



## Exploring Network Data

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The Explore tool enables you to interactively navigate current network data and retrieve historical object performance data. For example, you can use Explore to do the following:

- Identify which LSPs are currently off their shortest TE paths.
- Determine which LSPs are currently going through a specific interface, or which IP address carries a specific interface and the historical changes on that interface.
- Determine whether IP address or metric changes have occurred on an interface during the last week.



Note

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See also [Viewing Graphs](#) and [Working with Tables and Filters](#).

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## Navigating with Explore

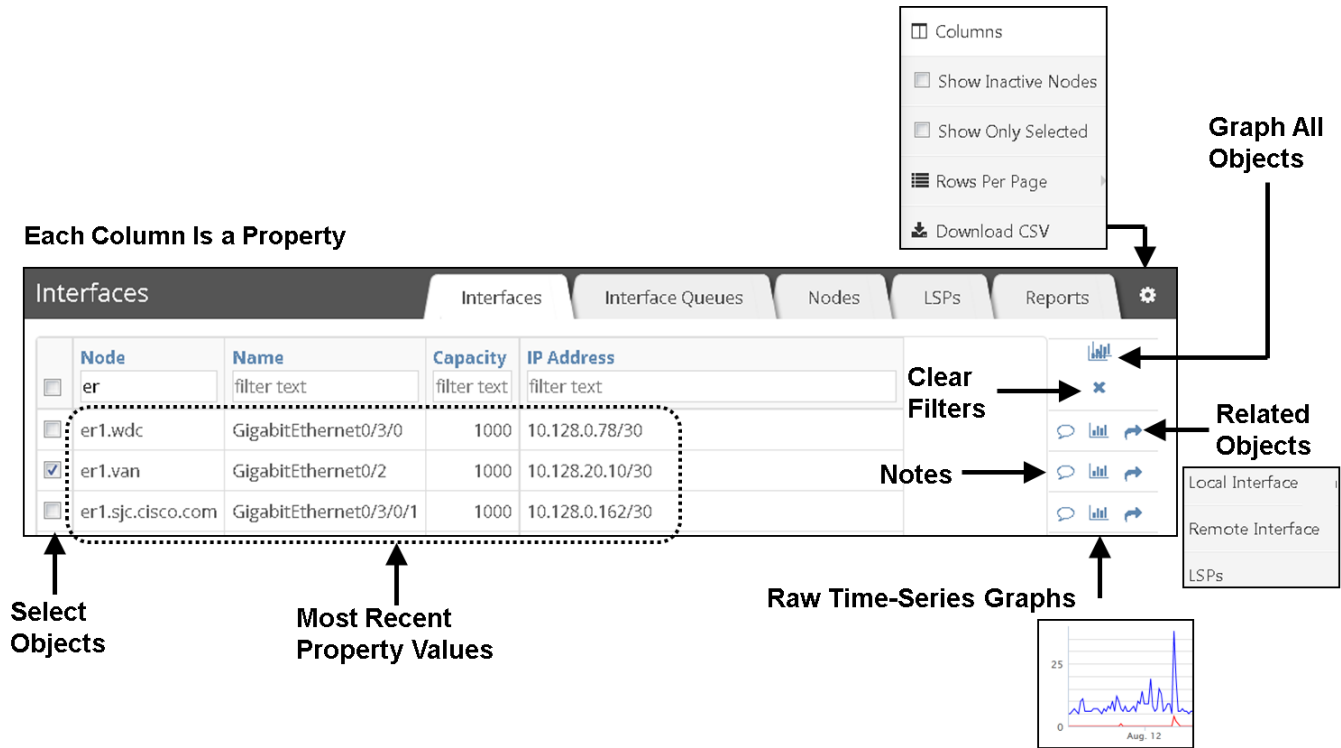
The Explore page organizes network data in the following tabs:

- **Interfaces**—Enables you to filter and view network interfaces.
- **Interface Queues**—Enables you to filter and view network interface queues.
- **Nodes**—Enables you to filter and view network nodes or connection points.
- **LSPs**—Enables you to filter and view network label-switched paths.
- **Demands**—Enables you to filter and view network demands.
- **Reports**—Enables you to view summaries of the named reports over a period of time. Interactions with this report summary is the same as with the objects.

Each tab represents a table of objects that you can view and filter based on their current values, as well as to graph those values (raw data) over time and to navigate to related objects.

[Figure 5-1](#) shows the **Interfaces** tab and its components.

Figure 5-1 Example Explore Interfaces Table



## Working with Tables

In Explore, there are several common tasks that you can perform on table data. This includes the following:

- [Selecting Objects to Include in Reports](#)
- [Clearing Filters](#)
- [Finding Related Objects](#)
- [Viewing More Data](#)
- [Viewing Graphs](#)
- [Adding Notes to Object Rows](#)

### Selecting Objects to Include in Reports

In Explore, you can select the objects that you want to include in reports. You can choose to select all objects (broad scope) or just a subset of the objects (narrow scope) on which to report. Each table includes the following check boxes:

- Per-row check boxes—Select the check box next to the desired object. This is a toggle that selects or deselects a single object.

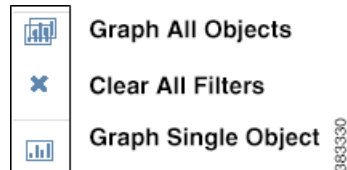
When running reports, these selections are the default filters. For more information on report filters, see [Configuring and Running Reports](#).

- Top check box—This is a toggle that selects or deselects all objects of the type you are viewing. For example, you can select all demands or all nodes.

If you have previously filtered to a subset of objects, this top check box applies only to them.

## Clearing Filters

To clear all filters applied on particular objects, click the **X** button (**Clear All Filters**).



## Finding Related Objects

In Explore, you can view objects in one table and then find their related (associated) objects in another table. This enables you to jump back and forth between objects. The related object pop-up menu options vary depending on the table you select and what objects are included in your network model. This can be particularly useful for viewing LSP node hops.

[Table 5-1](#) describes the related objects and where to find them.

**Table 5-1** *Related Objects and Their Locations*

Table	Related Objects	Where
Interfaces	<ul style="list-style-type: none"> <li>• Local Node</li> <li>• Remote Node</li> <li>• Remote Interface</li> <li>• LSPs</li> <li>• LAG Logical Interface</li> <li>• LAG Member Interface</li> <li>• Interface to Inventory</li> <li>• Interface Queues</li> </ul>	Related Objects Menu
Interface Queues	<ul style="list-style-type: none"> <li>• Interface</li> </ul>	Related Objects Menu
Nodes	<ul style="list-style-type: none"> <li>• Local Interface</li> <li>• Remote Interface</li> <li>• Node to Inventory</li> <li>• LSPs Source</li> <li>• LSPs Destination</li> <li>• LSPs Actual Path</li> </ul>	Related Objects Menu

Table 5-1 Related Objects and Their Locations

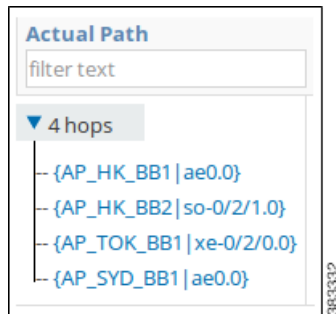
Table	Related Objects	Where
LSPs	Actual Hops	Actual Path Column
LSPs	<ul style="list-style-type: none"> <li>Source Node</li> <li>Remote Node</li> </ul>	Related Objects Menu

- Step 1** Navigate to the table whose related object you want to find, for example, the **LSPs** table.
- Step 2** In the **LSPs** table, click the **Related Objects** (arrow).
- Step 3** In the **Related Objects** pop-up menu, select an object of interest, for example, **Destination Node**. The **Explore** page changes to list the related information.

## Viewing More Data

Table cell information that is blue or cell data that has a small arrow by it can be expanded to show more data. You can view more data in:

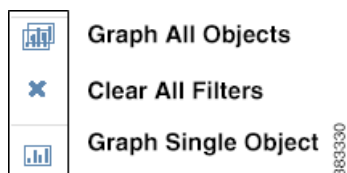
**LSP Actual Path** column—Click the right arrow of an actual path in an LSPs table to see an expanded list of its individual LSP hops. Click any hop to show it in the Nodes table. For an example, see [Selecting LSP Hops and Related Nodes](#).



## Viewing Graphs

When viewing graphs, you have the following object options:

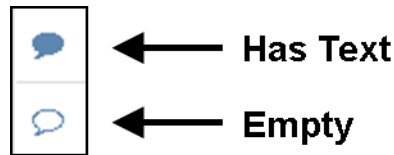
- **Graph all Objects** icon—Graph the data for all objects in the table.
- **Graph Single Objects** icon—Graph raw data of an object. From here, you can also list the raw data, which you can then save or send to others.



For more information on viewing graphs, see [Viewing Graphs](#).

## Adding Notes to Object Rows

You can add notes to the object rows in the Explore tables. All other users can read the notes and add further information to them. This enables multiple WAE Live users to share information that others might need to know, such as notes on interfaces that are reaching capacity or notes on when nodes are temporarily down for maintenance.



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Notes that have information show as a solid blue to signal there is something to read.

To add a note, read a note, or add content to an existing note, click the **Note** icon.

## Filtering on Interface Descriptions

The Interfaces and Interface Queues tabs enable you to filter text in the **Description** column on both interface and interface queue object types. This can be useful when your naming scheme for interfaces includes easy to filter patterns.

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- Step 1** Navigate to **WAE Live > Explore** and select the network (top left) on which you want to explore objects. If there is only one network configured, the word “default” appears in the top left side on the Analytics page.
- Step 2** Select the **Interfaces** or **Interface Queues** tab.
- Step 3** In the **Description** text field, enter the text on which to filter the table rows.

You can use partial or full strings and regular expressions as descriptive text. For more information on filtering text, see [Filtering Report Output](#).

After filtering the interface descriptions, you can create reports based on these filtered results on the interfaces or interface queues.

## Exploring LSPs

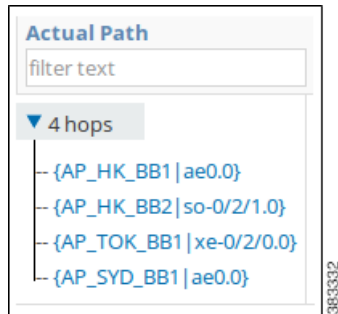
You can explore related LSP objects from the **LSPs** table as well as drill down on LSP details and then create applicable reports.

## Selecting LSP Hops and Related Nodes

From the **LSPs** tab, you can expand an actual LSP path in the LSPs table to see all of its individual hops in the **Actual Path** column. Clicking on any hop takes you to the **Nodes** table where you can see the source node or remote node associated with this LSP.

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- Step 1** Click the **LSPs** tab.

**Step 2** In the **Actual Path** column, click the blue triangle to expand on the available hops.



**Step 3** Click the **Related Objects** (arrow) and choose the **Source Node** or **Remote Node** that you want to explore for this hop.

This takes you to the applicable source node or remote node for this LSP hop.

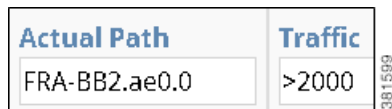
## Drilling Down on LSP Details

The next procedure assumes that you want to find the three LSPs with the highest setup bandwidth that are currently going through interface ae0.0 on node FRA-BB2 and that exceed 2,000Mbps (2 Gbps) of traffic. It then shows how to find the source node of the LSP with the highest setup bandwidth with these parameters.

**Step 1** Click the **LSPs** tab.

**Step 2** On the **LSPs** page, enter **FRA-BB2.ae0.0** as the filter in the **Actual Path** column.

**Step 3** In the **Traffic** column, enter **> 2000** as the filter, and then press Enter.



**Step 4** Click the **Setup BW** column heading to toggle the list in descending order.

**Step 5** Click the **Related Objects** (arrow) of the LSP with the highest setup bandwidth.

**Step 6** In the **Related Objects** pop-up menu, select **Source Node**.

The resulting table is the source node of the LSP with the highest setup bandwidth that is currently going through interface ae0.0 on node FRA-BB2 and that exceeds 2 Gbps of traffic.

## Viewing an LSP Hop Changes Report

The next example report table indicates that in the last LSP Hop Changes report, only 3 out of 36 possible report entries were generated. For the Semi-Annual Node Health report, there were no lines in the report of possible 241 rows once filtering was applied.

Total Lines	Definition ID	Report Name	Run Time	Total Lines After Filter
filter text	filter text	filter text	filter text	filter text
36	44	LSP Hop Changes	13674	3
241	81	Semi-Annual Node Health	7625	0

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## Reports

The Reports Explore page provides a report summary on the total number of lines in a report and the number of lines when run against a user-specified filter. Explore records only named reports and the most recently run reports.

This high-level report trend can be an indicator of the network's health. For example, if you run a node health report every week and filtered the percentage of time CPUs were over a given threshold, this table could show the number of nodes surpassing this threshold improving or worsening over time. If the number of nodes passing the threshold was increasing, it could be an indicator that the network is running hotter and you need to buy more nodes.

## Gear Tool Options

The same set of gear tool options are available across all Explore pages with the exception of the Interface Type. To select any of the following Explore table options, click the gear tool.

Table 5-2 Explore Gear Tool Options

Item		Description
Columns		Click to select which properties appear as column headings. All available properties are listed. If a column (property) check box is gray, then you cannot turn it off. These non-optional properties always appear in the left-most columns of the table.
	Types	Specify the interface type so that you do not show duplicate traffic statistics. This option is applicable only on the Interfaces page.
	Individual Physical Interface	An interface that is not in a LAG and does not have an IP address. These interface names do not have a decimal. <b>Example:</b> so-0/2/2, g2/0/0
	Individual logical interface	An interface with an IP address that is not in a LAG. These names might have a decimal. <b>Example:</b> et-0/1/2.0, g2/0/0
	LAG logical interface	An interface with an IP address that contains member interfaces. <b>Examples:</b> ae0.0, Bundle-Ether1, Port-Channel7

Table 5-2 Explore Gear Tool Options

Item		Description
	<b>LAG physical interface</b>	The physical representation of an aggregated interface to which a LAG logical interface (such as ae0.0) is assigned. <b>Example:</b> ae0 for Juniper interfaces
	<b>LAG member interface</b>	An interface that is in a LAG. <b>Example:</b> g2/0/0
	<b>Unknown</b>	None of the above interface types.
<b>Show Inactive &lt;Object&gt;</b>		Show or hide all objects that have not been detected in the last four hours.
<b>Show Only Selected</b>		Show only those objects that are selected in the far left column of the table.
<b>Rows per page</b>		Select the number of objects per page to show in the table.
<b>Download CSV</b>		Export the table in a tab-delimited format.

**Note**

If you select specific interface types from the Explore Interfaces page for use in a report, then the report is only on those interfaces of those selected types. If you select Interfaces as the Object from a Configure Report page, then the report is run on all interfaces regardless of their type.

## Run Report

Select the objects on which you want to run a report, and then click the **Run Report** button. The Configure Report page appears. For more information, see [Configuring and Running Reports](#).