Configure IP SLA Monitor Objects

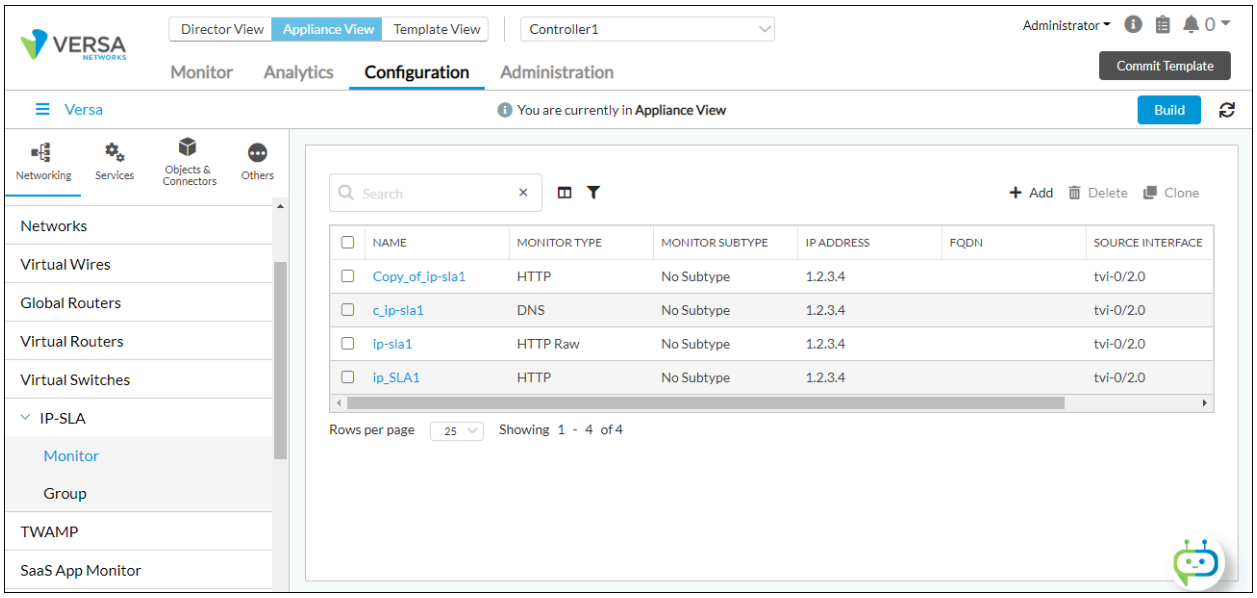
For supported software information, click here.

IP SLA monitoring is a method of actively and continuously monitoring traffic across the network and reporting about the traffic. You can monitor an IP address or a fully qualified domain name (FQDN) by configuring an IP SLA monitor object and then associating the object with the IP address or FQDN. To verify whether the IP address or FQDN is up or down, the IP SLA monitor sends either DNS, HTTP and raw HTTP, ICMP or TCP probe packets.

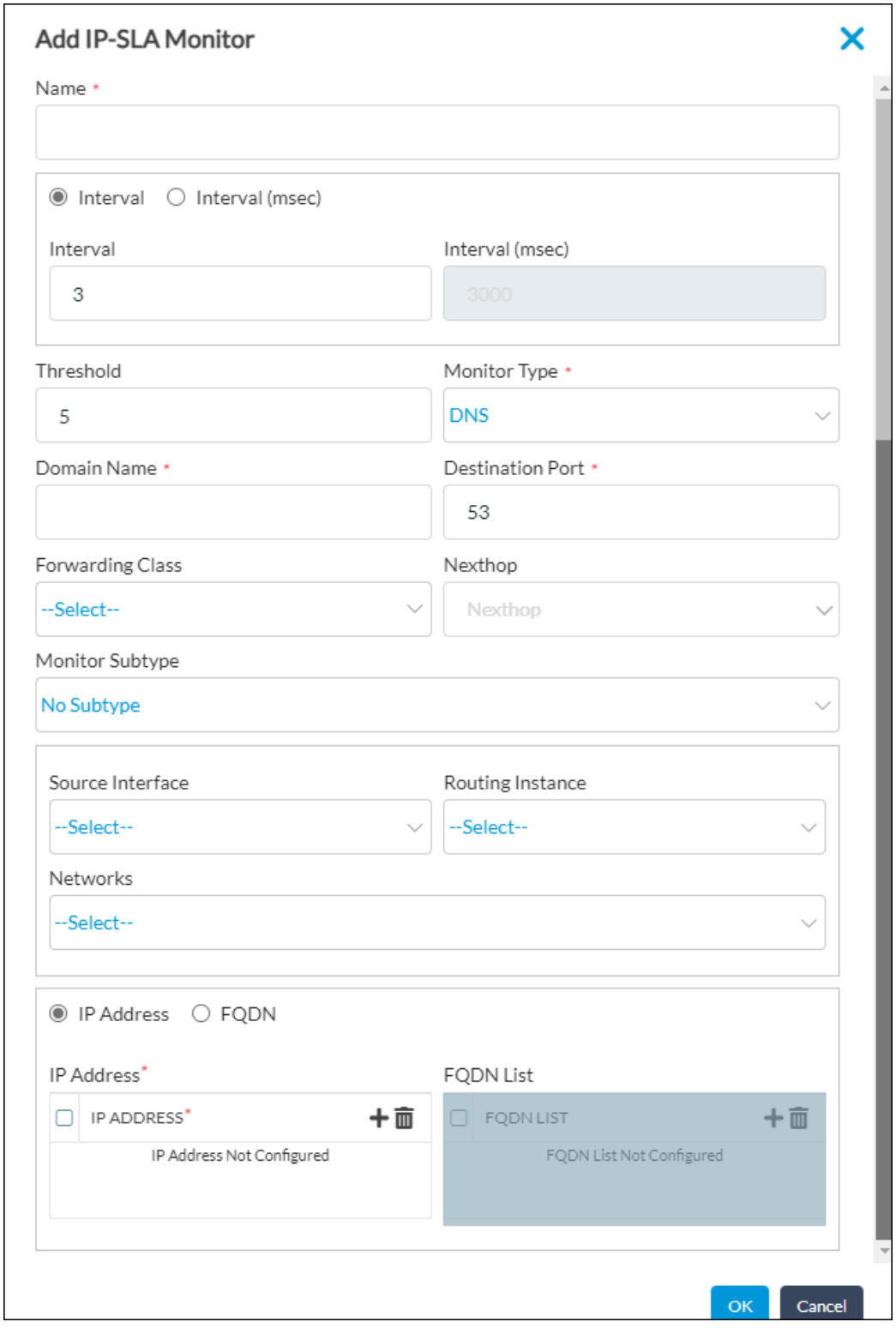
In a monitor option, you can specify either a single IP address or FQDN or a group of addresses of FQDNs. If you use FQDNs, you must also specify the system DNS server to use for the name resolution.

Configure an IP SLA Monitor Object

1. In Director view:
   a. Select the Administration tab in the top menu bar.
   b. Select Appliances in the left menu bar.
   c. Select a device name in the main panel. The view changes to Appliance view.
2. Select the Configuration tab in the top menu bar.
3. Select Networking > IP SLA > Monitor in the left menu bar. The main pane displays the IP SLA monitor objects that are already configured.



4. Click the + Add icon. In the Add IP SLA Monitor popup window, enter information for the following fields.



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Field	Description
Name (Required)	Enter a name for the IP SLA monitor object.
Interval	Click, and enter the frequency, in seconds, at which to send ICMP packets to the IP address. *Range*: 1 through 60 seconds *Default*: 3 seconds
Interval Milliseconds	Click, and enter the frequency, in milliseconds, at which to send ICMP packets to the IP address. *Range*: 100 through 60000 milliseconds *Default*: 3000 milliseconds
Threshold	Enter the maximum number of ICMP packets to send to the IP address. If the IP address does not respond after this number of packets, the monitor object, and hence the IP address, is marked as down. *Range*: 1 through 60 *Default*: 5
Monitor Type (Required)	Select the type of packets to send to the IP address: ◦ DNS ◦ (For Releases 22.1.1 and later.) HTTP ◦ (For Releases 22.1.1 and later.) HTTP Raw ◦ ICMP ◦ TCP
Domain Name (Required)	For DNS monitors and if you configure an FQDN, enter the domain name for the IP SLA monitor.
Destination Port (Required)	For DNS, HTTP, raw HTTP, and TCP monitor types, enter the destination port for the IP SLA monitor.
HTTP Response Code	(For Releases 22.1.1 and later.) For HTTP and raw HTTP monitors, enter a numeric range of status codes

	to indicate that an HTTP request has been received from the remote endpoint.
◦ HTTP Response Code Low (Required)	Enter the lowest value of the status code.
◦ HTTP Response Code High (Required)	Enter the highest value of the status code range.
HTTP Raw Request (Required)	(For Releases 22.1.1 and later.) For HTTP raw monitors, enter the HTTP request string to send generic HTTP requests to the remote endpoint. The string must include the complete HTTP request and the host attribute. For example, if you issue the HTTP request GET /vpntest HTTP/1.0\r\nUser-Agent:Versa IP SLA\r\nHost:httpserver.com\r\n\r\n;, the monitor sends a GET request to the httpserver.com to retrieve information.
Monitor Subtype	Select the monitor subtype: ◦ HA probe type—Select to avoid interchassis HA split brain. For more information, see Configure Interchassis HA. ◦ Layer 2 loopback type—Select to monitor an external service node configured as a Layer 2 loopback (virtual wire). ◦ No subtype—Do not use a monitor subtype. This is the default. *Default*: No subtype
Source Interface (Required)	Select the source interface on which to send the probe packets. This interface determines the routing instance through which to send the probe packets. This routing instance is the target routing instance for the probe packets.
Routing Instance	Select the routing instance for the monitor object to use to reach the target IP addresses and FQDNs.
Networks	
IP Address	Click to configure one or more IP addresses to monitor. You must configure either IP addresses or FQDNs.

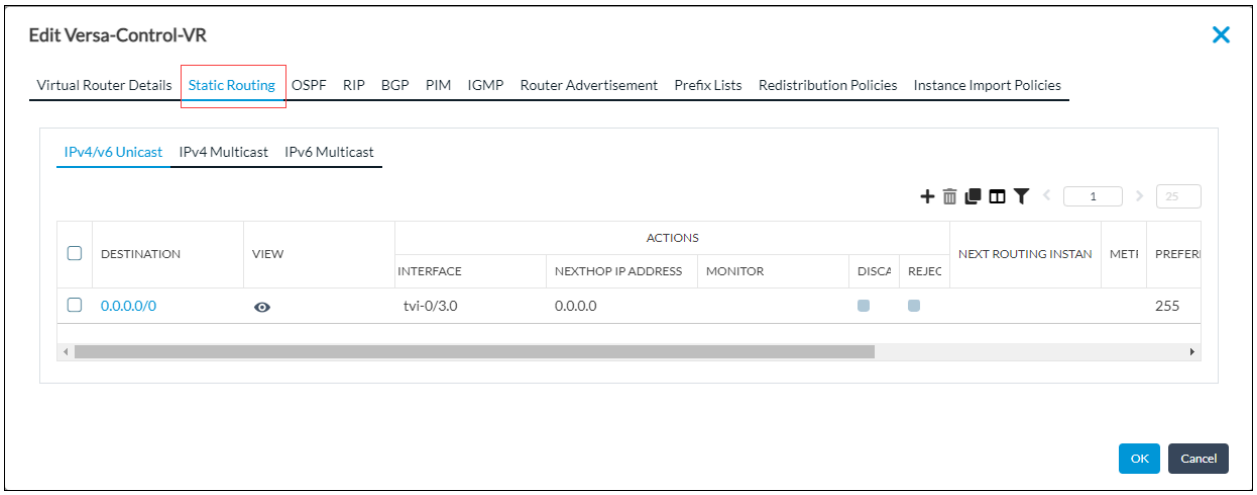
◦ IP Address (Required)	Click the + Add icon, and then select the IP address to monitor. If you select more than one IP address, all the IP addresses must be reachable for the IP monitor to be applied (this is an AND condition).
FQDN	(For Releases 22.1.1 and later.) Click to configure one or more FQDNs to monitor. You must configure either IP addresses or FQDNs.
◦ FQDN List (Required)	Click the + Add icon, and then enter the FQDN to monitor. If you select more than one FQDN, all the FQDNs must be reachable for the IP monitor to be applied (that is; it is an AND condition). When you configure FQDNs, you must also configure the system DNS server to use for the name resolution.
Forwarding Class	(For Releases 21.1.1 and later.) Select a forwarding class for the IP SLA monitor to override the default forwarding class.
Next Hop	Select the device to use as the next hop.

5. Click OK.

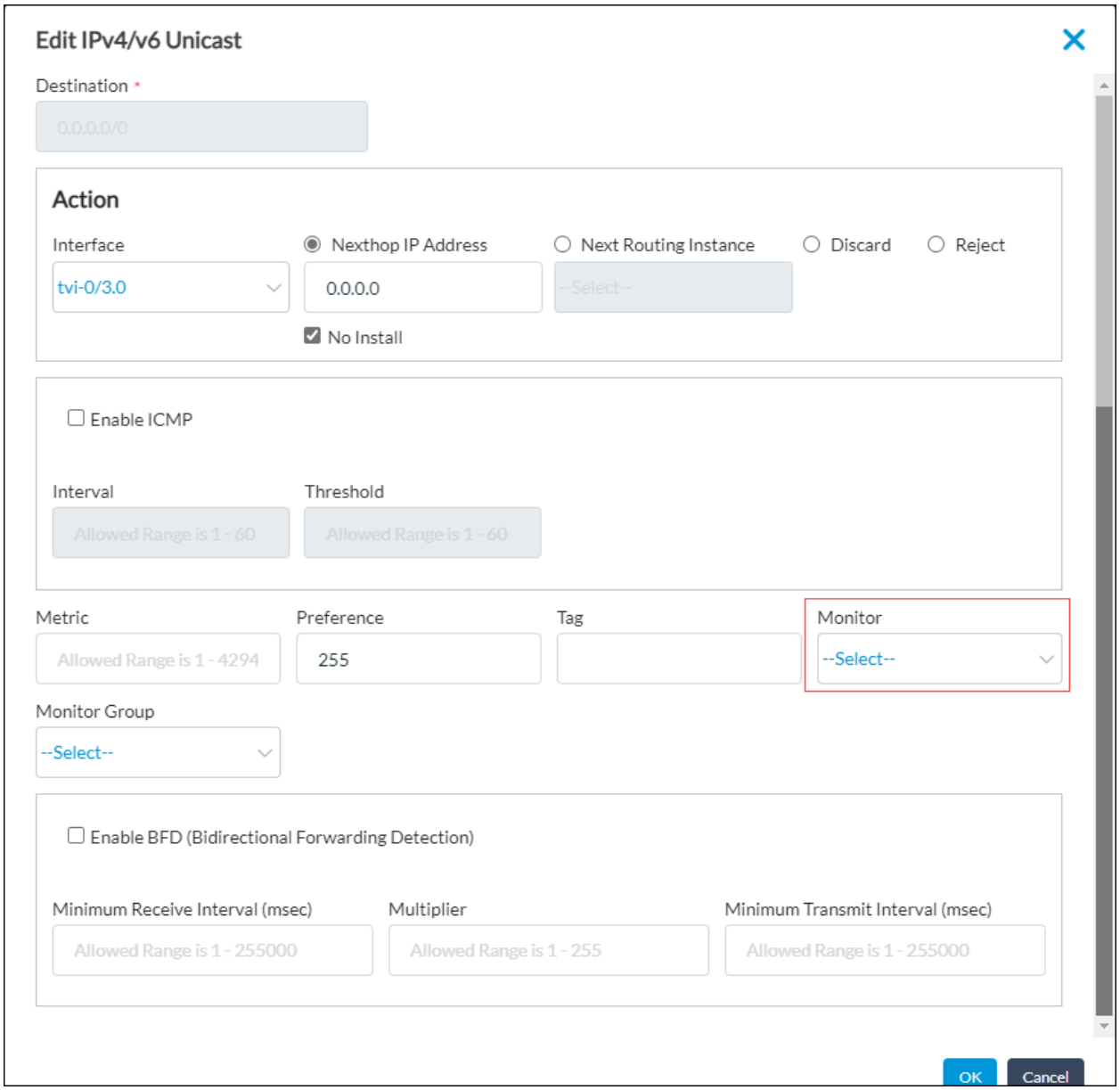
Associate an IP SLA Monitor Object with a Static Route

To associate an IP SLA monitor object with a static route in a virtual routing instance:

1. In Director view:
   a. Select the Configuration tab in the top menu bar.
   b. Select Devices > Devices in the horizontal menu bar.
   c. Select an organization in the left menu bar.
   d. Select a branch or Controller in the main pane. The view changes to Appliance view.
2. Select the Configuration tab in the top menu bar.
3. Select Networking > Virtual Routers in the left menu bar
4. Select a virtual router instance.
5. In the Edit VR popup window, select the Static Routing tab.
6. Select the IPv4/IPv6 Unicast tab in the horizontal menu bar.
7. Click the + Add icon to add a static route to associate with the monitor object. If you are adding an IP SLA monitor to an existing static route, click the name of the static route in the Destination column.



8. In the Edit Static Route popup window, in the Monitor field, select the Monitor object to monitor the static route on an IP address. If no response is received from the IP address after the configured threshold value, the static route is withdrawn.



9. Click OK.

Associate an IP SLA Monitor Object with a Redistribution Policy Term

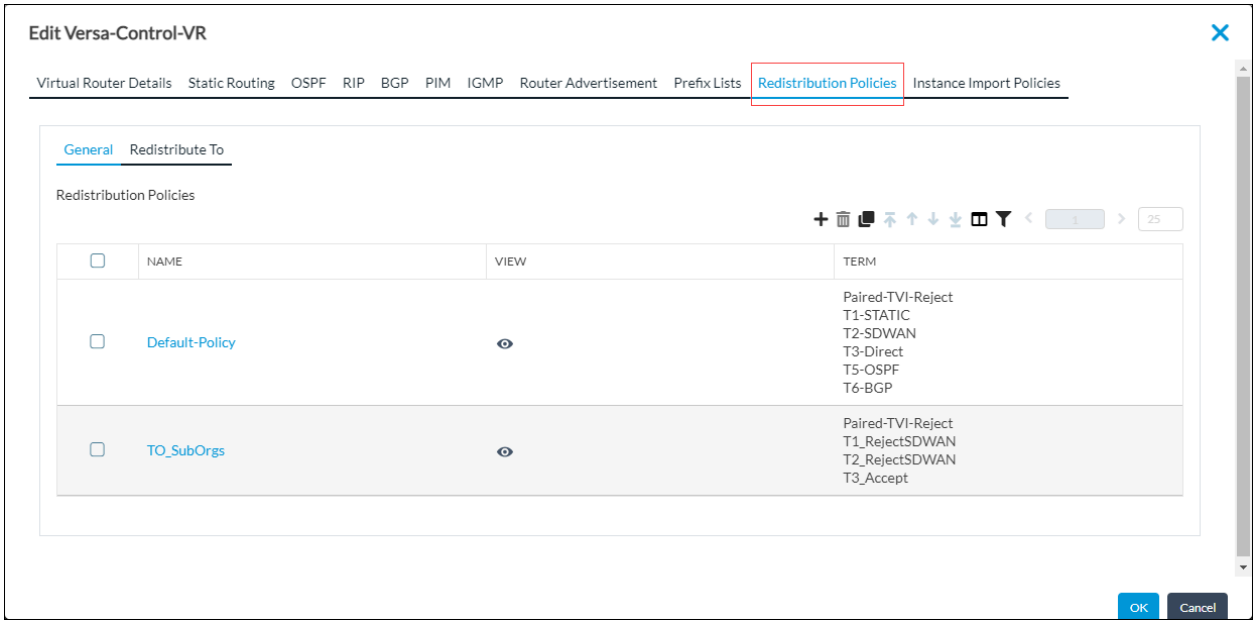
For Releases 20.2 and later.

To associate an IP SLA monitor object with a redistribution policy term for a virtual routing instance:

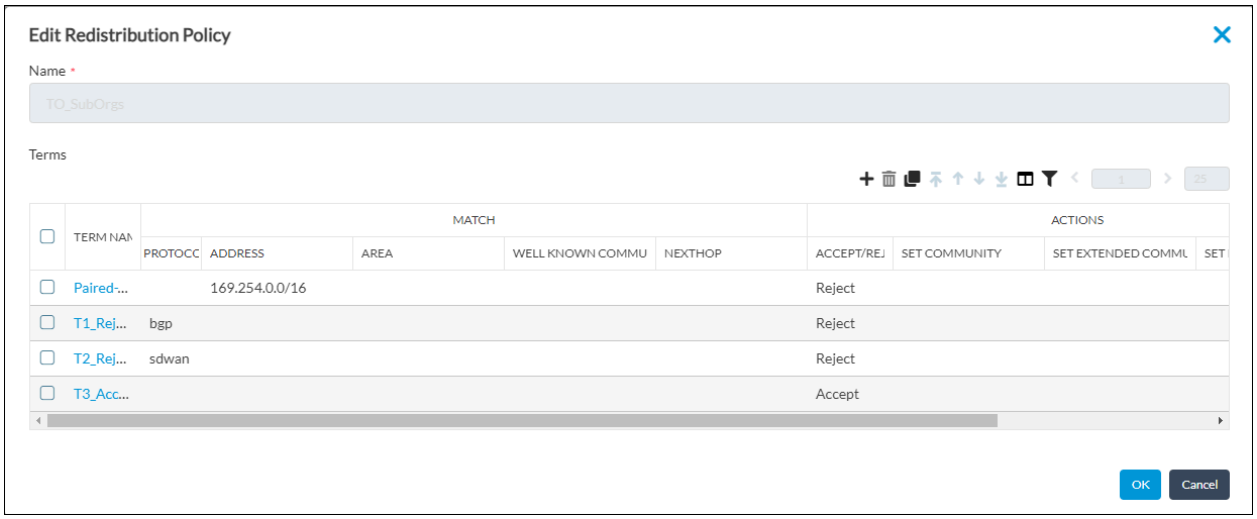
1. In the Director view:
    a. Select the Configuration tab in the top menu bar.

b. Select Devices > Devices in the horizontal menu bar.
c. Select an organization in the left menu bar.
d. Select a branch or Controller in the main pane. The view changes to Appliance view.

2. Select the Configuration tab in the top menu bar.
3. Select Networking > Virtual Routers in the left menu bar
4. Select a virtual router instance.
5. In the Edit VR popup window, select the Redistribution Policies tab and click a redistribution policy name. The Edit Redistribution Policy screen displays.



6. Click a term name. The Edit Redistribution Policy Edit Term screen displays.



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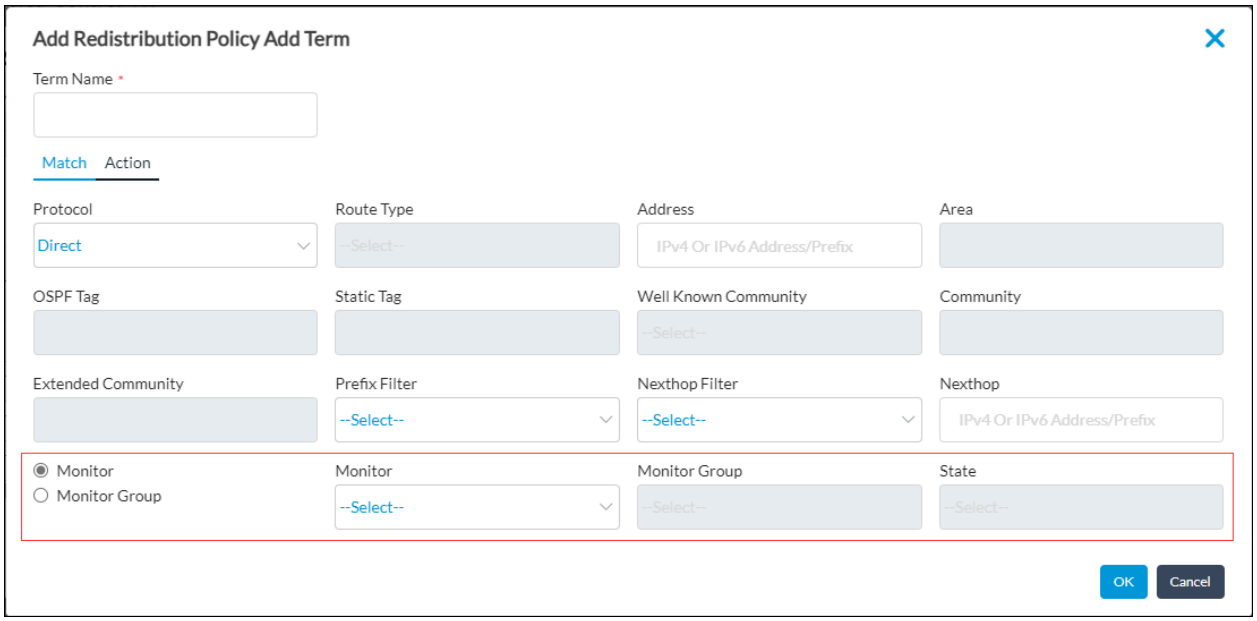
7. Click the Monitor or Monitor Group button, and select an object to monitor an IP address.



8. Click OK.

Configure SLA Monitor Optimization

For Releases 21.2.1 and later.

To optimize the behavior of an SLA monitor on a VOS device, you can set SLA options to damp link flaps, and you can enable and configure SLA monitor log optimization.

VOS devices perform SLA monitoring of SD-WAN paths to check the health of the paths. The VOS device marks a path Down if three back-to-back SLA protocol data units (PDUs) are lost, and it marks the path back Up when it again receives an SLA PDU response. As the path changes state between Up and Down, which is known as a *flap*, many events are triggered, such as alarm generation and traffic-steering evaluation. When frequent flaps occur because of lossy links, this large number of events can cause unpredictable behavior. To avoid this behavior, you can set SLA monitor options to damp the flaps.

By default, the number of flaps is counted every 60 seconds, which is called the *damping interval*. If the number of flaps exceeds ten in this interval, which is the *flap threshold*, the VOS device stops noting path state changes until the path remains stable for 300 seconds (which is the *damp clear interval*). You can change the flap threshold, damp interval, and damp clear interval by editing the SLA monitor options.

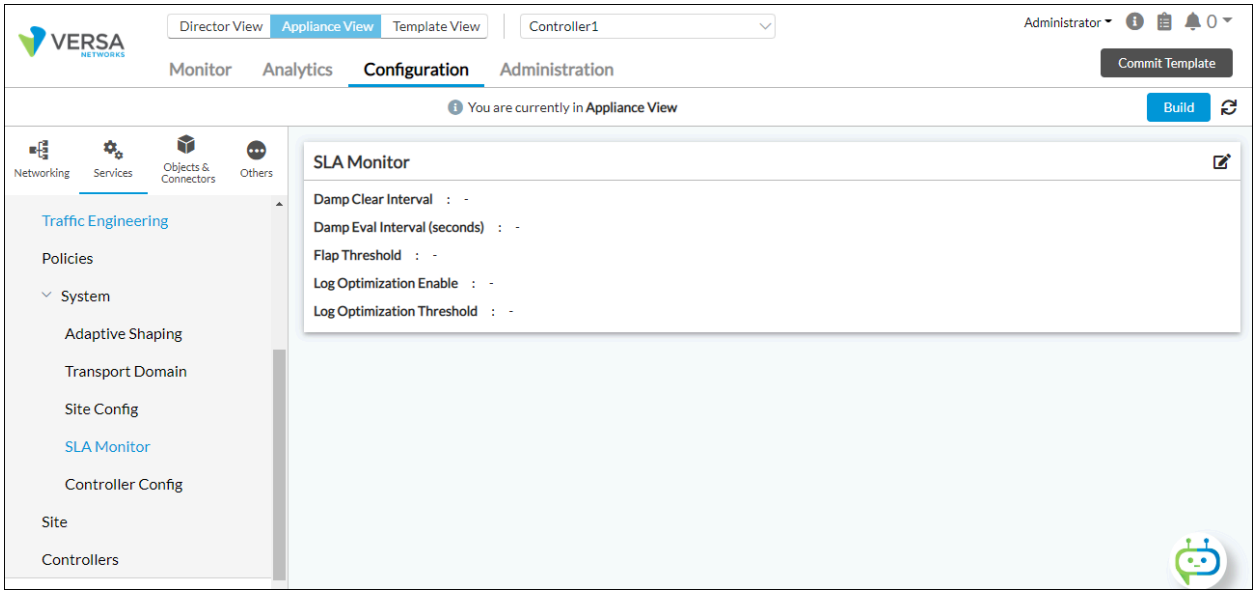
By default, SD-WAN SLA monitor logging is done every 5 minutes on every active path of a VOS device. In networks with thousands of devices configured in full-mesh, partial-mesh, or hub-and-spoke topologies, a large number of logs is

generated even when you configure adaptive monitoring. The large number of logs can cause scaling and performance issues on Analytics nodes and can lead to a lag when you are viewing recent log data. To avoid this situation, you can enable and configure SLA monitor log optimization.

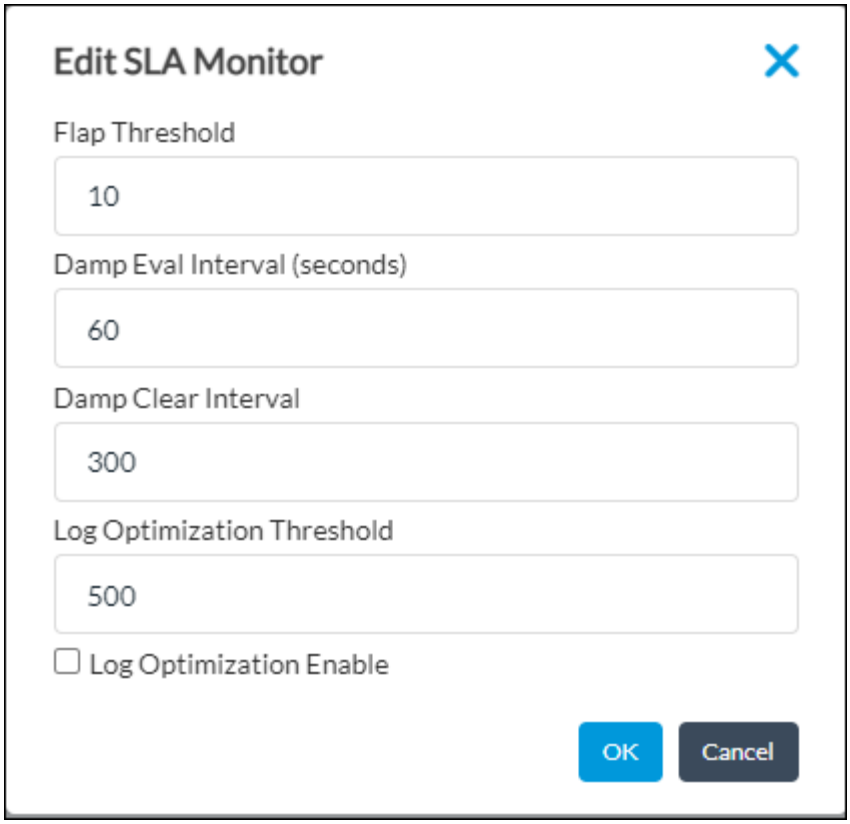
You configure SLA monitor log optimization in the SLA monitor settings for a VOS device. When you enable log optimization, you set a threshold for the average number of SLA monitor logs sent every 5 minutes from the VOS device. If the threshold is exceeded, the VOS device enters log optimization mode. In this mode, for certain metrics, such as those that fluctuate very little over a time period, the VOS device aggregates the metrics in multiple logs into a single log, thus reducing the number of logs sent. The VOS device remains in log optimization mode for 60 minutes, and then the threshold is checked again. If the average number of logs is less than the threshold, the device reverts to the default log mode. You cannot change the amount of time that the VOS device is in log optimization mode.

To configure SLA monitor optimization:

1. In Director view:
    1. Select the Configuration tab in the top menu bar.
    2. Select Devices > Devices in the horizontal menu bar.
    3. Select an organization in the left menu bar.
    4. Select a branch or Controller in the main pane. The view changes to Appliance view.
2. Select the Configuration tab in the top menu bar.
3. Select Services > SD-WAN > System > SLA Monitor in the left menu bar. The main pane displays the SLA Monitor pane.



4. Click the Edit icon. In the Edit SLA Monitor screen, enter information for the following fields.



Field	Description
Flap Threshold	Enter the flap threshold. *Range*: 2 through 100 *Default*: 10
Damping Evaluation Interval	Enter the damping evaluation interval. *Range*: 60 through 300 seconds *Default*: 60 seconds
Damping Clear Interval	Enter the damping clear interval. *Range*: 60 through 3600 seconds *Default*: 300 seconds

Field	Description
Log Optimization Threshold	When you enable SLA monitor log optimization, enter the threshold for the average number of logs sent every 5 minutes. *Range*: 10 through 5000 *Default*: 500
Log Optimization Enable	Click to enable SLA monitor log optimization.

5. Click OK.

Supported Software Information

Releases 20.2 and later support all content described in this article, except:

- Releases 21.1.1 and later, add selecting a forwarding class for an IP SLA monitor to override the default forwarding class.
- Releases 21.2.1 and later, add support for configuring SLA monitoring log optimization.
- Releases 22.1.1 and later add support for HTTP and HTTP raw monitor types and for monitoring using FQDNs.

Additional Information

Configure Interchassis HA
Versa Analytics Scaling Recommendations