Configure TWAMP Light Test Sessions

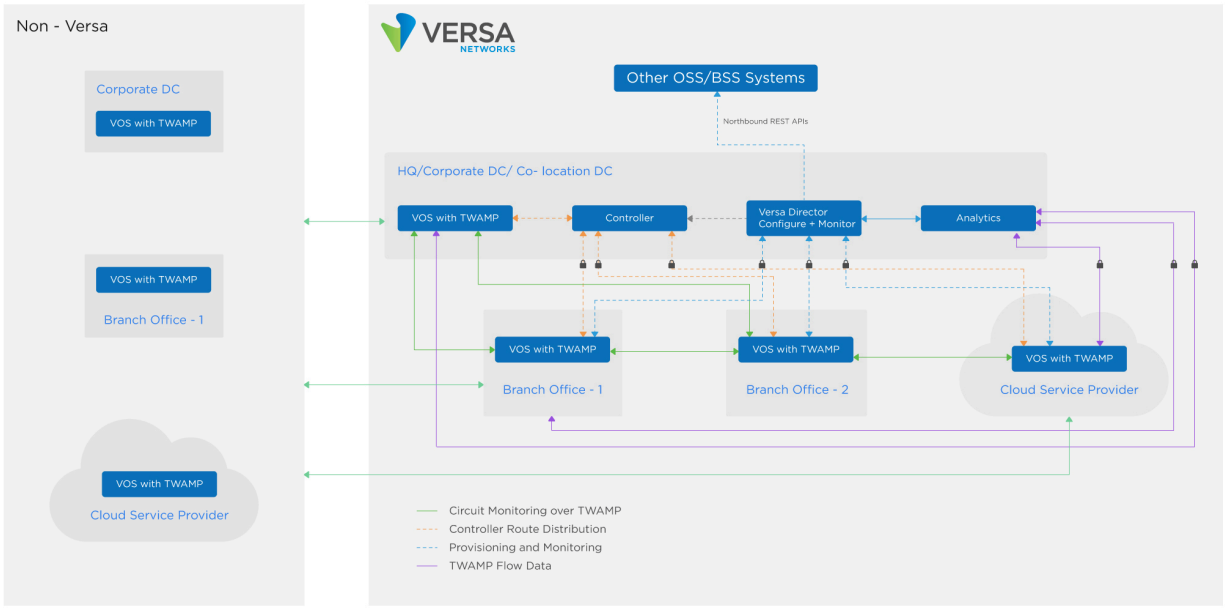
For supported software information, click here.

TWAMP Light is a lightweight version of the Two-Way Active Measurement Protocol (TWAMP) that eliminates the need for a control session. TWAMP is a standard protocol, defined in RFC 5357, that is used to measure network performance for IP networks and can be used for SLA compliance checks. TWAMP Light allows you to measure network performance and send multivendor interoperable probes on LAN interfaces, WAN interfaces, and IKEv2-based IPsec tunnels.

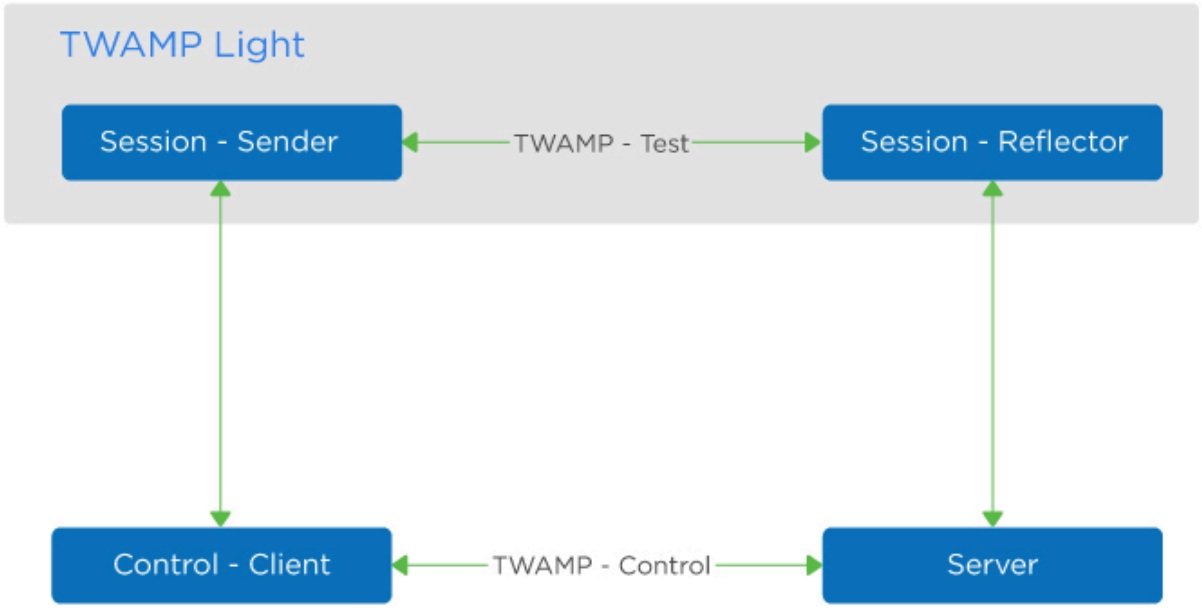
The Versa Operating System™ (VOS™) TWAMP software consists of the following components, all of which are compliant with RFC 5357:

- Control server—Interfaces with the control client, and configures and manages one or more TWAMP reflector sessions for each available control connection.
- Control client—Negotiates TWAMP test parameters with the control server, and, based on the negotiated parameters, manages the lifecycle of TWAMP test sessions while performing circuit quality measurements between configured endpoints.
- Session reflector—Reflects the TWAMP test measurement packets received from a preconfigured TWAMP test sender.
- Session sender—Sends TWAMP test packets to the peer test-session reflector, to measure circuit quality.

The following figure illustrates the TWAMP network performance measurement flow within a Versa network, and between a Versa Networks and a non-Versa network.



TWAMP Light eliminates the need for a control session, and it is a test-only version with session sender and session reflector, as illustrated in the following figure.



A TWAMP Light test session exchanges probe packets with a standards-compliant peer to measure performance metrics, including the following:

- Round-trip delay (RTT) and RTT delay variance (jitter)
- One-way delay (OWD) and one-way delay variance (jitter)

- RTT packet loss and packet loss ratio

RTT measurements do not require clock synchronization because they are measured against the same host clock, but clock synchronization is required to perform one-way measurements. You can check the network quality over any class of service (CoS) by setting a DSCP value for test sessions. You can configure test sessions to run over VLAN interfaces by using the IP address of the interface. Currently, only vni and site-to-site IPsec tvi interfaces are supported. For more information about VLAN interfaces, see Configure Interfaces.

A TWAMP Light sessions is considered a child if it is associated with a TWAMP Control connection. You can add a new TWAMP Light session as a child session to an existing TWAMP Control connection or create a child session while creating a TWAMP Control connection. For more information, see Configure TWAMP Control Client and Server Sessions.

This article describes how to configure test sessions for a TWAMP Light session reflector and session sender, and how to monitor and analyze TWAMP Light performance metrics. You can also start, stop, or restart a session sender test session.

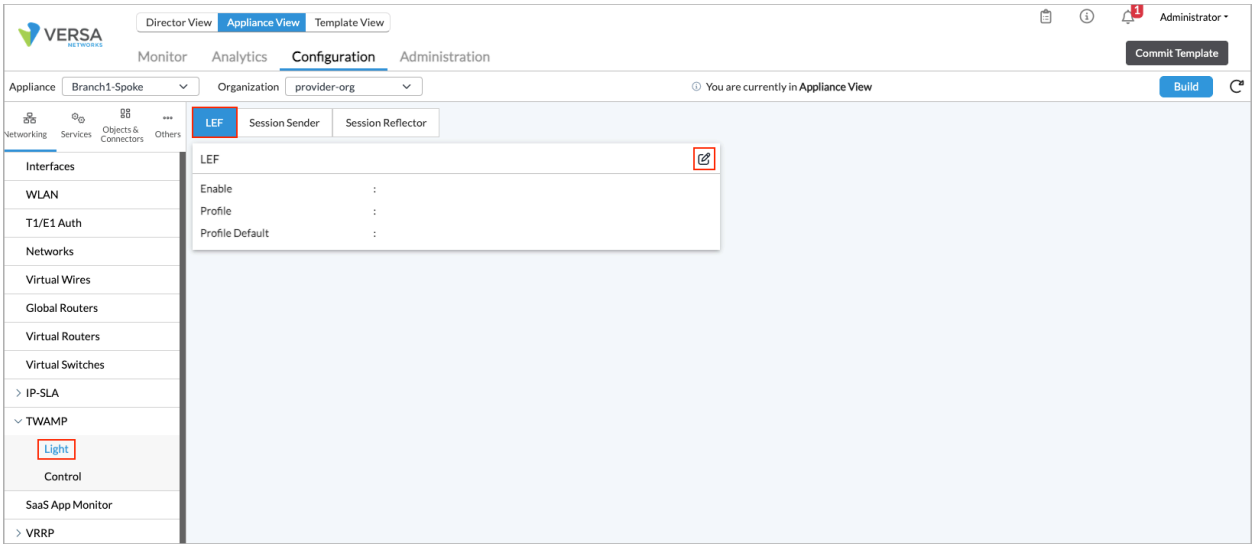
Configure TWAMP Light Test Sessions

You can configure test sessions for session reflector and session sender.

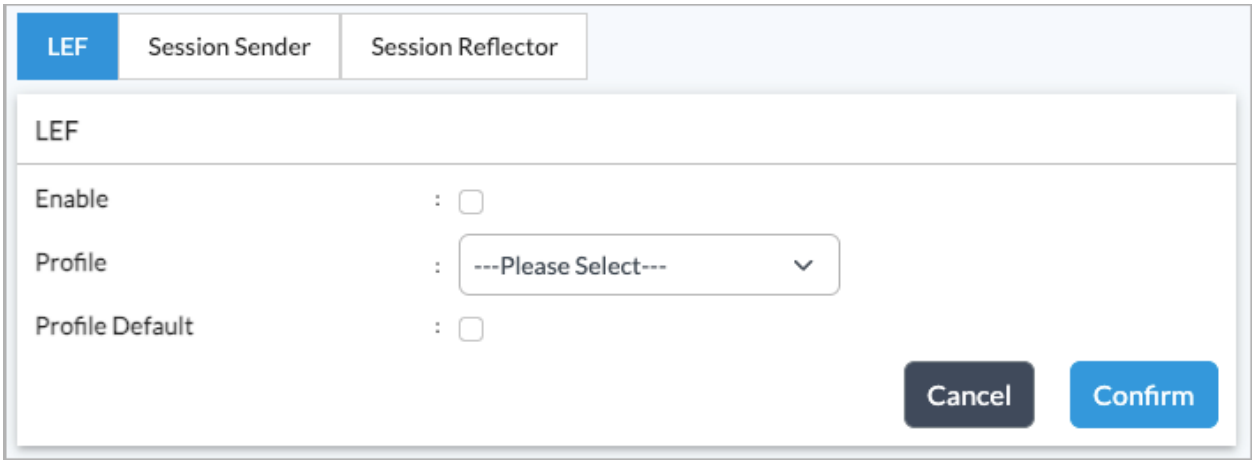
Configure LEF

You can configure log export functionality (LEF) for TWAMP light sessions:

1. In Director view:
   a. Select the Administration tab in the top menu bar.
   b. Select Appliances in the left menu bar.
   c. Click the appliance in the main pane. The view changes to Appliance view.
2. Select the Configuration tab in the top menu bar.
3. Select Networking > TWAMP > Light in the left menu bar. For Releases 22.1.1 and earlier, select Networking > TWAMP.
4. Select the LEF tab.



5. Click the Edit icon to configure LEF and enter the following information.



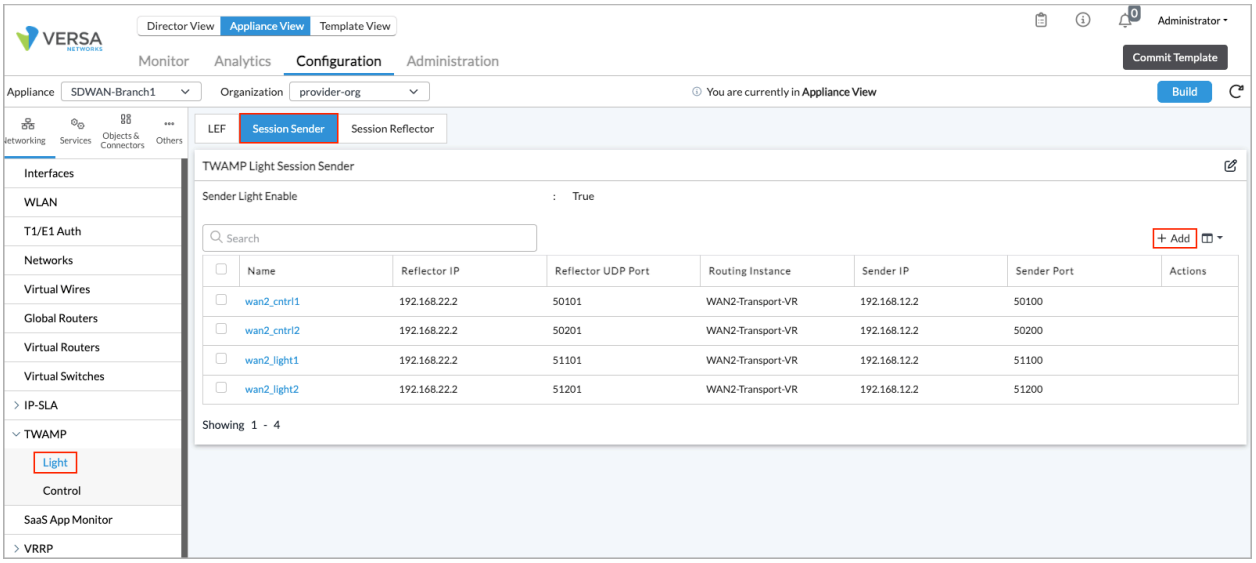
Field	Description
Enable	Click to enable LEF.
Profile	Select an LEF profile from the drop-down list. This field is selectable only if you have not selected the Profile Default checkbox.
Profile Default	Click to use the default LEF profile.

6. Click Confirm.

Configure a Session Sender Test Session

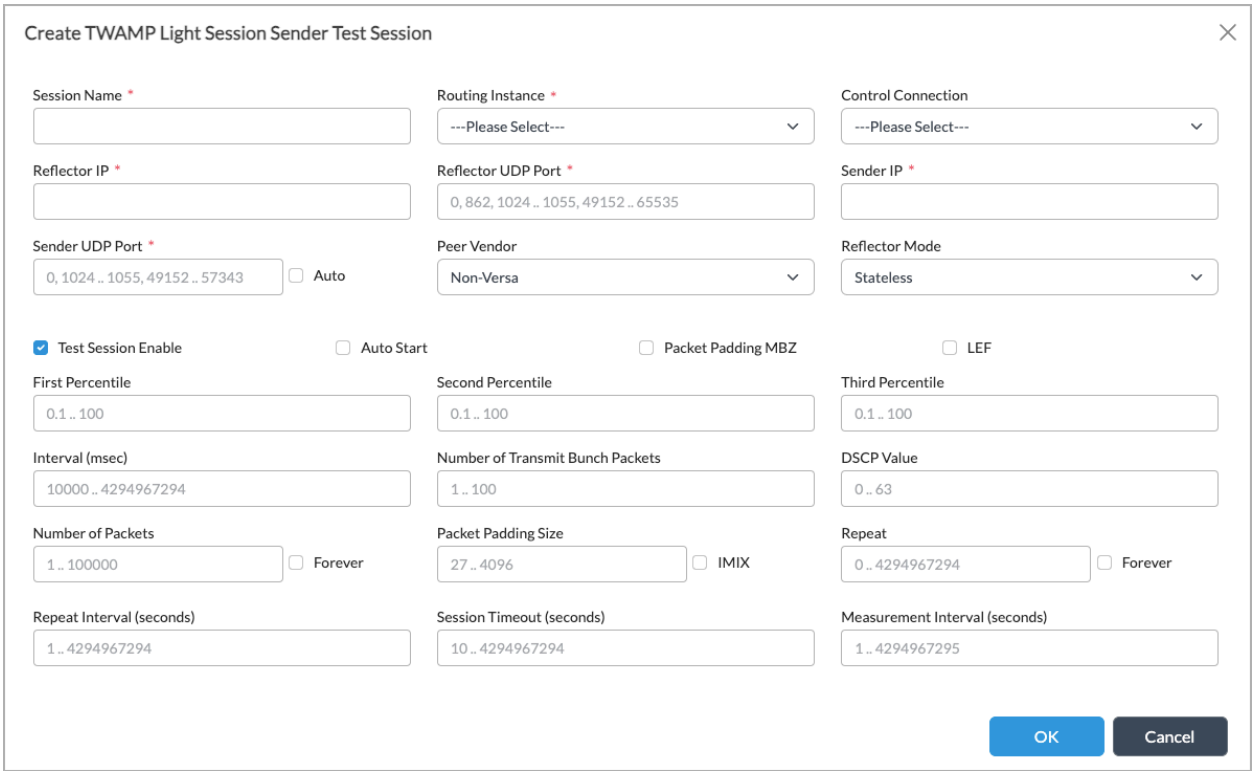
To configure a TWAMP Light session sender test session:

1. In Director view:
   a. Select the Administration tab in the top menu bar.
   b. Select Appliances in the left menu bar.
   c. Click the appliance in the main pane. The view changes to Appliance view.
2. Select the Configuration tab in the top menu bar.
3. Select Networking > TWAMP ;> Light in the left menu bar. For Releases 22.1.1 and earlier, select Networking > TWAMP.
4. Select the Session Sender tab.



5. By default, all TWAMP Light session sender sessions for this tenant are enabled. To disable TWAMP Light session sender sessions for this client, click the Edit icon and then deselect Sender Light Enable.

6. Click the Add icon to add a session. In the Create TWAMP Light Session Sender Test Session popup window, enter information for the following fields. Note that configuration changes for an active session resets the session.



Field	Description
Session Name (Required)	Enter a name for the TWAMP Light sender test session. *Values*: Text string up 63 characters
Routing Instance (Required)	Select the VRF routing instance on which to run the tests for this node.
Control Connection	(For Releases 22.1.3 and later.) Select the TWAMP Control client connection to associate with this sender test session as a child session. For more information, see Configure a TWAMP Control Client Connection.
Reflector IP (Required)	Enter the IP address of the peer node that reflects the probes initiated by this node. The address must be an IPv4 address.
Reflector UDP Port (Required)	Enter the UDP port number on the peer node on which the reflector listens. *Range*: 862, 1024 through 1055, 49152 through 65535
Sender IP (Required)	Enter the IP address of the VOS node on which the tests are initiated. The address must be an IPv4 address.
Sender UDP Port (Required)	Enter the UDP port to use for the test session on the current node, or select auto to have the UDP port automatically allocated. *Range*: 1024, through 1055, 49152 through 57343
Peer Vendor	Select the peer vendor device type for the test session: ◦ Non-Versa—Select this option for other scenarios. This is the default. ◦ RAC Client—Remote Access Client device.

	Select this option when you are configuring auto-SLA for Versa SASE clients. ◦ Versa—Select this option when you are connecting SLA over a site-to-site IPsec VPN. For more information, see Configure Site-to-Site Tunnels. *Default*: Non-Versa
Reflector Mode	Select the mode of the TWAMP reflector for the test session: ◦ Stateful—Session sender is aware of the state of the TWAMP Light test session. ◦ Stateless—Session sender is not aware of the state of the TWAMP Light test session. This is the default. *Default*: Stateless
Test Session Enable	Click to enable the test session. *Default*: Enabled
Auto Start	Click to automatically start the test session without waiting for a manual start or stop request. Automatic starting is suitable for tests running in forever mode.
Packet Padding MBZ	Click to initialize mandatory packet padding with all zeroes (must be zero) for the reflector session. Packet padding uses pseudo-random data to avoid data by default compression and other techniques in middle, as specified in RFC 5357.
LEF	Click to enable Versa Analytics log export functionality (LEF).
First Percentile	Enter the lowest percentile of running statistics for which to report measurement metrics. *Range*: 0.1 through 100.0 *Default*: 95.0
Second Percentile	Enter the medium percentile of running statistics for

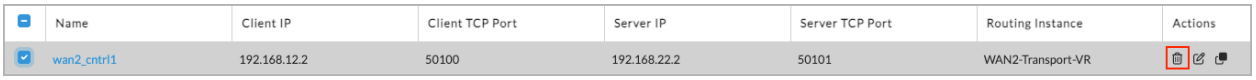
	which to report measurement metrics. This value is valid only if the First Percentile field is not null. *Range*: 0.1 through 100.0 *Default*: 99.0
Third Percentile	Enter the highest percentile of running stats for which to report measurement metrics. This value is valid only if First Percentile is not null. *Range*: 0.1 through 100.0 *Default*: 99.90
Interval (microseconds)	Enter the interval, in microseconds, between the transmission of two consecutive packets in the test session. Note that setting the value of this interval below 100000 microseconds (100 milliseconds) can significantly increase CPU consumption for tests. *Range*: 10000 through 4294967294 *Default*: 1000000 microseconds (1 second)
Number of Transmit Bunch Packets	Enter the number of packets to be grouped in a transmission. By default, a single packet is transmitted. *Range*: 1 through 100 *Default*: 1
DSCP Value	Enter the DSCP value to measure the network CoS behavior. *Range*: 1 through 64 *Default*: 0 (DSCP is disabled)
Number of Packets	Enter the number of packets to transmit in the current

	test session. *Range*: 10 through 1000000 *Default*: 10
◦ Forever	Click to send packets continuously during the test session at the interval set in the Interval field.
Packet Padding Size	Enter the packet padding size for test probe packets. You calculate this value based on the path MTU of the network on which to perform measurements. *Range*: 27 through 4000 bytes *Default*: 27 bytes
◦ IMIX	Click to have the test session use a pseudorandom number generator to generate the packet padding size to mimic the Internet Mix (IMIX) traffic.
Repeat	Enter the number of times to repeat the test session. When a test session completes, the test repeats for the number of times specified in this value. When the value is 0, the test session does not repeat. If the value is greater than 0, the test session is repeated at the interval configured in the Repeat Interval field. *Range*: 0 through 4294967294 *Default*: 0
◦ Forever	Click to repeat the test forever, repeating the test session at the interval configured in the Repeat Interval field rather than using the repeat value set in the Repeat field.
Repeat Interval (Seconds)	Enter the time interval between test sessions when a test session is repeated; that is, when the value in the Repeat field is greater than 0. *Range*: 0 through 4294967294 seconds *Default*: 0 seconds

Session Timeout (Seconds)	Enter the period after which the test session times out. *Default*: 900 seconds
Measurement Interval (Seconds)	Enter the interval to calculate performance metrics when the test mode is Forever. Note that this value must be less than the time that you configure in the Session Timeout field. *Range*: 0 through 4294967294 seconds *Default*: 60 seconds

7. Click OK.

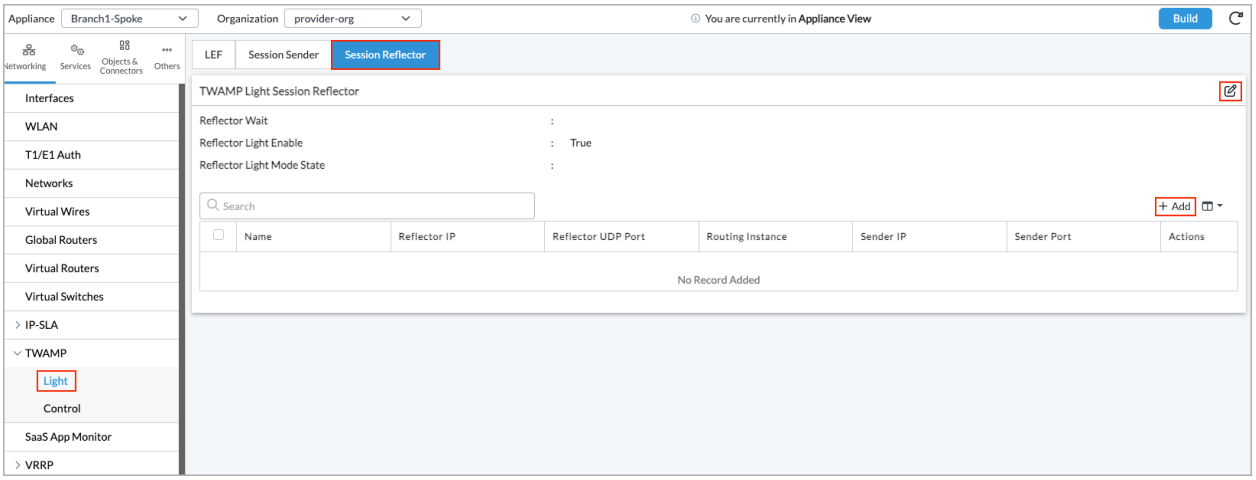
To delete a session, go the the main TWAMP Light Session Sender screen, hover over the session that you want to delete, and then click the Delete icon in the Actions column. Note that the Delete icon is not visible until you hover over the session information.



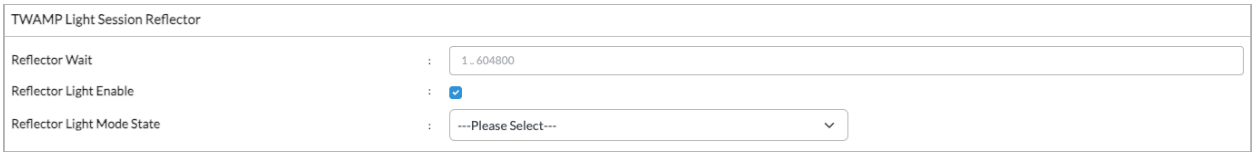
Configure a Session Reflector Test Session

To configure a TWAMP Light reflector test session:

1. In Director view:
   a. Select the Administration tab in the top menu bar.
   b. Select Appliances in the left menu bar.
   c. Click the appliance in the main pane. The view changes to Appliance view.
2. Select the Configuration tab in the top menu bar.
3. Select Networking > TWAMP > Light in the left menu bar. For Releases 22.1.1 and earlier, select Networking > TWAMP.
4. Select the Session Reflector tab.

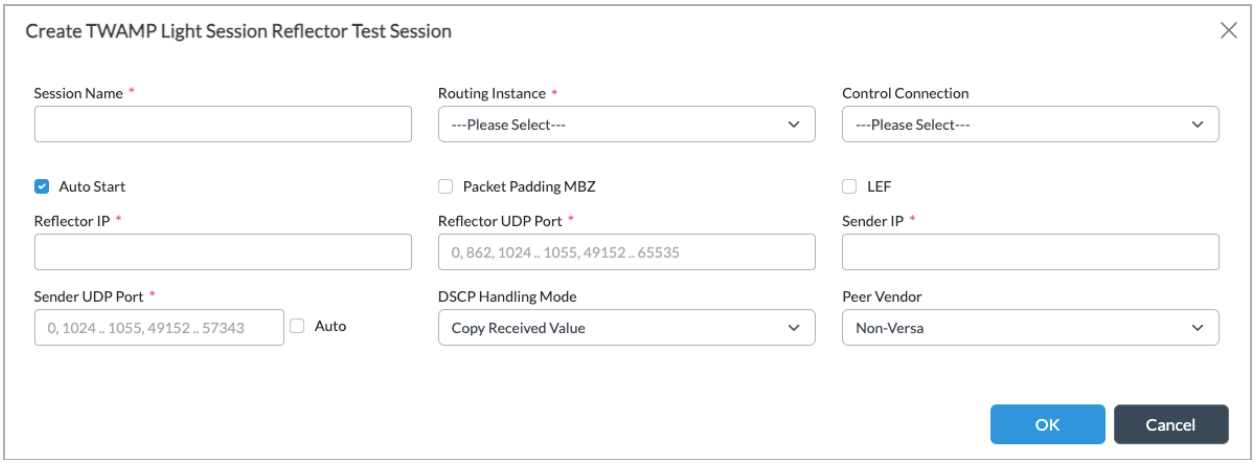


5. Click the Edit icon to configure the TWAMP light session reflector, and then enter information for the following fields. Note that any tenant-level configuration update resets the sessions active under this tenant.



Field	Description
Reflector Wait	Enter a value for the reflector session timeout. *Range*: 1 through 604800 seconds *Default*: 900 seconds
Reflector Light Enable	By default, a TWAMP Light session reflector is enabled for the tenant. To disable TWAMP Light session reflector for this client, click the Edit icon, then deselect Reflector Light Enable checkbox. *Default*: Enabled
Reflector Light Mode State	Select the mode to run reflector sessions on the current node: ◦ Stateful—Session reflector is aware of the state of the TWAMP Light test session. ◦ Stateless—Session reflector is not aware of the state of the TWAMP Light test session. *Default*: Stateless

6. Click the Add icon to add a TWAMP Light reflector test session. In the Create TWAMP Light Session Reflector Test Session popup window, enter information for the following fields. Note that configuration changes for an active session reset the session.



Field	Description
Session Name (Required)	Enter a name for the TWAMP Light reflector test session. *Range*: 1 through 63 characters
Routing Instance (Required)	Select the VRF routing instance on which to run the test session.
Control Connection	(For Releases 22.1.3 and later.) Select a TWAMP Control server connection that you want this sender test session to be associated as a child session. For more information, see Configure a TWAMP Control Server Connection.
Auto Start	(For Releases 22.1.3 and later.) Click to automatically start the test session without waiting for a manual start or stop request.
Packet Padding MBZ	Click to initialize mandatory packet padding with zeroes for the reflector session. The packet padding area is filled with pseudo-random data by default to avoid data compression and other optimization techniques in middle, as specified in RFC 5357.
LEF	Click to enable Versa Analytics log export functionality (LEF).
Reflector IP (Required)	Enter the IP address of the VOS device that reflects the test probes initiated by peer. Supports only IPv4.
Reflector UDP Port (Required)	Enter the UDP port on this node on which the reflector listens. *Range*: 49152 through 65535
Sender IP (Required)	Enter the IP address of the peer node from which to initiate the test session. Supports only IPv4.

Sender UDP Port (Required)	Enter the UDP port that the peer node uses when initiating this test session. *Range*: 49152 through 65535
DSCP Handling Mode	Select the mode for handling DSCP in the test probes: ◦ Copy Received Value—Reflect the incoming DSCP value in the reply. This is the default. ◦ Use Configured Value—Select the user-configured value for the session. *Default*: Copy Received Value
Peer Vendor	Select the peer vendor device type for the test session: ◦ Non-Versa—Select this option for other scenarios. This is the default. ◦ RAC Client—Remote Access Client device. Select this option when you are configuring auto-SLA for Versa SASE clients. ◦ Versa—Select this option when you are connecting SLA over a site-to-site IPsec VPN. For more information, see Configure Site-to-Site Tunnels. *Default*: Non-Versa

7. Click OK.

To verify the TWAMP Light test session configuration:

```
admin@Branch1-cli> show configuration orgs org-services provider-org twamp-light | detail
twamp-light-session-sender {
    sender-light-enable true;
    test-session tst2 {
        auto-start                true;
        peer-vendor               non-versa;
        pkt-pad-mbz               false;
        num-tx-bunch-pkts         1;
        enable                    true;
        number-of-packets         forever;
        packet-padding-size       27;
        interval                  1000000;
        measurement-interval      60;
        repeat                    25;
        repeat-interval           10;
```

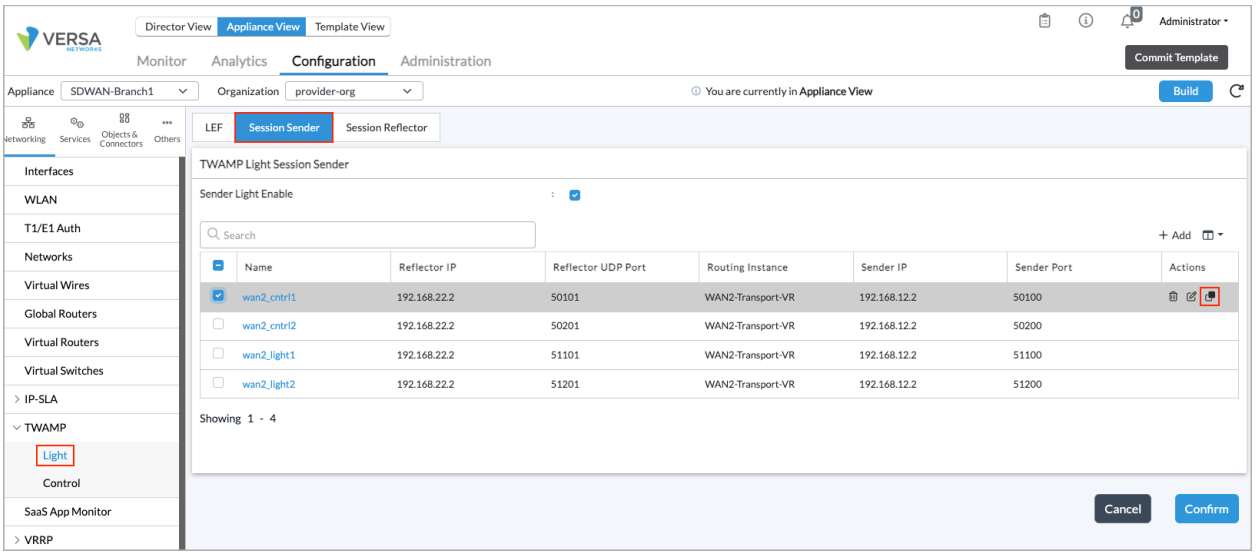
```
        dscp-value                0;
        test-session-reflector-mode stateless;
        sender-ip                 172.16.30.100;
        sender-udp-port           49158;
        reflector-ip              172.16.30.101;
        reflector-udp-port        49159;
        routing-instance          LAN1-vrf;
        first-percentile          95.0;
        second-percentile         99.0;
        third-percentile          99.9;
    }
}
twamp-light-session-reflector {
    reflector-light-enable    true;
    ref-wait                  900;
    reflector-light-mode-state stateless;
    test-session tst3 {
        peer-vendor       non-versa;
        pkt-pad-mbz       false;
        dscp-handling-mode copy-received-value;
        sender-ip         11.11.11.101;
        sender-udp-port   49161;
        reflector-ip      11.11.11.102;
        reflector-udp-port 49162;
        routing-instance  provider-org-LAN-VR;
    }
```

Clone a Test Session

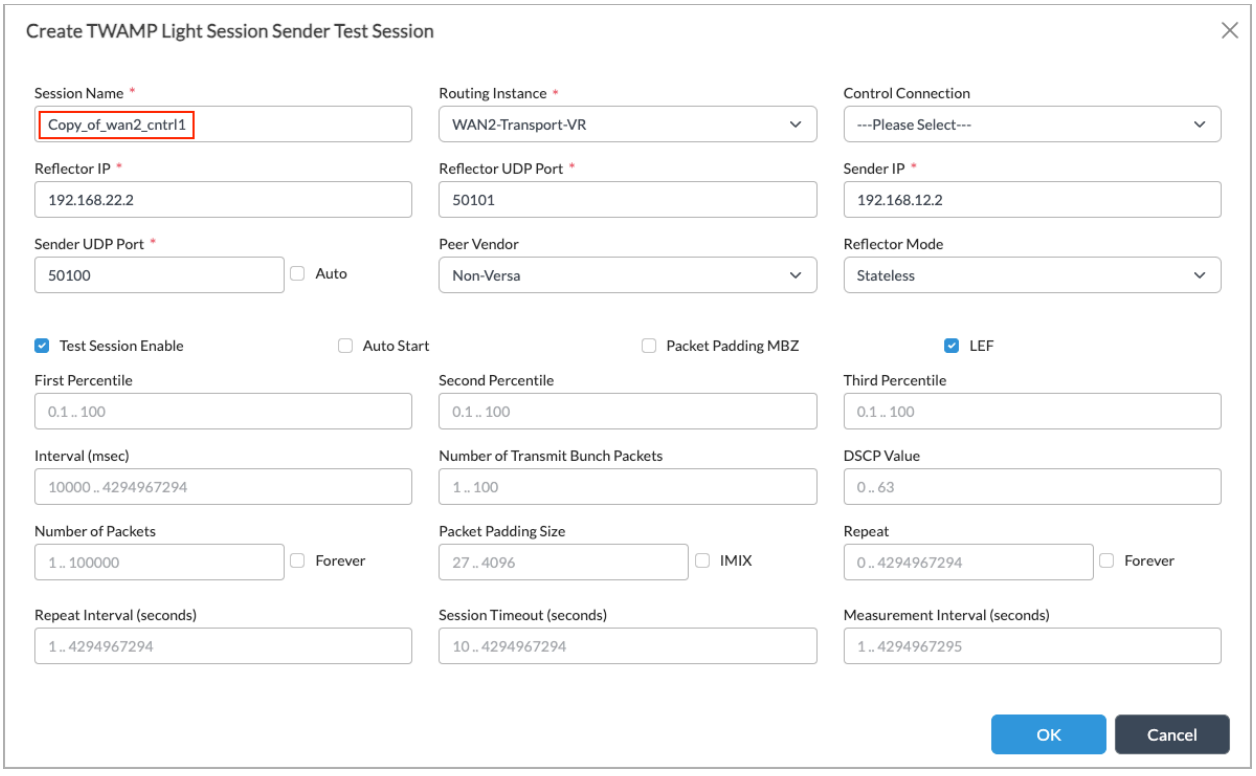
You can clone an existing session sender or session reflector test session to create a copy of the session.

To clone an existing test session:

1. In Director view:
   a. Select the Administration tab in the top menu bar.
   b. Select Appliances in the left menu bar.
   c. Click the appliance in the main pane. The view changes to Appliance view.
2. Select the Configuration tab in the top menu bar.
3. Select Networking > TWAMP > Light in the left menu bar. For Releases 22.1.1 and earlier, select Networking > TWAMP.
4. Select the Session Sender or Session Reflector tab.
5. In the Test Session table, select a session.



6. Click the Clone icon. The Edit TWAMP-Light Session Sender/Reflector Test Session popup window displays, and the existing session name is prefixed with the string "copy of."



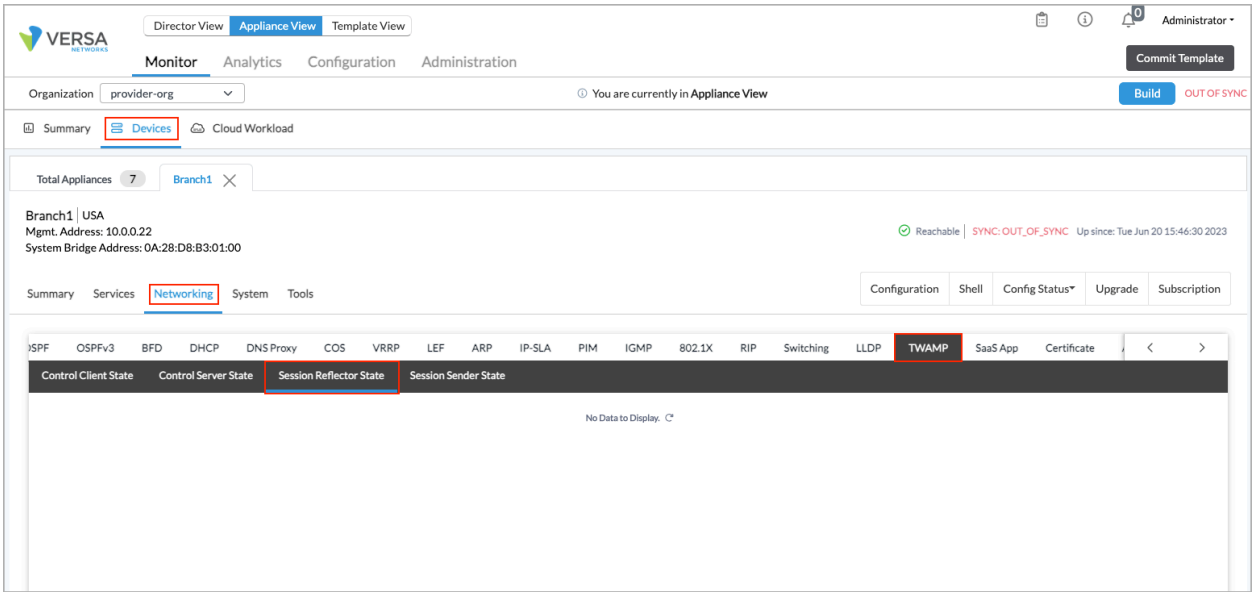
7. Enter a name for the session in the Session Name field.
8. Click OK.

Monitor Test Sessions

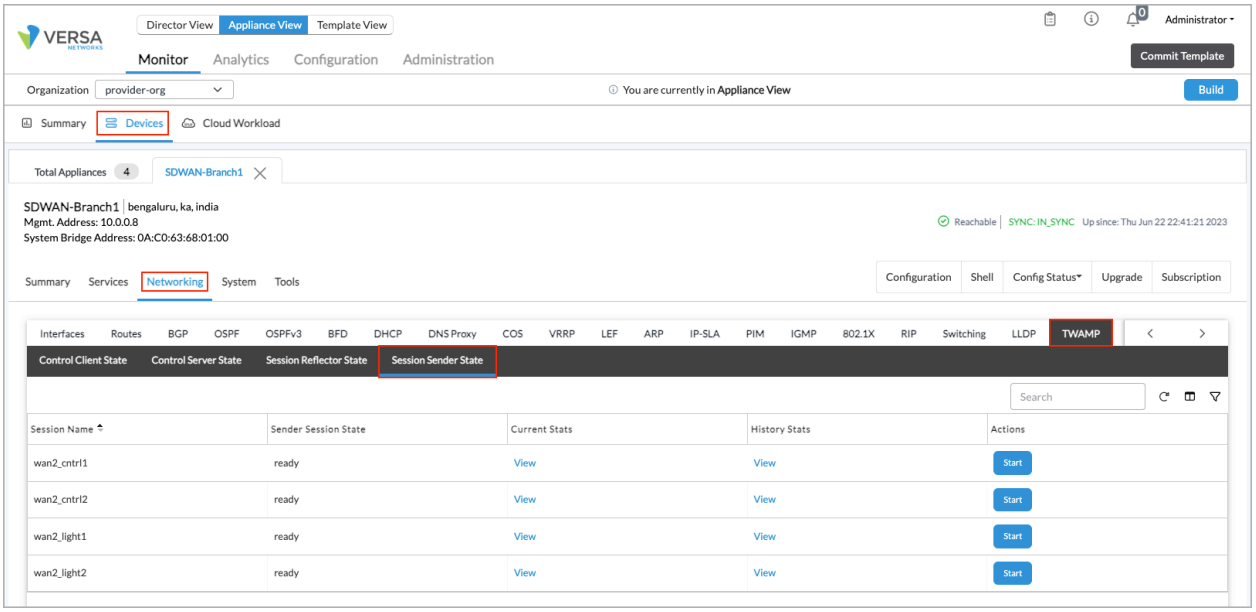
You can monitor TWAMP Light reflector and sender sessions to view the current state and statistics of the session.

To monitor a test session:

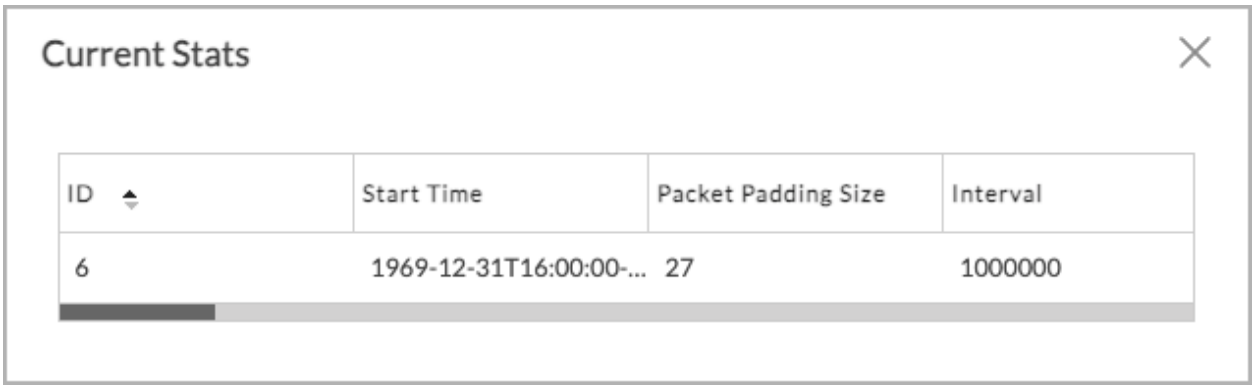
1. In Director view, select the Monitor tab in the top menu bar.
2. Select a provider organization in the Organization drop-down list.
3. Select the Networking tab in the horizontal menu bar.
4. Select TWAMP.
5. To view information about the session reflector state, select the Session Reflector State tab.



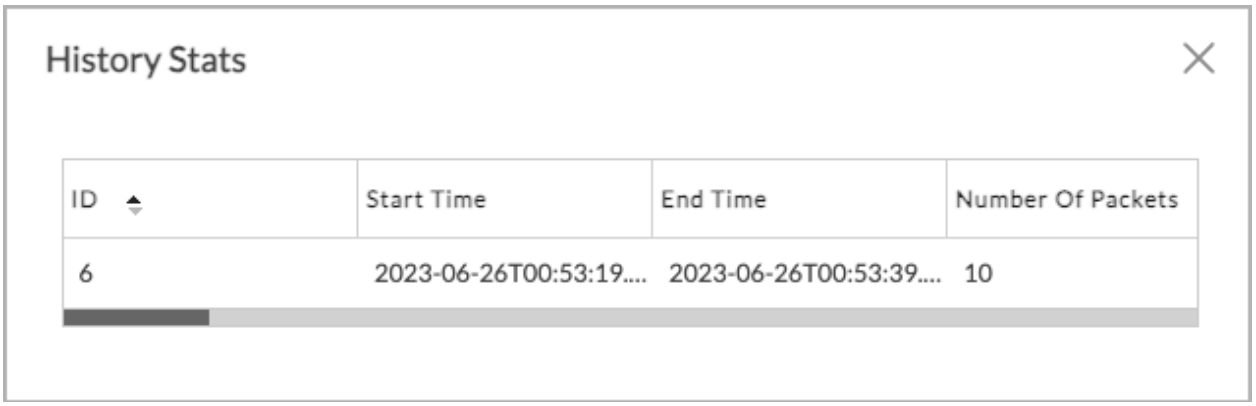
6. To view information about the session sender state, select the Session Sender State tab.



7. In the Current Statistics column, click View to display the latest statistics for a session.



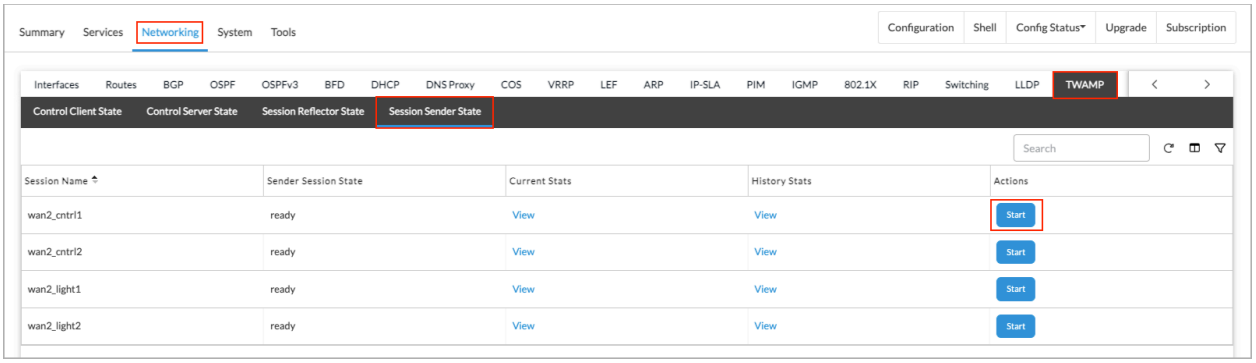
8. In the History Statistics column, click View to display the historical statistics for a sender session.



Start, Stop, or Restart a Sender Test Session

To start a session sender session:

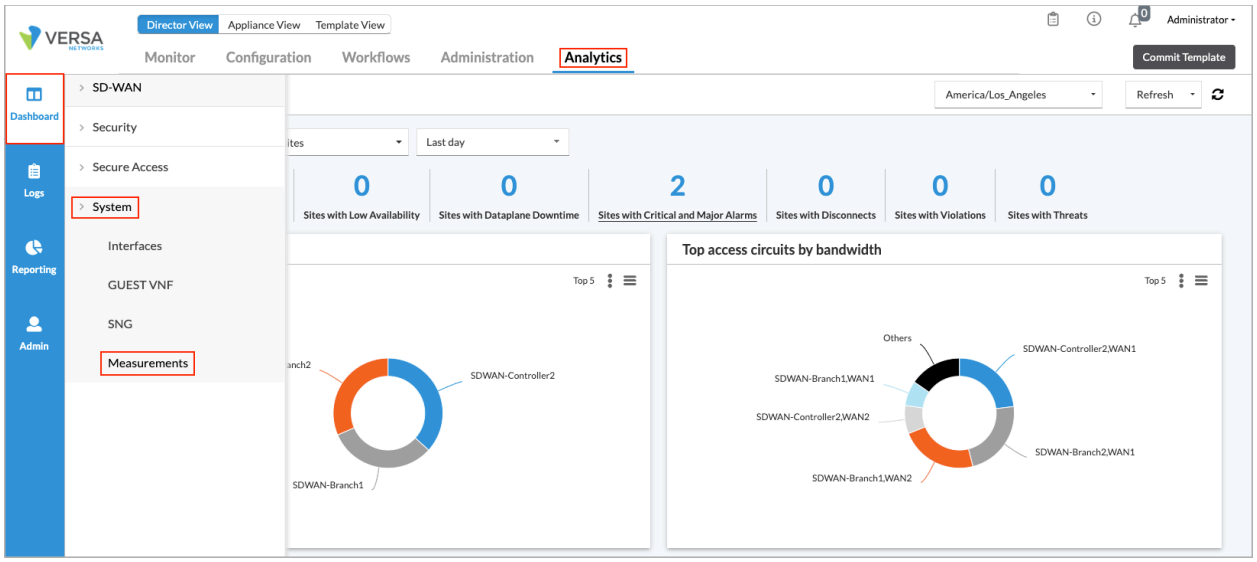
1. In Director view, select the Monitor tab in the top menu bar.
2. Select a provider organization in the Organization field.
3. Select the Networking tab in the horizontal menu bar.
4. Select TWAMP.
5. Select the Session Sender State tab.

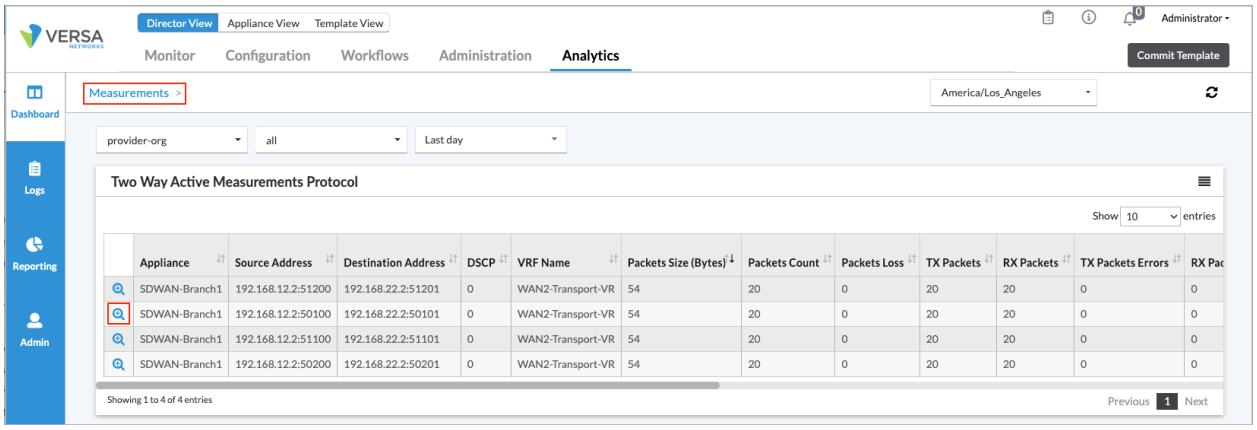


6. Click Start for the session you want to start.
7. To stop or restart a session, select the the Session Reflector State tab, and then click Stop to stop a running sender session or click Restart to restart a running sender session.

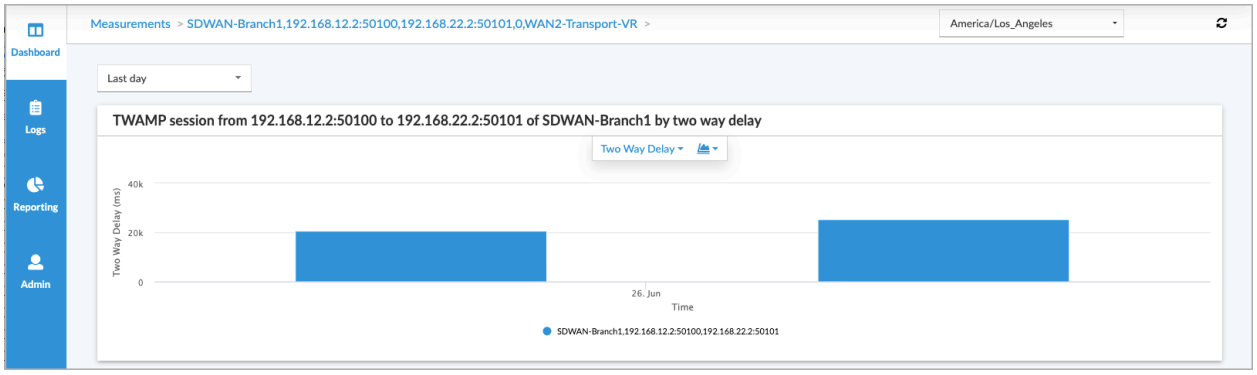
View TWAMP Light Measurement Statistics

1. In Director view, select the Analytics tab from the top menu bar. The view changes to Analytics view.
2. Select Dashboard > System > Measurements in the left menu bar to view the entries for TWAMP Light measurements.





3. Click the Zoom icon to view the details in a time-based graph.

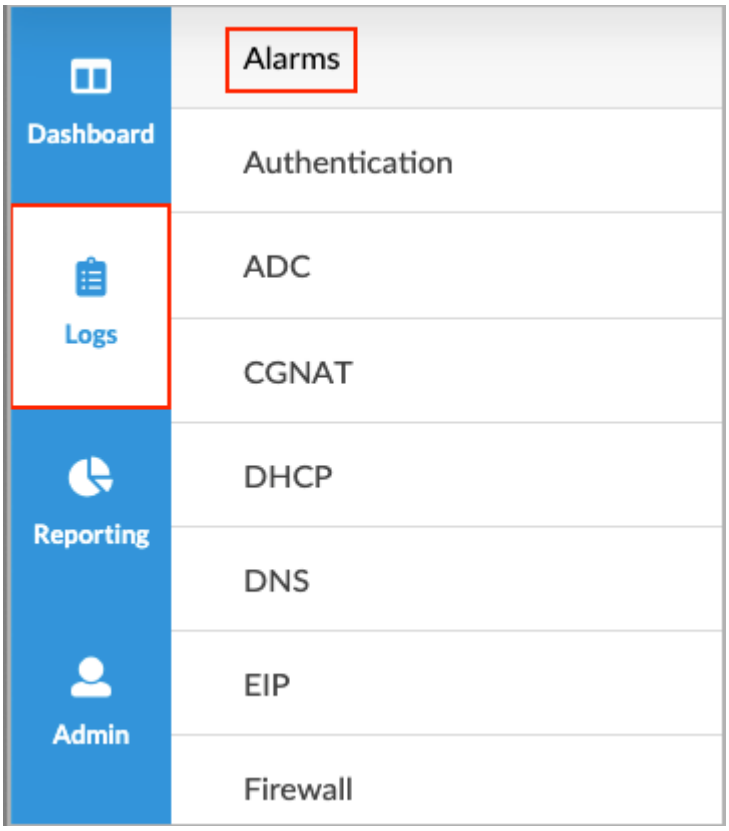


View Test Session Alarms

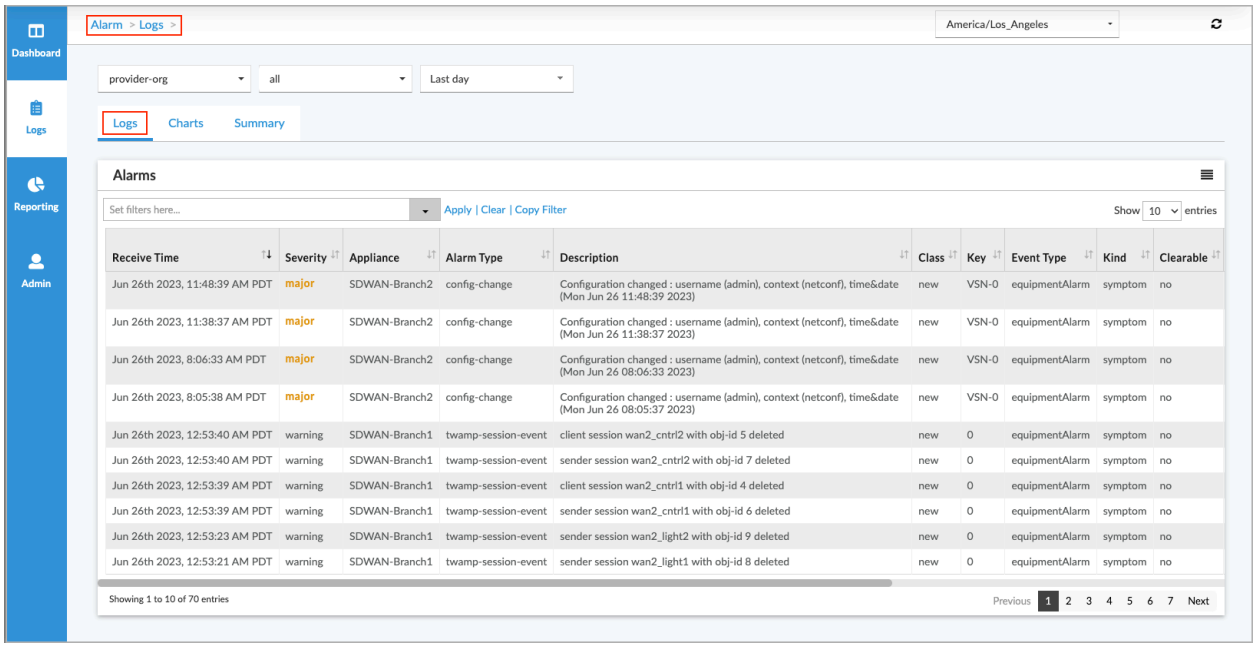
When you create or delete sessions, alarms are generated for TWAMP Light sender and reflector test sessions.

To view alarms for session sender and reflector test sessions:

1. In Director view, select the Analytics tab from the top menu bar. The view changes to Analytics view.
2. Select Logs > Alarms in the left menu bar. You can use the filter to view TWAMP Light test sessions alarms.



Updated: Wed, 23 Oct 2024 08:23:40 GMT



To view the alarms from the CLI, issue the **show alarms last-n** *number* **| grep twamp** CLI command. For example:

```
admin@SDWAN-Branch1-cli> show alarms last-n 30 | grep twamp
twamp    twampSessionEvent        2021-02-17T07:33:21-0800 Tenant1: rflctr session ref_auto_start with obj-id 1 created
twamp    twampSessionEvent        2021-02-17T07:33:21-0800 Tenant1: rflctr session tst2 with obj-id 2 created
twamp    twampSessionEvent        2021-02-17T07:33:48-0800 Tenant1: sender session tst2 with obj-id 2 created
twamp    twampSessionEvent        2021-02-17T07:33:50-0800 Tenant1: sender session tst2 with obj-id 2 deleted
twamp    twampSessionEvent        2021-02-17T07:33:56-0800 Tenant1: sender session tst4 with obj-id 4 created
twamp    twampSessionEvent        2021-02-17T07:34:07-0800 Tenant1: sender session tst4 with obj-id 4 deleted
```

Supported Software Information

Releases 21.2.1 and later support all content described in this article, except:

- Release 22.1.2 supports Versa Analytics log export functionality (LEF) in TWAMP light sessions; ads the Light and Control menus were added in the left menu bar under Networking > TWAMP.
- Release 22.1.3 supports associating a TWAMP Light sender test session with a TWAMP Control client connection, TWAMP Light reflector test session with a TWAMP Control server connection, and auto-start for a TWAMP Light reflector test session.

Additional Information

Configure TWAMP Control Client and Server Sessions
Monitor Device Services
TWAMP Logs