned designation ne timeslot nt Designation—User-assigned ignation of the DCL connection that is	indicate which path of a DCL connection is routed over a particular timeslot: The path of an unprotected connection working path of a 1+1 protected
ignation of the DCL connection that is	working path of a 1+1 protected
ed over the timeslot	- ,
	protection path of a 1+1 protected connection
	working path of a shared protected connection
	shared capacity for shared path protection
	working path of a connection with link or path restoration
	shared capacity for link or path restoration

Node Browser

To open the Node Browser, choose Network > Node Browser or double-click on a node in the Project Editor workspace. The information shown in this window depends on the selected network layer, which you can set using the Layer buttons at the top of the browser window. For specific information, see:

- OTS Node Browser on page TrP-4-14
- OMS Node Browser on page TrP-4-15
- OCH Node Browser on page TrP-4-15
- DCL Node Browser on page TrP-4-20

OTS Node Browser

The OTS Node Browser shows the name, location, and type of a node. The location is expressed in either latitude/longitude or x/y coordinates, depending on the network properties (see Network Properties on page TrP-3-23).

Figure 4-7 OTS Node Browser



Table 4-5 OTS Node Browser: Treeview

Level	Object	Fields	Comments
1	OTS node	OTS node • Node ID This level includes the fol	This level includes the following right-click
		 X—Longitude or X position of node 	menu operations:
		Y—Latitude or Y position of node	Set Name
		• Type—EOCC, ECC, or OCC	 Set Type—You can change the type only if the node has no traffic flowing through it
			Set Location
			 Configuration—cable splitters only (see Cable Splitter on page TrP-3-19)
End of	Гable 4-5		

OMS Node Browser

The OMS Node Browser shows the number of fiber pairs that terminate at the node.

Figure 4-8 OMS Node Browser

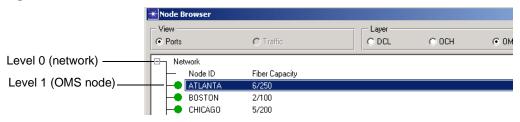


Table 4-6 OMS Link Browser: Treeview

Level	Object	Fields	Comments
1	OMS node	Node ID	
		 Fiber Capacity—Number of equipped/total fibers that terminate at the node 	
End of T	End of Table 4-6		

OCH Node Browser

The OCH Node Browser shows information about the optical node equipment and traffic related to specific nodes. The View setting (Ports or Traffic) determines the information that appears in each node's subtree, as well as the options that appear when you right-click on a node.

For information about the fields shown in the OCH Node Browser, see Table 4-7 on page TrP-4-16.

Figure 4-9 OCH Node Browser (Ports View)

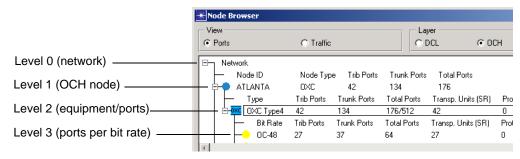


Figure 4-10 OCH Node Browser (Traffic View)

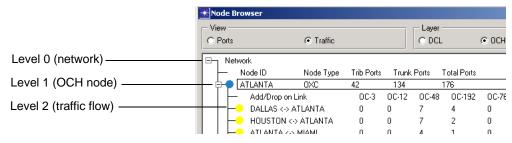


Table 4-7 OCH Node Browser: Treeview

Level	Object	Fields	Comments
1	OCH node	Node ID	In Ports view, this level includes the following
		Node Type—OXC, WP-OXC, IXC, OADM	right-click menu operations:
		or Patch Panel (PP)	Change to <node_type></node_type>
		 Trib Ports—Number of cross-connected tributary ports (total for node) 	Set Allowed XC Types
		Trunk Ports—Number of cross-connected trunk ports (total for node)	 Set OXC Type (OXC nodes only)
			 Set IXC Type (IXC nodes only)
		Total Ports—Number of cross-connected ports (total for node)	 Make Transparent/Opaque/Selective
			 Set Regenerator Capacity
		 Mode—Opaque or Selective 	Strip Regenerator Capacity
		 Reg—Number of flows that need 	Regenerate via DXC
		regenerationWC—Number of flows that need wavelength conversion	 Configure OADMs (transparent mode only)—For more information, see Defining OADMs Manually on page TrP-10-10.
		 Tot.—Total used and total available regeneration/conversion capacity 	If a node contains OADMs, you can double-click on the OADM to view more details. For more information, see Viewing OADM Trunk Capacity on page TrP-4-17.
			These operations are available only if there is no traffic flowing through a node.
			In Traffic view, this level includes the following right-click menu operations:
			 Print Traffic Node—Export traffic data for the selected node to .csv file
			 Print Traffic All Nodes—Export traffic date for all files to .csv file
2	Traffic flow (Traffic view)	 <traffic type="">—Add/Drop on Link, Transit on Link, Transit Between</traffic> 	Each traffic flow that travels into, out of, or through the node appears as a child of the
	(Tame view)	 <bit_rate>—Number of traffic flows that use the specified bit rate</bit_rate> 	node. Traffic flows are grouped by traffic type.
		Total	

Table 4-7 OCH Node Browser: Treeview (Continued)

Level	Object	Fields	Comments		
2	Equipment (Ports view)	This level shows the following information about each equipment type (all bit rates):	Each equipment type used in the node (OXC, OADM, patch panel, etc.) appears as		
		Type—Equipment type	a child of the OCH node in this subtree.		
		 Trib Ports—Number of tributary ports cross-connected by equipment type 	Transponders are short-reach (SR) transponders in opaque nodes (for terminating add/drop traffic) and long-reach		
		 Trunk Ports—Number of trunk ports cross-connected by equipment type 	(LR) transponders in transparent nodes (for terminating add/drop traffic or		
		 Total Ports—Number of ports cross-connected by equipment type 	regenerating/converting transit traffic)		
		Transp. Units—Number of transponders			
		 Prot. Transp. Units—Number of protection transponders. 			
3	Ports per bit rate (Ports view)	This level has the same fields as level 2, but shows the port usage per bit rate for each equipment type.	If a node contains WP-OXCs, you can see the multiplexer utilizations by double-clicking on a port. For more information, see Viewing		
		If the node has OADMs or WP-OXCs, this level shows details about the ports used.	WP-OXC Ports.		
End of 7	End of Table 4-7				

Viewing OADM Trunk Capacity

To view the usage of OADM wavelengths, double-click on the OADM element in the OCH Node Browser (for descriptions of the fields, see Table 4-8 on page TrP-4-18).

Figure 4-11 OADM Trunk Capacity Details Window

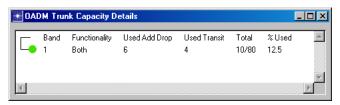


Table 4-8 OADM Trunk Capacity Details Window

Statistic	Description
Band	Index of wavelength band
Functionality	Functionality of the wavelength band:
	 Add/Drop—All wavelengths in band will be added/dropped
	 Transit—All wavelengths in band will be transit)
	Both—Wavelengths in band can be either add/drop or transit
Used Add Drop	Number of wavelengths used for add/drop
Used Transit	Number of wavelengths transiting the OADM
Total	Number of wavelengths used vs. total number of wavelengths
% Used	Percentage of wavelengths used
End of Table 4-8	

Viewing WP-OXC Ports

You can view and configure ports for integrated WP-OXCs using the OCH Node Browser (Ports view). This window supports the following operations for WP-OXC ports:

- Strip transponder capacity—Right-click on a port and choose Strip Transponder Capacity.
- Trib-Tap-Mix—If no traffic has been routed in the node and no ports have been used, you can select the WP-OXC type: Trib, Tap or Mux (for more information, see WP-OXC Architectures on page TrP-2-27)
- View multiplexer utilizations—Double-click on a port to open the Multiplexer Details dialog box. This window shows the utilizations on the different terminal multiplexers in the node. If a multiplexer is not used (that is, if it has 0 percent utilization), you can right-click on it and change the port type, as illustrated in Figure 4-12 on page TrP-4-19.

WP-OXC nodes are available in transparent network mode only. For more information, see Chapter 10 Transparent Networks on page TrP-10-1.

View Layer Close Ports C Traffic O DCL ○ OCH COMS COTS node 02 WP-0XC I 36 0 5/5 ▲ 36 Selective 5 Trib Ports Trunk Ports Total Ports Transp. Units (LR) Prot. Transp. Units (LR) WP-0XC_l Type1 36 0 36/64 36 BitRate Trib Ports Trunk Ports Total Ports Transp. Units (LR) Prot. Transp. Units (LR) 36 OC-48 36 0 36 0 Size Туре Trib Trunk Tan Transp Strip Transponder Capacity F Right-click on a Multiplexer Details port in to strip capacity % Used Туре Used Trib Used Trunk Total 0 11/16 68.75 Тар Double-click on 13/16 81.25 2 13 0 Tap a port to open Тар 12 0 12/16 75.0

Figure 4-12 Viewing WP-OXC Ports in the OCH Node Browser (Ports View)

If a multiplexer has 0% utilization, you can right-click on it to change its type

the Multiplexer

Details dialog

box

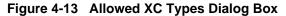
Setting Allowed XC Types

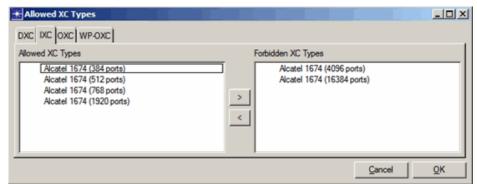
Besides manually setting the type of cross-connect in a node via the Node Browser, you can also control the cross-connect types that the design actions can set in a node. In the "Allowed XC Types" dialog box, you can set the allowed and forbidden node types for DXCs, IXCs, OXCs, and WP-OXCs.

Procedure 4-1 Setting Allowed XC Types

Make Trib

1 Right-click on one or more nodes in the Node Browser, at the DCL or OCH layer, and selected Allowed XC Types...





- **2** Select the appropriate tab for the cross-connect model (DXC, IXC, OXC, or WP-OXC) for which you want to set the allowed types. By default all cross-connect types that you have created are allowed.
- 3 Use the > and < buttons to toggle allowed and forbidden node types of the selected node(s).
- 4 Click **OK** to commit your changes.
 - → The design action will not consider the forbidden node types to be used in the selected nodes.

End of Procedure 4-1

DCL Node Browser

Table 4-9 on page TrP-4-21 describes the fields that are shown in the DCL Node Browser.

Figure 4-14 DCL Node Browser (Ports View)

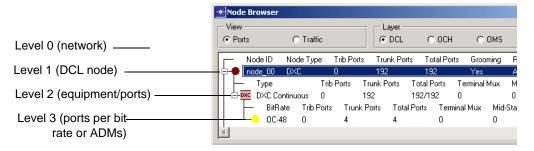


Table 4-9 DCL Node Browser: Treeview

Level	Object	Fields	Comments
1	DCL node	The browser shows the following information for each node: • Node ID	In Ports view, this level includes the following
		 Node ID Node Type—DXC, IXC, or TM Trib Ports—Number of cross-connected tributary ports in equivalent STS-1 or STM-1 units (total for node) Trunk Ports—Number of cross-connected trunk ports in equivalent STS-1 or STM-1 units (total for node) Total Ports—Number of cross-connected ports in equivalent STS-1 or STM-1 units (total for node) Grooming—Whether grooming is allowed within the node or not. If Yes, SP Guru Transport Planner can switch DCL traffic within this node. If No, SP Guru Transport Planner aggregates all add/drop DCL traffic in wavelengths (using terminal multiplexers) and switches all transit traffic at the OCH layer. Ring interconnection—The method SP Guru Transport Planner uses to interconnect rings: using back-to-back ADMs, using ADMs with an intermediate DXC or via the MSSP (see SONET Nodes: 	includes the following right-click menu operations: Change to <node_type> Set Allowed XC Types" Set DXC Type (DXC nodes only) Set IXC Type (IXC nodes only) ADM back-to-back ADM plus DXC MSSP In Traffic view, this level includes the following right-click menu operations: Print Traffic Node—Export traffic data for the selected node to .csv file</node_type>
		ADM on page TrP-2-23)	Print Traffic All Nodes—Export traffic data for all files to .csv file

Table 4-9 DCL Node Browser: Treeview (Continued)

Level	Object	Fields	Comments
2	Traffic flow (Traffic view)	Traffic flows are grouped by traffic type. The browser shows the following information for each object:	Each traffic flow that travels into, out of, or through the node appears as a child of the node. Traffic flows are grouped by traffic type.
		 <traffic_type>—Add/Drop on Link, Transit on Link, Transit Between</traffic_type> 	
		 <bit_rate>—Number of traffic flows that use the specified bit rate</bit_rate> 	by traine type.
		Total	
2	Equipment (Ports view)	The browser shows the following information for each equipment type:	
		Type—Equipment type	
		 Trib Ports—Number of tributary ports cross-connected by equipment type (in equivalent STS-1 or STM-1 units) 	
		 Trunk Ports—Number of trunk ports cross-connected by equipment type (in equivalent STS-1 or STM-1 units) 	
		 Total Ports—Number of ports cross-connected by equipment type (in equivalent STS-1 or STM-1 units) 	
		Terminal Mux—Number of terminal multiplexers	
		Mid-Stage Mux—Number of mid-stage multiplexers	
3	Equipment per bit rate (Ports view)	This level has the same fields as level 2, but shows the port usage per bit rate for each equipment type.	
		If the node has ADMs, this level shows details about the ADMs and ports used.	
End of Ta	able 4-9		

Connection Browser

The Connection Browser shows the connections on the LOP, DCL, and OCH layers. The treeview also shows the capacity and (if the traffic matrix was routed) additional details about each connection: number of hops, length, delay, and so on.

To open the Connection Browser, choose Network > Connection Browser or click on the Browse Connection button in the toolbar. For information about the viewing controls, see Table 4-11 Connection Browser: Controls on page TrP-4-25. For information about the fields and icons shown in the treeview, see Table 4-10 Connection Browser: Treeview on page TrP-4-24 and Figure 4-16 Icons Used in Connection Browser on page TrP-4-25.

Figure 4-15 Connection Browser at DCL Layer

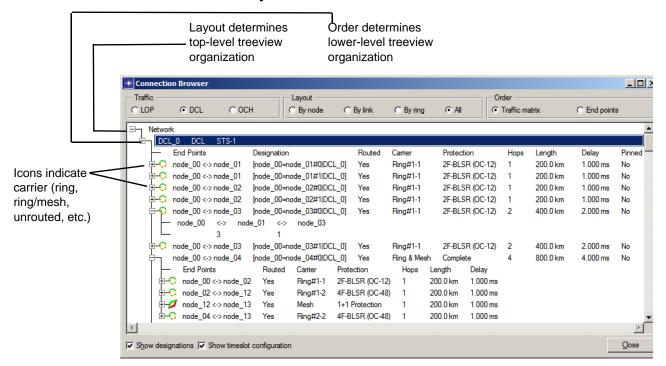


Table 4-10 Connection Browser: Treeview

Fields

This browser also shows the following information about each connection:

- The traffic matrix, bit rate and end points of a connection (can be ordered in different ways, as described in Table 4-11 Connection Browser: Controls on page TrP-4-25)
- Designation—The user assigned designations of a connection. This field is displayed when you select the option "Show designations."
- Capacity—The capacity (number of units) of the connection
- Routed—Yes if the connection is routed, No if not. In Failure Analysis mode, this field also indicates whether the connection is Lost or Recovered.
- Carrier—Whether the connection was carried on Mesh, Ring, Ring & Mesh or Partial (that is, partly on rings (routed), partly on mesh (unrouted)). For more information, see Chapter 12 Ring Design on page TrP-12-1.
- Protection—The protection type
- Hops—The number of hops of the path(s)
- Length—The length (in km or miles) of the path(s)
- · Delay—The end-to-end delay of the connection
- Pinned—Yes if the connection is pinned. No if not

Comments

You can right-click on a connection and choose the following menu operations:

- Route—Route the selected connection (see Manual Routing on page TrP-6-24)
- Tear Down—Tear down the selected connection (see Tearing Down a Traffic Matrix on page TrP-6-20)
- Pin/Unpin—See Pinning and Unpinning Connections on page TrP-6-19
- Routing Constraints—See Constraint-Based Routing on page TrP-6-26
- Hardwired in Nodes—Specify connection as hardwired (see Patch Panel on page TrP-2-24)
- Topological Constraints—See Topological Routing Constraints on page TrP-6-27
- Set Designation—Assign a distinguishing identifier or name to a connection
- Set Required Availability (OCH layer only)—Sets the service availability target of the connection. This number is used in the Availability Report.
- Client Service Identifiers (DCL layer only)—Allows to add/remove service identifiers of a DCL connection to relate them with a particular service.
- Server Service Identifiers (OCH layer only)—Allows to add/remove service identifiers of an OCH connection to allow only particular DCL connections with matching service identifiers to be routed over the OCH connection.

A connection that is routed over multiple rings, or partly over rings and partly over the mesh, is called a *tandem connection*, which is composed of different components. You can click '+' to view details about these components.

If a connection (or connection component) is a 1 + 1 protected connection, or was routed on a UPSR ring, you can click on the '+' sign to expand the connection (or connection component) and view the working and protection paths, as described in Viewing Paths Using the Connection Browser on page TrP-4-26.

End of Table 4-10

Figure 4-16 Icons Used in Connection Browser

protection path of a shared protection unprotected connection or path of an unprotected connection connection connection with link or path restoration, connection with 1+1 protection or working path of such a connection working path of a 1+1 protected connection routed entirely over a ring connection protection path of a 1+1 protected tandem connection - all constituents connection are routed and protected tandem connection - all constituents are connection with shared protection routed but not all are protected tandem connection - not all constituents working path of a shared protected are routed

Table 4-11 Connection Browser: Controls

connection

Control	Description		
Layout	Determines the top-level organization of the treeview. There are four options:		
	• By Node—Organizes the treeview by node (level 1). Within each node, organizes connections into Add/Drop and Transit trees (level 2). Within each of these trees, organizes connections according to the Order setting (level 3).		
	• By Link—Organizes the treeview by link (level 1). Within each of these trees, organizes connections according to the Order setting (level 2).		
	 By Ring—Organizes the treeview by ring footprint and mesh (level 1); for each footprint, the treeview organizes connections by stacked ring (level 2). 		
	 All—Shows all connections according to the Order setting (level 1). 		
Order	Determines how the treeview organizes connections within each top-level tier. There are two options:		
	Traffic Matrix—Organizes connections according to the traffic matrix by which they belong.		
	End Points—Organizes the connections by source and destination node.		
Traffic	Determines the connections to display, according to the layer (LOP, DCL, or OCH).		
Show designation	Shows the user-assigned designation of a connection next to the generic "from <-> to" name.		
Show wavelength configuration	Show the wavelength assignment of the connections on each link and the regeneration/conversion in nodes.		
	This option is available in the OCH view only.		
Show timeslot configuration	Show the timeslot assignment of the connections on each link. This option is available in the DCL view only.		
End of Table 4-			

Viewing Paths Using the Connection Browser

You can use the Connection Browser to view the working and protection paths of a connection. When you click on a routed connection,

SP Guru Transport Planner highlights the working and protection paths of that connection in the network topology.

Both windows have controls to set the network-layer view: LOP, DCL, and OCH in the Connection Browser; and all four layers in the Project Editor. To view the OCH paths used to route a DCL (or, by extension, an LOP) connection, set the Connection Browser to the DCL or LOP view and the Project Editor to the OCH view.

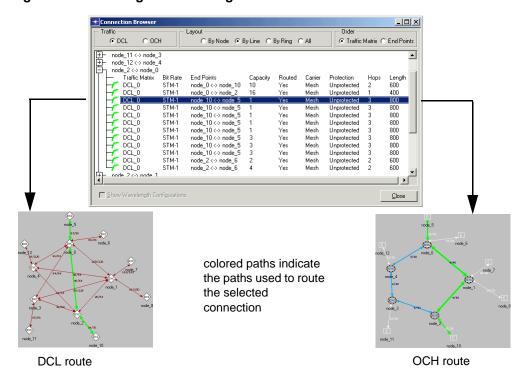


Figure 4-17 Viewing Routes Using the Connection Browser

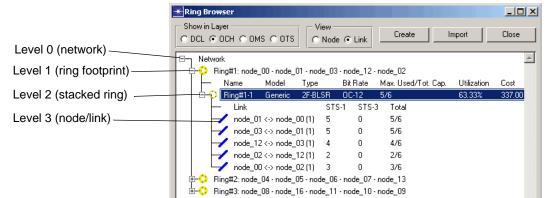
Table 4-12 Highlighted Paths Legend

Color of Path	Solid Line	Dotted Line
Green	Part of working path (without backhauling)	Part of working path (with backhauling)
Red	Part of protection path (without backhauling)	Part of protection path (with backhauling)
Orange	Overlapping parts of working and protection paths (without backhauling)	Overlapping parts of working and protection paths (with backhauling)
End of Table 4-12		

Ring Browser

The Ring Browser lists rings by ring footprint (that is, the nodes that constitute the path of the ring). One footprint can support multiple stacked rings with different types and bit rates.

To open the Ring Browser, choose Network > Ring Browser or click on the Browse Rings toolbar button. For information about the viewing controls, see Table 4-13. For descriptions of the fields shown in the treeview, see Table 4-15 Ring Browser: Treeview on page TrP-4-29.



Show 🔽 Legacy Rings 🔽 Candidate Rings 🔽 New Rings

Figure 4-18 Ring Browser

Table 4-13 Ring Browser: Controls

Control	Description
Show in Layer	Choose the network layer in which to view the ring in the Project Editor.
View	List the component links or nodes of each ring:
	• Link—Provides an overview of the links in the ring and the traffic used and available on that link.
	 Node—Shows the nodes of the ring. The icon for each node indicates whether the node contains an ADM for that ring, or an MSSP (collecting multiple rings). Each node icon provides information on the amount of add/drop and transit traffic at the different bit rates.
Create	Create a new ring in the network (see Creating Rings on page TrP-12-4 for more information)
Import	Import legacy, new, or candidate rings from a data file (see SONET/SDH Ring Data Files on page TrP-5-21 for more information)
Show	Show or hide rings based on ring usage (see Ring Usage Types on page TrP-4-28 for more information)
End of Table 4-	13

Ring Usage Types

When you create or import rings, you can specify one of the ring types listed in Table 4-14. For more information about rings, see Chapter 12 Ring Design on page TrP-12-1.

Table 4-14 Ring Types

Icon in Ring Browser	Ring Type	Description
0	Legacy	Legacy ring that was part of the initial network. These rings will be used for routing and upgrading during ring dimensioning.
•	New	New ring, as determined by the Ring Identification algorithm. These rings will also be used for routing and upgrading during ring dimensioning.
•	Candidate	Candidate ring, which serves as input to Ring Identification operation. These rings will not be used for routing and upgrading during ring dimensioning, unless they have been converted into a "new" ring.
End of Table 4-14		

Table 4-15 Ring Browser: Treeview

	Object	Fields	Comments
1	Ring footprint	This level shows the list of nodes that constitute the path of the ring	This level includes the following right-click menu operations:
			 Delete Ring—You can delete a ring footprint only if there are no stacked rings on that footprint
			Rename Ring—Change the name of the ring
			 Add Stacked Ring—Add a new stacked ring of a specified type and bit rate
			 Ring Design Options—Opens the Ring Design Options (for more information, see Setting Ring Design Options on page TrP-4-30)
			Convert to Legacy/New/Candidate Ring—Convert the ring to a different type (depending or the current ring type and whether the ring has traffic routed on it, some conversions might be impossible)
2	Stacked ring	This browser shows the following information for each ring:	This level includes the following right-click menu operations:
		Name—Name of the ring	
		Model—Ring Model	Delete Ring
		Type—Ring Type (UPSR, 2F-BLSR or 4F-BLSR)	Rename Ring
		Bit Rate—Bit rate of the ring	Set Type
		 Max Used/Tot. Cap—Maximum used capacity on the link of the ring which carries most traffic and total ring capacity (the usable capacity on each link) 	Set Bit Rate
			• Pinned
		 Utilization—The used capacity on all links as a percentage of the total usable capacity on all the links 	You can do these operations only if there is no traffic routed
		Cost—Cost of all the ring nodes	on a ring.
		 Pinned—Yes if the ring is pinned, No if not 	
3	Traffic	This level lists the links or nodes that constitute the stacked ring (depending on the View setting) and shows information about the traffic deployed on each object.	

Setting Ring Design Options

To set the ring design options for a ring, right-click on the ring footprint element and choose Ring Design Options. For more information about rings, see Ring Design on page TrP-12-1.

Figure 4-19 Ring Design Options Dialog Box



Table 4-16 Ring Design Options Dialog Box

Option	Description
Add Stacked Rings	If selected, this option allows Ring Dimensioning to upgrade this ring (for more information, see Ring Design on page TrP-12-1)
Ring Type	The type of stacked rings that can be added (UPSR, 2F-BLSR, 4F-BLSR for SONET; SNCP, 2F-MSSPRing or 4F-MSPPRing for SDH). You can also select "Default type", which is the type chosen in the Ring Dimensioning dialog box.
Bit Rate	Bit rate for the stacked rings added by Ring Dimensioning. If "Default Bit Rate" is selected, the bit rate selected in the Ring Dimensioning dialog box will be used.
End of Table 4-16	