

# Oracle® SD-WAN Aware

## Reports and Graphs



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## About This Document

The purpose of this document is for the reader to understand how to create reports and graphs using Oracle SD-WAN Aware/ This document will walk the reader through the steps required to create a report or graph for the first time within Aware. The reader of this document is expected to be a network administrator or a network architect who is familiar with Talari terminology and with the Talari Adaptive Private Network (APN) solution.

Some of the functionality described in this document is only supported for networks in which APN Aware R1.2 GA (or later) has been deployed. See *APN Aware R1.2 GA Release Notes* for more details.

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- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations
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1. Access the Oracle Help Center site at <http://docs.oracle.com>.
2. Click Industries.
3. Click the Oracle Communications link.

Under the SD-WAN header, select a product.

4. Select the Release Number.

A list of the entire documentation set for the selected product and release appears.

5. To download a file to your location, right-click the PDF link, select Save target as (or similar command based on your browser), and save to a local folder.

## References

The following documents are available:

- *Talari APN Glossary*
- *Talari APN Aware Getting Started Guide*
- *Talari APN Aware R1.2 GA Release Notes*



## Configure Oracle Talari Appliances for Polling (Review)

Once Aware is installed and configured as required by the system administrator<sup>1</sup>, the user must complete the following steps to collect data for a report or graph:

- Download Certificate from Aware (**Manage -> APN Discovery**)
- Install Certificate on the NCN (**Manage Network -> APN Aware Certificates**)
- Test connectivity from Aware to the NCN (**Manage -> APN Discovery**)
- Discover the network (**Manage -> APN Discovery**)

Once these steps are complete, Aware can poll the NCN and all client Sites that have connectivity to the NCN. The user should then select Sites for Aware to poll and a polling interval. After at least one polling interval (at least 1 hour of polling is recommended), Aware will have sufficient data to populate a report or graph.

**Note:** The network discovery process from Aware can only discover client Sites that are connected to the NCN; if a Site does not have connectivity to the NCN, the Talari Appliance at that Site will not receive the required certificate from Aware and Aware will be unable to poll that device.

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<sup>1</sup> See *Talari APN Aware Getting Started Guide*

## Create a Report

High level steps to create a report:

- Log into the Aware web console
- Navigate to **Monitor -> Reports**<sup>2</sup>
- Select a time frame for the report
- Select data for the report

To generate a useful report the user must understand their Talari network and understand what type of report they are attempting to generate. The steps above are, at a high level, self-explanatory; additional details are provided in the following sections.

## Select Time Frame

By default, a report will show the latest minute of data. If desired, use the options provided at the top of the Reports screen (**Monitor -> Reports**) to select a different time frame for the report. The following options are available:

- *Time*: Allows user to enter a specific date and time to work back from
- *Calendar (icon)*: Allows user to select an end date to work back from
- *Last*: Allows user to quickly select the last Hour/Day/Week/Month as a time frame
- *Mode*: Allows user to select absolute time or relative time
- *Dateline*: Allows user to select a date range by clicking-and-dragging across the dateline
- *Timeline*: Allows user to select a time frame from within the selected date range by clicking-and-dragging across the timeline



After a time frame is selected, the user is allowed to do the following:

- *Toggle (icon)*: Allows user to toggle automatic updating<sup>3</sup>
- *Play/Pause*: Allows user to observe the report over time

<sup>2</sup> The Aware web console features **Monitor** and **Manage** tabs at the top right of the screen

<sup>3</sup> If automatic updating is enabled, the browser will check the server for new data. If new data is detected, the view will automatically update to the new time frame



- *Step Back*: Allows user to step back to the previous interval
- *Step Forward*: Allows user to step forward to the next interval
- *Go to Beginning (icon)*: Allows user to go to the beginning of the time frame
- *Go to End (icon)*: Allows user to go to the end of the time frame
- *Interval*: Allows user to change the play back time interval



## Select Data

Select a data table for a report using the tabs provided below the timeline:

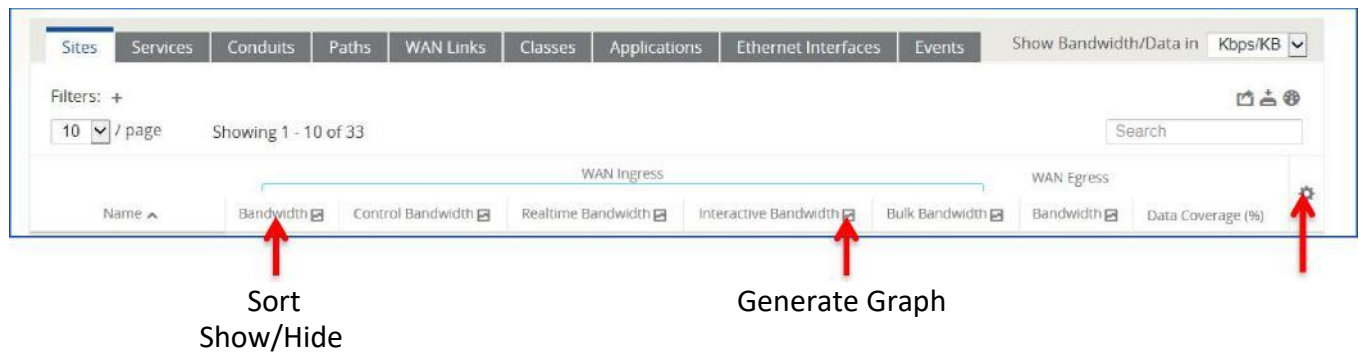
- *Sites*: Usage/quality data for Sites; can drill down to Services, Conduits, and Paths
- *Services*: Usage/quality data for Services; can drill down to Conduits and Paths
- *Conduits*: Usage/quality data for Conduits; can drill down to Paths
- *Paths*: Usage/quality data for Paths
- *Wan Links*: Usage/quality data for WAN Links; can drill down to Service Usages
- *Classes*: Usage/quality data for Classes; a large data set that often requires filtering
- *Applications*: Quality for Applications
- *Ethernet Interfaces*: Usage/quality data for Ethernet Interfaces
- *Events*: Event data for Sites



Once a data table is selected for a report, the information within the report for the defined time frame may include general data or data that is specific to WAN Ingress and WAN Egress traffic. Select the  $11+11$  icon (when present) at the far left of each row to drill down into more granular data tables. Hover over a column header to get a detailed explanation of the data in that column.

Column headers also provide additional viewing options. The user may select the column name in order to sort the report by that column, select the graph icon next to the column name

(when present) in order to open a graph view of that column's data, or select the gear icon at the far right of the columns to show/hide columns from the report view.

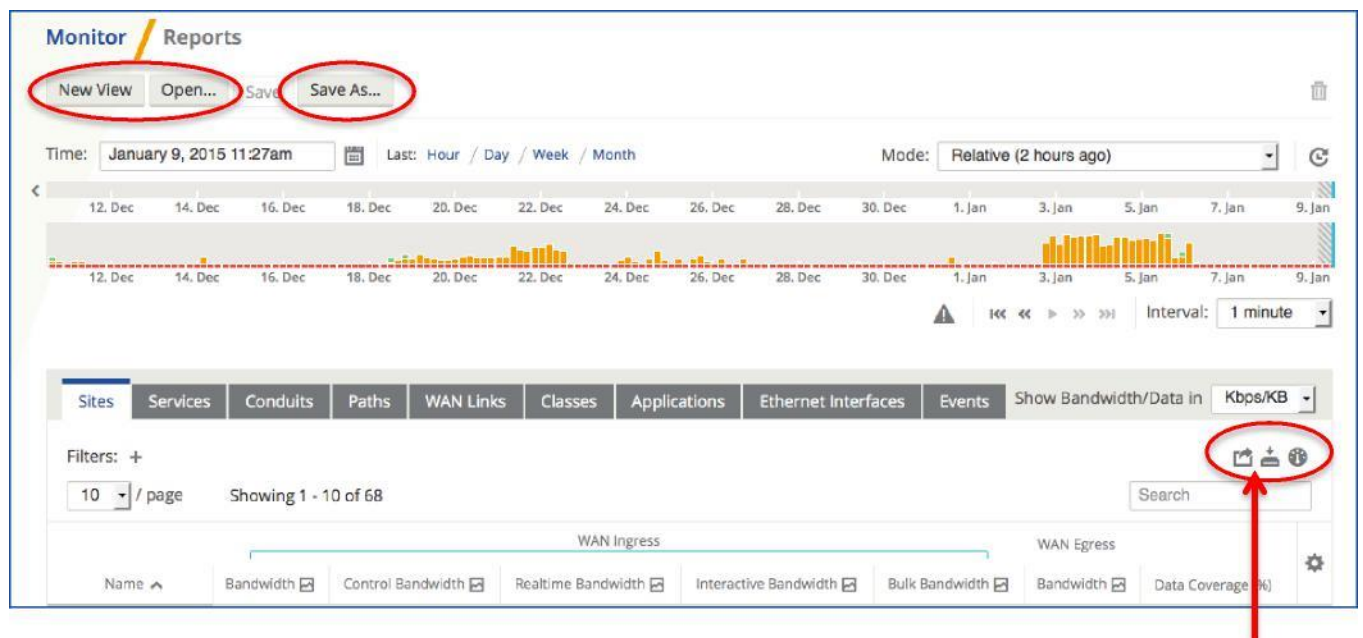


When generating a report, it is recommended that the user review the options provided under *Show/Hide Columns (gear icon)* in order to focus the scope of the report. The user should understand what specific data they want in the report and if they are attempting to resolve an issue or just looking to generate weekly reports based on usage, etc.

If *Open Graph View (graph icon)* is selected for a column, a new browser page will open, providing that specific data in a graph. The user can then interact with the graph as they would with any other graph.

## Save, Download, or Share

Once a report has been generated, the user can save the report, share the report, download the report in CSV format, or add the report to their own Dashboard. Additionally, the user can open a previously saved report or create a new report view. These options are shown below.



## Create a Graph

High level steps to create a graph:

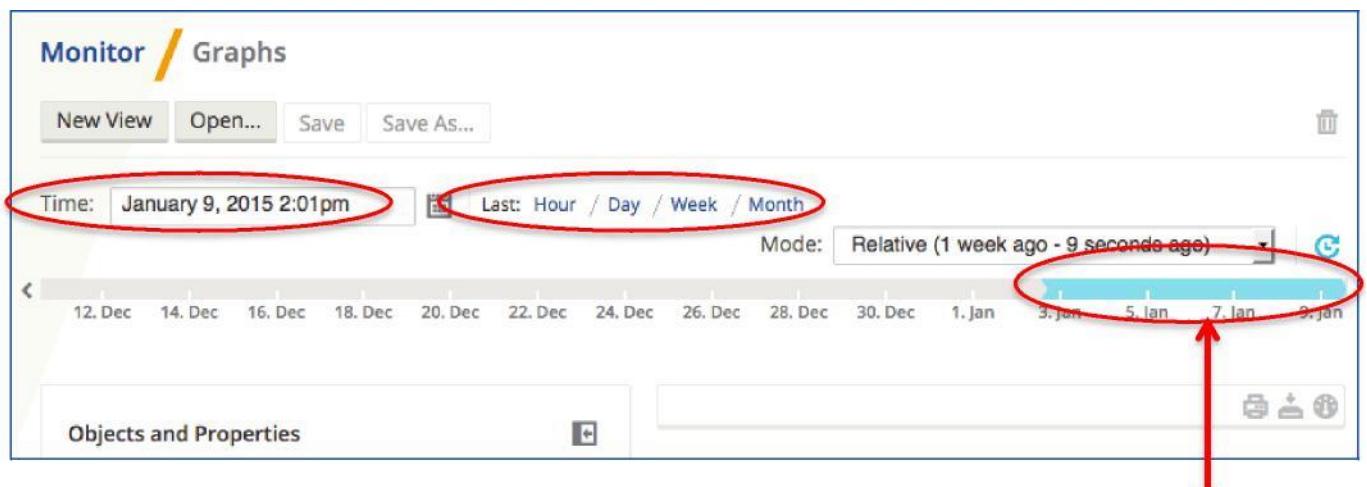
- Log into the Aware web console
- Navigate to **Monitor** -> **Graphs**<sup>4</sup>
- Select a time frame for the graph
- Select data for the graph

To generate a useful graph the user must understand their Talari network and understand what type of graph they are attempting to generate. As with a report, creating a graph requires the user to select a time frame and data for the time frame, which will then be graphed by the system.

### Select Time Frame

By default, a graph will show the latest week of data. If desired, use the options provided at the top of the Graphs screen (**Monitor** -> **Graphs**) to select a different time frame for the graph. The following options are available:

- *Time*: Allows user to enter a specific date and time to work back from
- *Calendar (icon)*: Allows user to select an end date to work back from
- *Last*: Allows user to quickly select the last Hour/Day/Week/Month as a time frame
- *Mode*: Allows user to select absolute time or relative time
- *Dateline*: Allows user to select a time frame, by clicking-and-dragging across the dateline



Dateline

<sup>4</sup> The Aware web console features **Monitor** and **Manage** tabs at the top right of the screen

As with reports, the graphs page allows the user to toggle automatic updates<sup>5</sup> using the icon at the far right of the dateline.

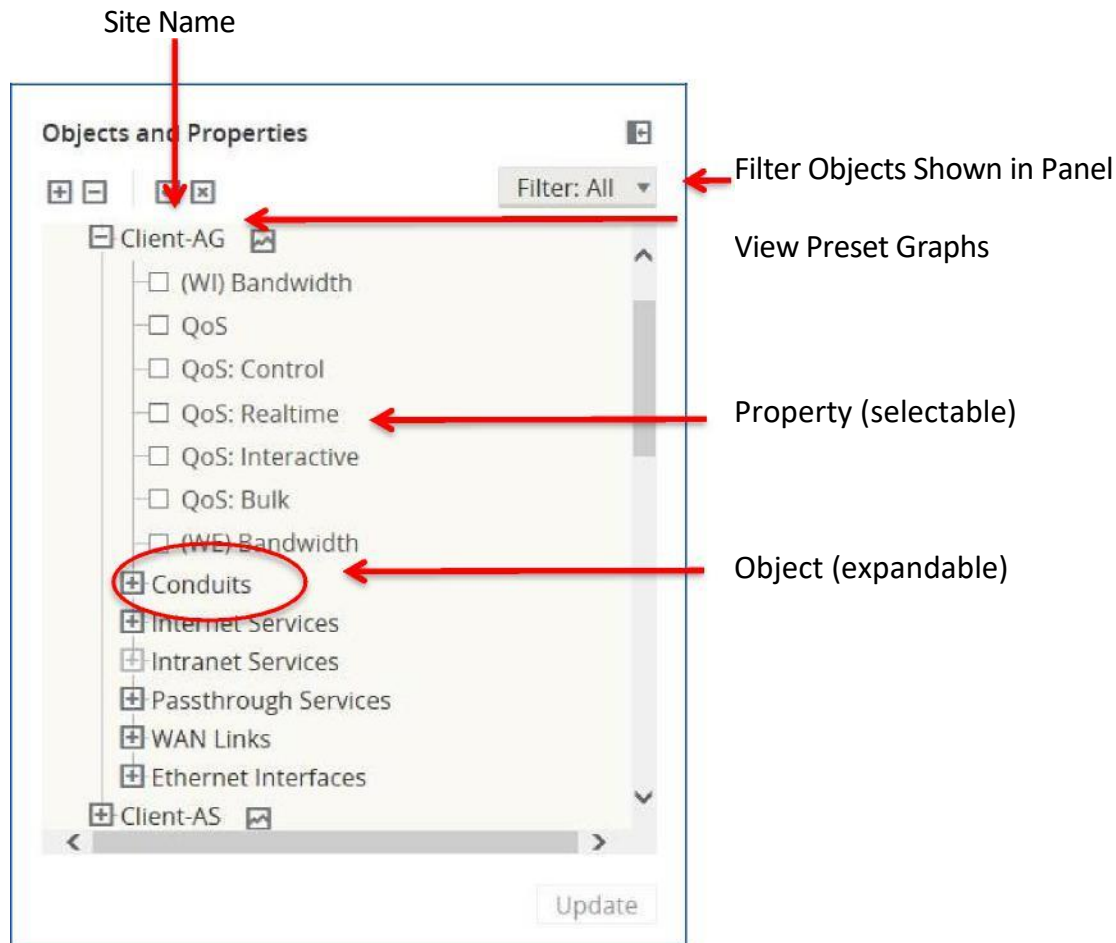
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<sup>5</sup> If automatic updating is enabled, the browser will check the server for new data. If new data is detected, the view will automatically update to the new time frame

## Select Data

Data for graphs is organized by Site. The first step the user must perform is to select the correct Site from the *Objects and Properties* panel. For each Site, the user has the following options:

- *View Preset Graphs (icon)*: Select from a menu of preset graphs
- *Properties*: Select site properties
- *Object Lists (expandable sub-menus)*: Select properties from objects belonging to the Site



As with reports, the user has the ability to create a graph based on their own selections. However, preset graphs are provided to simplify graph creation. The user should review the defined presets to determine if any of these can be used to simplify the creation process. Currently, the preset graphs for Sites are: Availability, Bandwidth, Latency, Loss, QoS, Usage, MOS:Conduits and MOS:Paths.

The object lists under each Site are Conduits, Internet Service, Intranet Service, Passthrough Service, WAN Links, and Ethernet Interfaces.

The follow properties are available under a Conduit object:

Objects and Proper =

**LI LI OE**

**Li conduits** es

- Client-AG-Client-AWS-
- IRL -El Availability
- ID Good
- Time -0 Bad
- Time -0 Dead
- Time -0
- Disabled Time
- 0 (WI) Bandwidth
- 0 QoS
- 0 QiDS: Control
- 0 QoS: Realtime -0
- OiDS: Interactive -0
- QoS: Bulk

-	El (WE) BOWT
	Latency (ms)
-D	(WE) Jitter (ms)
-D	(WE) Packets Lost
-	0 (WE) Loss (%)
-	(' iE) Packets 000
-	0 (WE) 000 (%)

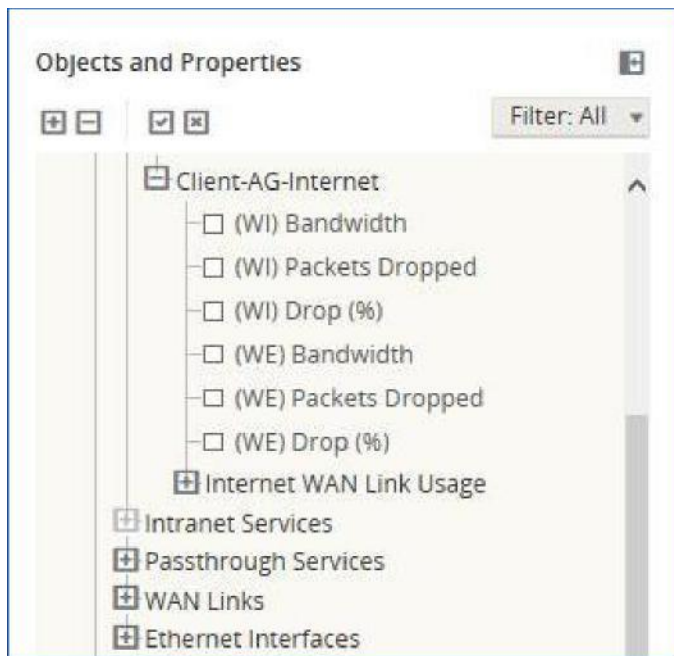
**EI** Application

E4 Paths

**Conduit WAN Link Usage**

d

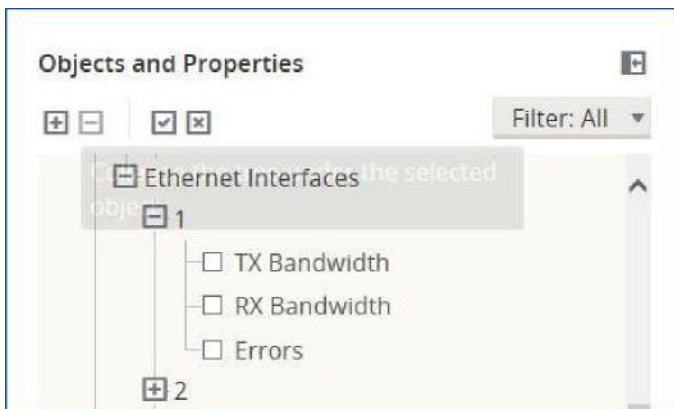
The following properties are available under an Internet Services object, as well as under an Intranet Services object and a Passthrough Services object:



The following properties are available under a WAN Link object:

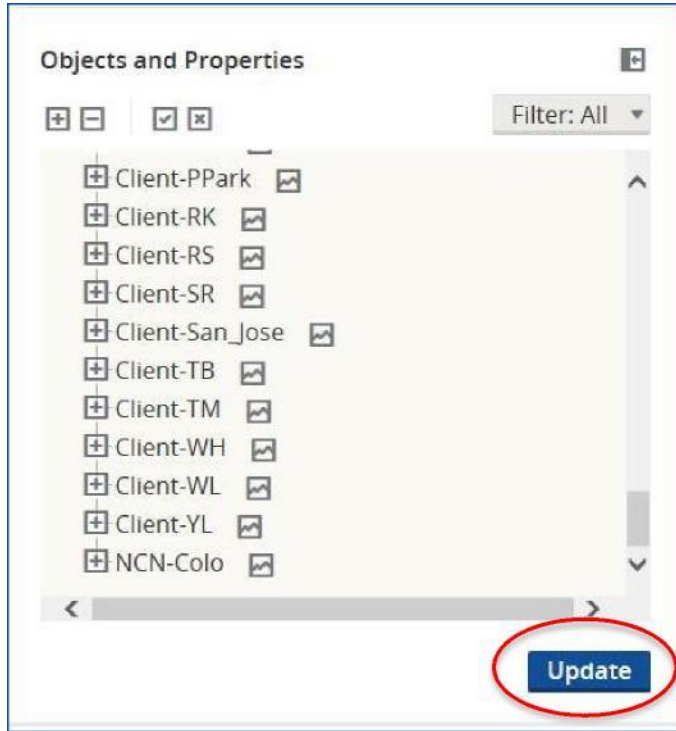


The following properties are available under an Ethernet Interfaces object:



When selecting data to graph, the user selects the radio box next to the desired property. Once a time frame and the data to graph have been selected, the user must select the *Update* button at the bottom of the *Objects and Properties* panel in order to generate the graph.

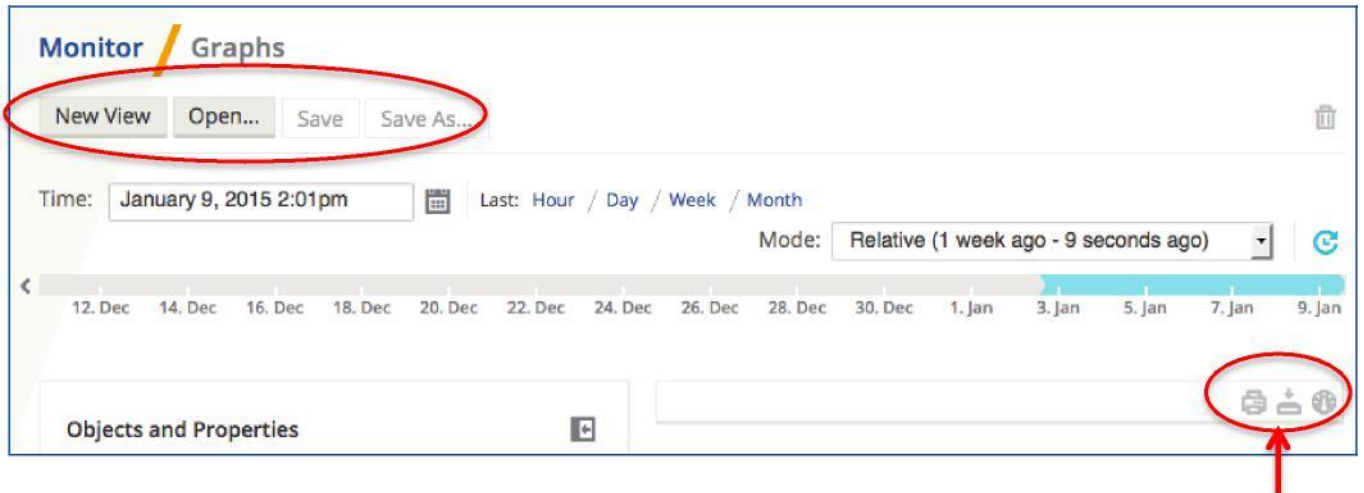




Once a graph has been generated, the user can expand the graph, show/hide the trend graph, show/hide the legend, or close the graph. Additionally, the user can click-and-drag across the graph in order to zoom into the selected portion.

## Save, Download, or Print

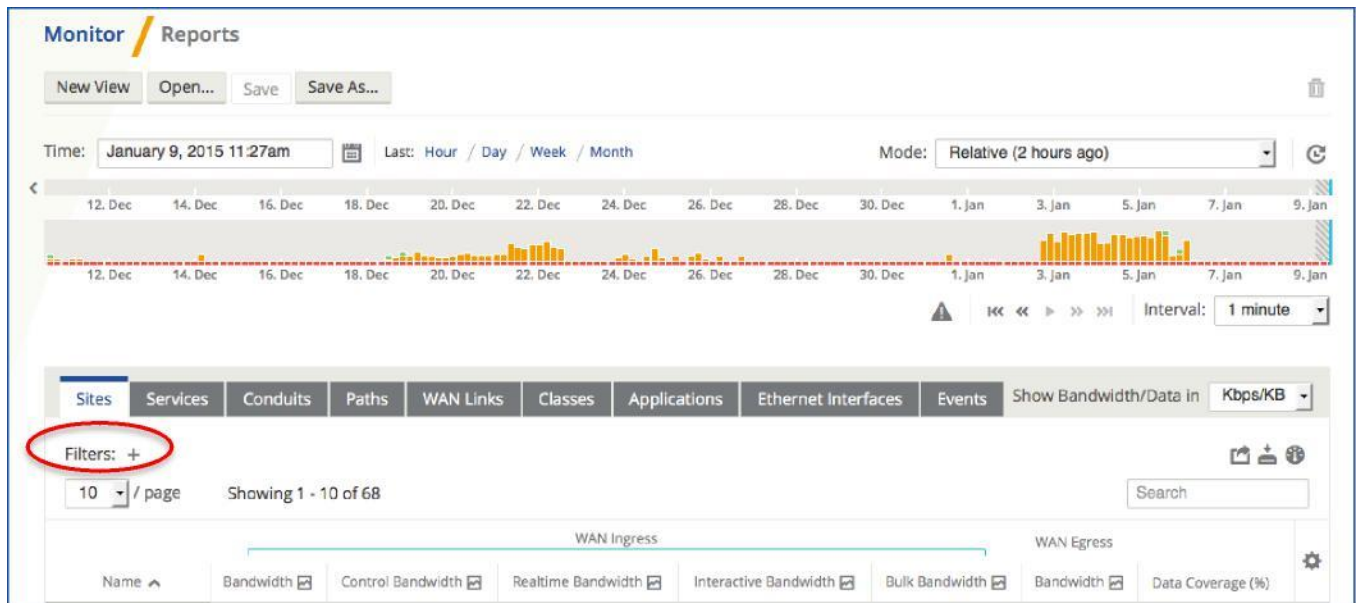
After creating a graph, the user should view the data to verify that it provides the information they require. The user can then print the graph set, download the graph set as a CSV file, or add the graph set to their own Dashboard. Additionally, the user can open a previously saved graph or create a new graph view. These options are shown below.



*Print, Download, and Add to Dashboard*

## Report Filtering

Report filtering allows the user to filter on specific columns in the selected data table to create a more focused report. In order to create a filter, select the "+" icon next to the "Filters:" label, provide the required filter criteria (details below), and select "Add."



The first required filter criteria is a column of data on which to filter. A dropdown is provided with the following column options:

- *Name*
- *WAN Ingress Bandwidth*
- *WAN Ingress Packets*
- *WAN Ingress Control Bandwidth*
- *WAN Ingress Control Packets*
- *WAN Ingress Realtime Bandwidth*
- *WAN Ingress Realtime Packets*
- *WAN Ingress Interactive Bandwidth*
- *WAN Ingress Interactive Packets*
- *WAN Ingress Bulk Bandwidth*
- *WAN Ingress Bulk Packets*
- *WAN Egress Bandwidth*
- *WAN Egress Packets*
- *Data Coverage (%)*

The second required filter criteria is a comparison option for the column data, which can be compared against a specific value. Based on that comparison a report is generated. A dropdown is provided with the following comparison options:

- *is*
- *is not*
- *is one of*
- *contains*
- *does not contain*
- *less than*
- *less than or equal to*
- *greater than*
- *greater than or equal to*

The third required filter criteria is a comparison value that the column data should be compared against. A free form field is provided. The user should enter text or a number as appropriate for the data type.

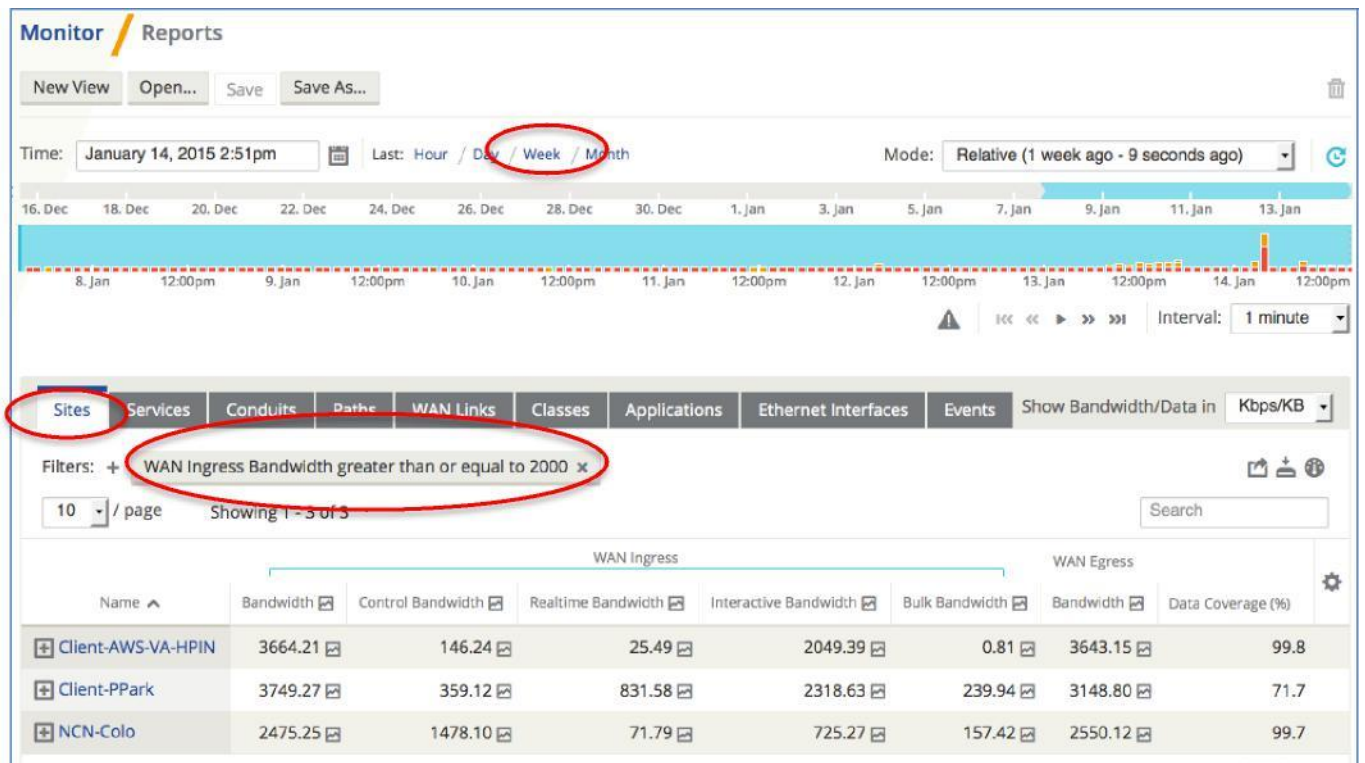


After providing the required filter criteria, the user must select "Add" in order to apply the filter to the report. Multiple filters can be added. A report view will be generated based on the filter criteria. Once the report is generated, the user can select the graph icon next to a column name (when present) in order to open a graph view of that column's filtered data.

## Example - Site Usage Report

As an example, a Trending Report for Site WAN Ingress Bandwidth usage of 2 Megabits or more in the last 7 days can be created using the following time frame, data table, and filter:

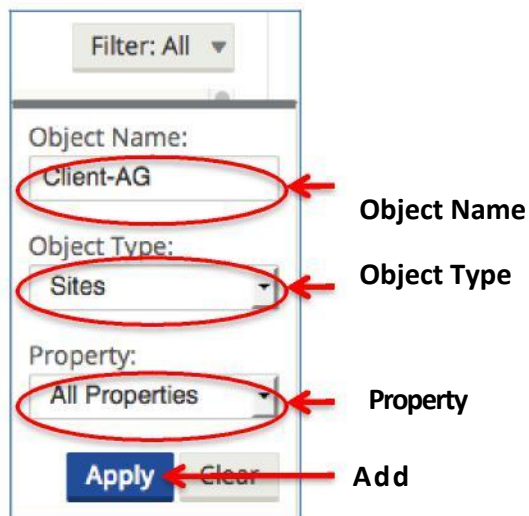
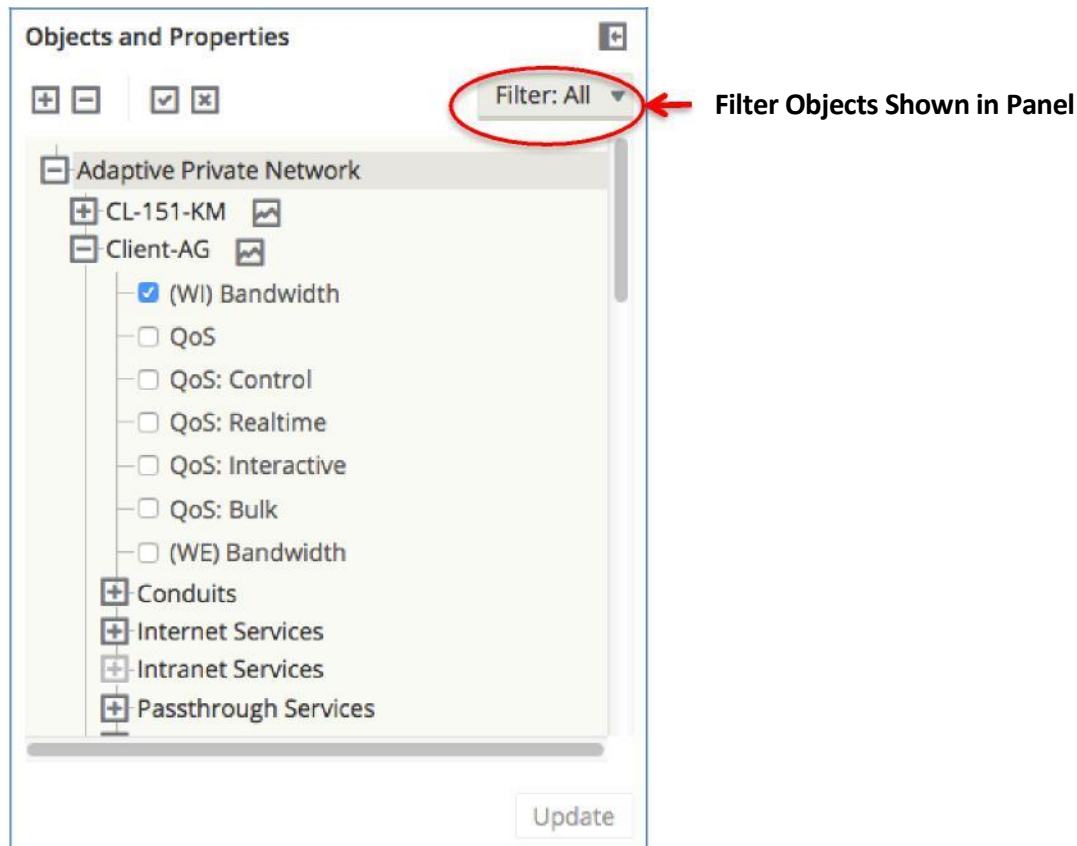
- *Time Frame:* Last week
- *Data Table:* Sites
- *Filter - Column:* WAN Ingress Bandwidth
- *Filter - Comparison Option:* Greater than or equal to
- *Filter - Comparison Value:* 2000



From this filtered report the user can gather information on WAN Ingress bandwidth trends for usage. If the user prefers to see this data in a graph, which might be more useful for trending purposes, they can select the graph icon next to the desired column.

## Graph Filtering

Graph filtering allows the user to select certain data sets for a graph. In order to create a graph, select the "Filter:" dropdown in the *Objects and Properties* panel, provide optional filter criteria (details below), and select "Apply."



The first optional filter criteria is an object name on which to filter. A free form field is provided. The user may enter characters/numbers as appropriate for the desired filter. The user may provide a full name or part of a name (e.g. the text "ATT" will match a WAN Link named "NCN-ATT-MPLS").

The second optional filter criteria is an object type on which to filter. A dropdown is provided with the following object type options:

- *All Objects*
- *Sites*
- *Conduits*
- *WAN Ingress Path*
- *WAN Egress Path*
- *WAN Links*
- *Ethernet Interfaces*
- *Internet Services*
- *Intranet Services*
- *Internet WAN Link Usage*
- *Intranet WAN Link Usage*
- *Conduit WAN Link Usage*
- *Passthrough Services*
- *Application*
- *Control Classes*
- *Realtime Classes*
- *Interactive Classes*
- *Bulk Classes*

The third optional filter criteria is a property on which to filter. A dropdown is provided with properties appropriate to the selected Object Type; e.g. *Bandwidth, Jitter, Packets, Average MOS*, etc.

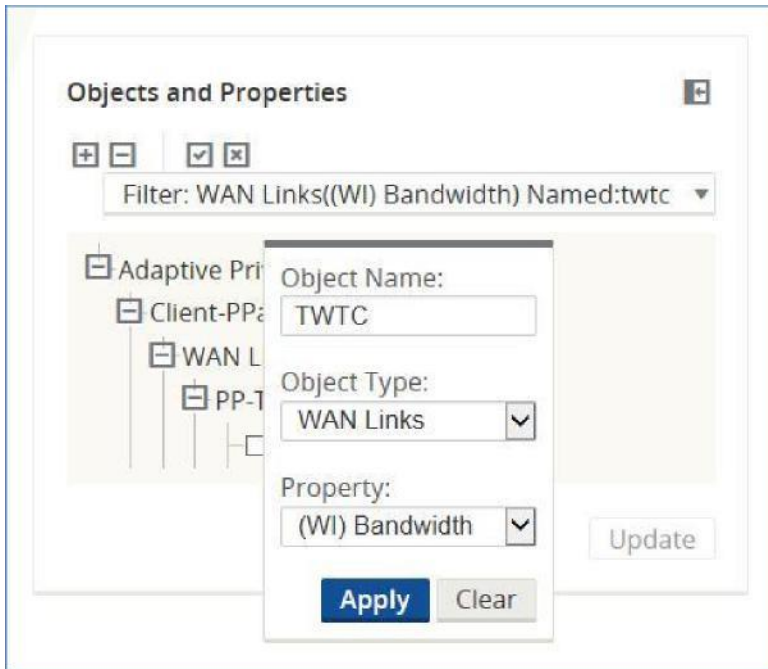
After providing the desired filter criteria, the user must select "Apply" in order to apply the filter to the *Objects and Properties* panel. One filter can be applied at a time. The objects/properties that do not match the filter criteria will be removed from the *Objects and Properties* tree. The user can then select the properties they want to graph by selecting the radio button that corresponds to each property.

## Example - WAN Link Usage Graph

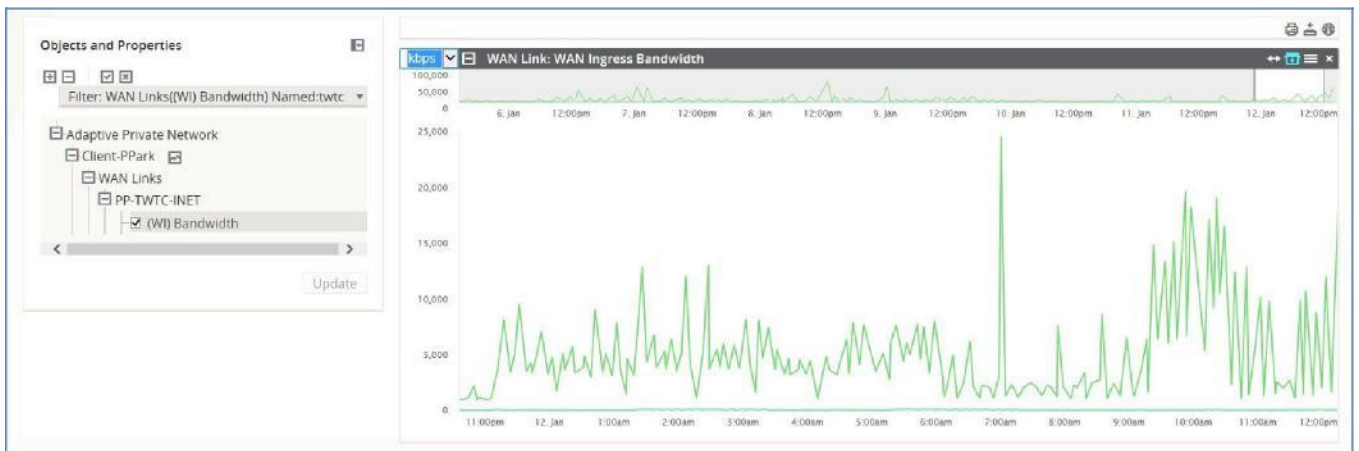
As an example, a Trending Report for WAN Link WAN Ingress Bandwidth usage over the last 7 days can be created using the following timeframe and filter:

- *Timeframe:* Last week
- *Filter - Object Name:* <a WAN Link name in your configuration; e.g. "TWTC">
- *Filter - Object Type:* WAN Links

□ Filter - Property: (WI) Bandwidth



The filter will find the corresponding WAN Links that match the criteria and show them in the *Objects and Properties* tree. The user can then select the "□" symbol at the top of the *Objects and Properties* tree to select all properties captured by the filter, or can select the radio button next to the individual properties they wish to graph. In order to generate the graph, the user must select "Update" from the bottom of the *Objects and Properties* panel.



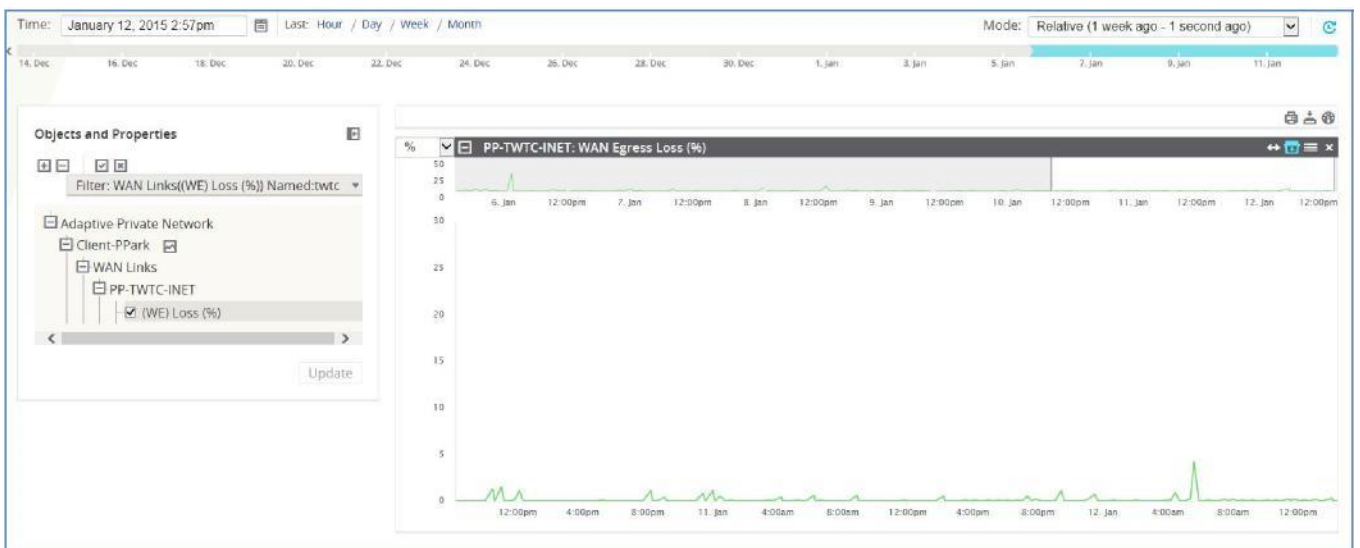
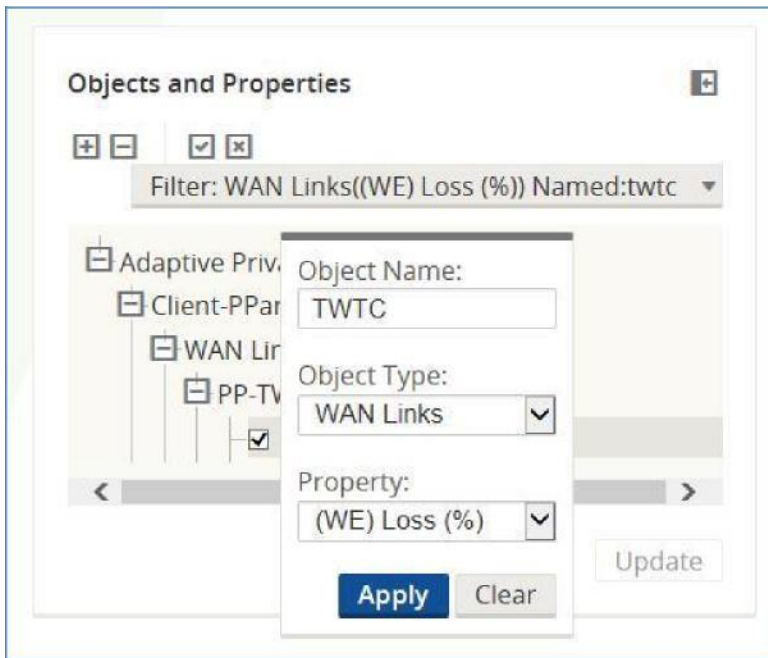
From this graph we see a trend for WAN Ingress bandwidth usage on this WAN Link. If this is a long term graph that the user wants on their dashboard, they should make sure that automatic updating is enabled and then select the dashboard icon to add the graph to their dashboard. For more information on automatic updating and adding graphs to a dashboard, see the above section on creating a graph.



## Example - WAN Link Loss Graph (For a Service Provider)

As another example, a graph of loss on a specific WAN Link over the last 7 days (which might be useful for submitting to a Service Provider) can be created using the following timeframe and filter:

- *Timeframe:* Last week
- *Filter - Object Name:* <a WAN Link name in your configuration; e.g. "TWTC">
- *Filter - Object Type:* WAN Links
- *Filter - Property:* (WE) Loss (%)



Once again, this graph could be added to the user's dashboard for regular access.

## Summary

This document provides information on how to create a report or graph using Talari APN Aware. The user must understand what data they want to represent in the graph or report and use the respective tables and options to generate the desired view. Typically, creating a report or graph is easy; understanding and interpreting the available data can be more difficult.

