PL0 and PL1 Enhancements

The following sections describe changes introduced in release 12.0 PL0 and PL1:

Diverse Routing

The Routing and Dimensioning design actions now support diverse routing of unprotected traffic in the DCL and OCH layers. The goal of diverse routing is to route connections as diversely as possible according to the selected diverse routing option. Diverse routing is not a “hard” constraint;
SP Guru Transport Planner routes or dimensions as much traffic as possible even if the diversity requirements are not fully met.

You can specify diverse routing in the Route DCL/OCH Traffic dialog box (under “Routing Algorithm”) and in the Dimension DCL/OCH Layer dialog box (under “Algorithm”).

For more information, see Diverse Routing Algorithm on page TrP-6-10 in the SP Guru Transport Planner *User Guide*.

Time Slot Assignment in the DCL Layer

The DCL link model has been extended so that a DCL link is composed of a set of time slots. For example, an OC-48 DCL link is composed of 48 individual time slots, with each slot modelled explicitly. The grooming and routing actions have been enhanced so they can assign time slots when setting up traffic. They can also consider time slots that are occupied by traffic that is already routed.

Note—Project files from previous SP Guru Transport Planner releases contain no time slot assignment information. When you open an old file in this release, SP Guru Transport Planner assigns time slots for the routed DCL connections. The algorithm assigns these time slots in an arbitrary way, but ensures that every connection is assigned to contiguous time slots on each link.

You can specify time slots either manually, in the DCL Link Browser, or by importing time slot data from Connection List data files. For more information, see the following sections of the SP Guru Transport Planner *User Guide*:

- DCL Link Browser on page TrP-4-11
- Connection List Data Files on page TrP-5-17

Designations

A “designation” is a user-defined alphanumeric identifier that you can assign to a traffic demand or a link at a specific layer. You can also create subdesignations to track the subcomponents of a specific link. Designations enable you to identify and track resources in the network more effectively. This release introduces designations for traffic, links, and link resources such as wavelengths and timeslots.

One main purpose of link designations is to reference the unique path that a connection takes within the network resources. This release includes a new report that shows connection use and organizes the report based on designations. (Info > Export to Web Report > Connections Resource Details > By Resource Designation).

You can also use designations to import/export routed connections, with the routes specified using designations and subdesignations instead of wavelengths and timeslots.

You can create link designations and subdesignations manually, in the OTS, OCH and DCL Link Browser; you can also import designations and subdesignations from data files. For more information, see the following sections of the SP Guru Transport Planner *User Guide*:

- Link Browser on page TrP-4-2

- Link Designations Data Files on page TrP-5-24
- Link Subdesignations Data Files on page TrP-5-25

Service Identifiers

Service Identifiers allow specific wavelengths to be tagged so that they are reserved for routing higher-level (that is, DCL) connections. This means that you can identify the wavelength services you want, then create identifiers for specific OCH wavelengths. These identifiers cause the wavelengths to be reserved for the DCL connections that support the services.

For more information, see the following sections of the SP Guru Transport Planner *User Guide*:

- Service Identifiers on page TrP-6-32
- Service Identifier Assignments Report on page TrP-15-35

Opaque/Transparent Network Enhancements

You can now combine transparent and non-transparent systems in the same network. The transparency of a system is set as part of the WDM line system properties.

You can use multiple line systems in transparent network mode and have these systems considered during routing and dimensioning. For Routing operations, transparency is possible between transparent systems of the same type. For Dimensioning operations, links will be expanded with their default line system type.

Design Operations and Multiple Traffic Matrices

You can now select multiple traffic matrices as inputs for a Routing, Dimensioning, Grooming, and Ring Design operation.

For more information about grooming multiple matrices, see Grooming Multiple DCL Matrices on page TrP-8-28 in the SP Guru Transport Planner *User Guide*.

Link Usage Thresholds

You can now specify link usage thresholds on OCH and DCL links. This threshold is used to limit the number of resources (DCL timeslots or OCH wavelengths) that can be used during a routing, dimensioning, and grooming operation.

You can specify link usage thresholds manually (Network > Link Usage Thresholds); you can also import thresholds from data files. For more information, see the following sections of the SP Guru Transport Planner *User Guide*:

- Link Usage Threshold on page TrP-6-29
- Link Usage Thresholds Data File on page TrP-5-26

Dimensioning Enhancements

The Dimensioning algorithm has been enhanced in the following ways:

- You can now dimension part of a traffic matrix if not all traffic can be routed.
- You can now dimension multiple traffic matrices in one operation.
- The dimensioning algorithm considers fiber availability and capacity constraints more accurately.

Grooming Enhancements

Grooming Multiple DCL Traffic Matrices Simultaneously

You can now groom multiple DCL traffic matrices simultaneously.
SP Guru Transport Planner applies the selected algorithm, protection strategy, and other grooming options to all the DCL matrices. (Other options, such as topology constraints, are considered on a per-connection basis.) The end result is one OCH matrix that represents a global grooming/optimization for all the specified DCL traffic.

For more information, see Grooming Multiple DCL Matrices on page TrP-8-28 in the SP Guru Transport Planner *User Guide*.

Split Off Ungroomable

Both Grooming dialog boxes (for fixed and optimized routes) have a new Split Off Ungroomable checkbox. This enables you to groom a DCL traffic matrix as much as possible, then split the ungroomable traffic into a new matrix. Previously, grooming was an “all-or-nothing” operation: if it could not groom the entire matrix, the operation failed.

For more information, see Split Off Ungroomable on page TrP-8-7 in the SP Guru Transport Planner *User Guide*.

Import Candidate Node Pairs

Both Grooming dialog boxes (for fixed and optimized routes) have a new Import Candidate Node Pairs checkbox. This option enables you to specify which node pairs can have new DCL links, while implicitly excluding all other node pairs from the grooming operation. Previously, all DCL node pairs were candidates for a grooming operation.

For more information, see Import Candidate Node Pairs on page TrP-8-6 in the SP Guru Transport Planner *User Guide*.

Hybrid Ring/Mesh Design Extensions

The Dimension DCL Rings operation has better support for designing hybrid ring/mesh networks. You now have more control over how this operation selects ring vs. mesh links when it routes connections. The dimensioning algorithm routes *only* ring traffic and leaves mesh traffic (that is, traffic that is better suited for mesh links) unrouted. Then you can set up the mesh traffic using a mesh-oriented design operation such as routing or grooming.

For more information, see Hybrid Ring-Mesh Design on page TrP-12-12 in the SP Guru Transport Planner *User Guide*.

New Reports

Availability Reports

You can now generate an Availability report that contains information from the Availability Results window. To generate an Availability report, click Generate Availability Report in the Availability Results dialog box.

Diversity Report

A Diversity report provides information about how diversely one or more traffic matrices are routed. You configure this report using the same settings described in Diverse Routing on page RN-12.0-5. To generate a Diversity report, choose Info > Export to Web Report > Diversity Report.

Service Identifier Assignments Report

A Service Identifier Assignments report visualizes the Service Identifiers that are assigned to connections. You can also use this report to verify whether the DCL connections have been routed over wavelengths with matching Service Identifiers. To generate this report, choose Info > Export to Web Report > Service Identifier Assignments Report.