



Configure Interfaces



For supported software information, click [here](#).

It is recommended that you configure interfaces on Versa Operating System™ (VOS™) devices using Workflows, as described in Create Device Templates, in [Configure Basic Features](#). You can also configure them manually, as described in this article.

This article describes how to configure the following types of interfaces on VOS devices:

- Ethernet for WAN networks
- Ethernet for LAN networks
- IRB
- T1/E1
- Tunnel
- GRE tunnel
- DSL
- WiFi
- WWAN (LTE in earlier releases) for LTE, 4G, and 5G services
- uCPE
- Loopback
- Management

Configure WAN Ethernet Interfaces

You can configure the following types of Ethernet interfaces for WAN networks on VOS devices:

- Gigabit Ethernet
- 10-Gigabit Ethernet

WAN Ethernet interfaces are named with the prefix *vni*, for example, vni0/1.

To configure an Ethernet interface:

1. In Director view:

https://docs.versa-networks.com/Secure_SD-WAN/01_Configuration_from_Director/Common_Configuration/Configure_Interf...

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- a. Select the Configuration tab in the top menu bar.
 - b. Select Templates > Device Templates in the horizontal menu bar.
 - c. Select an organization in the left menu bar.
 - d. Select a post-staging template in the main pane. The view changes to Appliance view.
2. Select the Configuration tab in the top menu bar.
3. Select Networking > Interfaces in the left menu bar. The Interfaces dashboard displays.
-
- | Name | Description | Interfaces | IP Address/Prefix |
|---------|-------------|------------|-------------------|
| vni-0/0 | | vni-0/0.0 | DHCPv4 |
| vni-0/1 | | vni-0/1.0 | DHCPv4 |
| vni-0/2 | | vni-0/2.0 | 192.168.106.1/24 |

4. Click the Add icon. In the Add Ethernet Interface popup window, select the Ethernet tab, and then enter information for the following fields.

Add Ethernet Interface

Ethernet Aggregate Ethernet

Interface*
vni / Disable

Description

Tags

Promiscuous Virtual Wire Mirror Interface

PPPoE base Interface

Native VLAN ID

MTU Outer TPID

Bandwidth Others Hold Time POE Multihoming

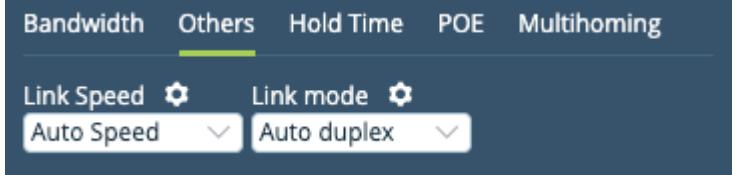
Uplink (Kbps) Downlink (Kbps)

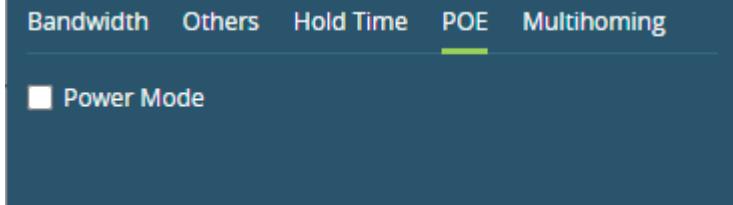
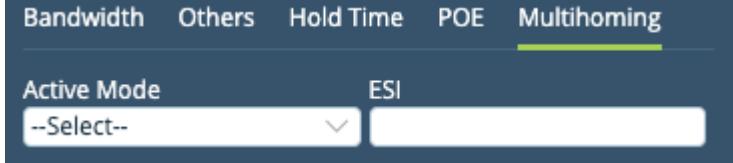
Sub-interfaces Sub-interface Aggregate Member

<input type="checkbox"/> Unit	IP Address/Mask	DHCP V4	DHCP V6	MTU	In
	IPv4	IPv6			
NO SUB-INTERFACES ADDED					

OK **Cancel**

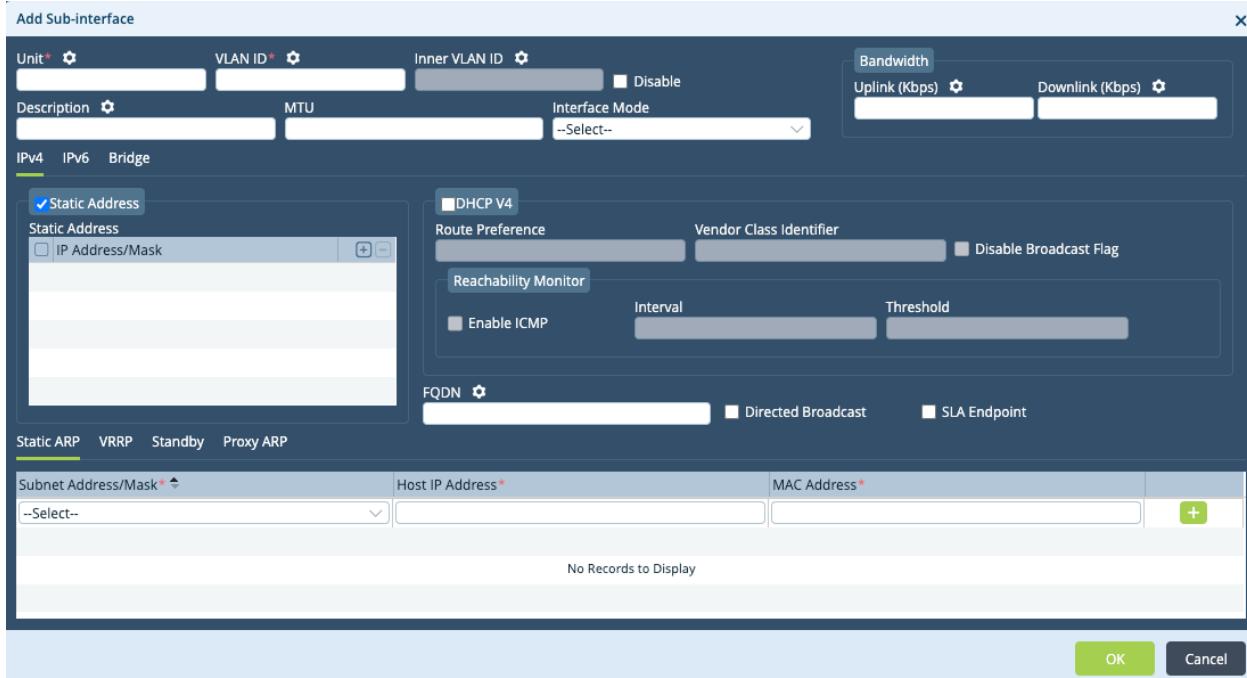
Field	Description
Interface	Enter the port and slot numbers for the VNI interface.
Disable	Click to not activate the interface after you configure it.
Description	Enter a text description for the interface. It can be a text string up to 255 characters.
Tags	Enter text strings that describe the Ethernet interface.
Promiscuous	Click to have the interface accept all data packet sent towards it.
Virtual Wire	Click if the interface is part of a virtual wire. When you select this option, you cannot configure any other parameters on the popup window.
Mirror Interface	Click to create a copy of the interface.
PPPoE-Based Interface	Click to have the interface act as a Point-to-Point Protocol over Ethernet (PPPoE) interface. In a PPPoE session, the device encapsulates each Point-to-Point Protocol (PPP) frame in an Ethernet frame and transports the frames over an Ethernet loop.
Native VLAN ID	Enter the native VLAN ID for the Ethernet interface.
MTU	Enter the maximum transmission unit size, in bytes, of the largest protocol data unit that the port can receive or transmit. <i>Range:</i> 72 through 9000 bytes
Outer TPID	(For Releases 20.2 and later.) Select the outer tag protocol identifier (TPID), which is a 16-bit field that identifies the frame as an IEEE 802.1Q-tagged frame: <ul style="list-style-type: none">◦ 0x8100◦ 0x88a8—Select if you are configuring Q-in-Q for routed interfaces (dual VLAN).
Bandwidth (Tab)	Specify the bandwidth available on a link to upload and download data. This information is used in computing adaptive traffic shaping.
◦ Uplink	Enter the bandwidth available on the link for uploading data, in kilobits per second (Kbps).

	<p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
◦ Downlink	<p>Enter the bandwidth available on the link for downloading data, in kilobits per second (Kbps).</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
Others (Tab)	<p>For bare-metal devices only.</p>  <p>The screenshot shows a tabbed interface with 'Others' selected. Under 'Link Speed', 'Auto Speed' is chosen. Under 'Link mode', 'Auto duplex' is chosen.</p>
◦ Link Speed	<p>Select the speed of the link:</p> <ul style="list-style-type: none"> ◦ Auto Speed ◦ 10-Mbps Interface ◦ 100-Mbps Interface ◦ 1-Gbps Interface
◦ Link Mode	<p>Select the mode to use on the link:</p> <ul style="list-style-type: none"> ◦ Auto Duplex ◦ Half-Duplex Interface ◦ Full-Duplex Interface
Hold Time (Tab)	 <p>The screenshot shows a tabbed interface with 'Hold Time' selected. Under 'Link up', there is a large empty input field.</p>
◦ Link Up	<p>Enter the link up hold time, in milliseconds. When you configure a link up hold time, when the interface state goes from Down to Up, the hold time is triggered. The</p>

	<p>VOS device holds the link state as down for the configured interval, and any interface state transitions that occur during this time are ignored. When the hold time expires, if the interface state is Up, the VOS device advertises the interface as being active.</p> <p><i>Range:</i> 0 through 4294967295 milliseconds</p> <p><i>Default:</i> None</p>
Power over Ethernet (PoE) (Tab)	<p>(For Releases 21.2.1 and later.) Configure PoE parameters on PoE interfaces for CSG appliances. When configuring PoE, you can enable the PoE interface for the port to provide power to a connected device. When a new device connects on a higher-priority port, a lower-priority port is powered off automatically if the overall power budget of the NIC is exceeded.</p> 
◦ Power Mode	Click to enable power mode.
Multihoming (Tab)	<p>(For Releases 21.2.1 and later.) Configure the EVPN multihoming mode.</p> 
◦ Active Mode	Select the active mode:

	<ul style="list-style-type: none"> ◦ All Active ◦ Single Active
◦ ESI	Enter a hexadecimal list for the Ethernet Segment Indicator (ESI).

5. Click Subinterfaces, and then click the  Add icon to add a subinterface. You can configure up to 4095 subinterfaces on an interface. Enter information for the following fields.

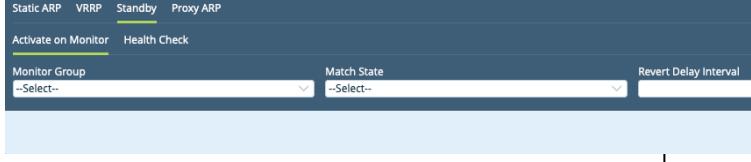


The screenshot shows the 'Add Sub-interface' configuration dialog box. It includes fields for Unit, VLAN ID, Inner VLAN ID, Disable, Description, MTU, Interface Mode, Bandwidth, and various networking options like Static Address, DHCP V4, and Reachability Monitor. The IPv4 tab is active. At the bottom are OK and Cancel buttons.

Field	Description
Unit	Enter a unit number for the subinterface.
VLAN ID	Enter the virtual LAN ID for the subinterface. <i>Range:</i> 0 through 4094
Inner VLAN ID	Enter the inner VLAN ID for the subinterface.
Disable	Click to not activate the subinterface after you configure it.
Bandwidth (Group of Fields)	

Field	Description
<ul style="list-style-type: none"> ◦ Uplink 	<p>Enter the bandwidth available on the subinterface for uploading data, in kilobits per second (Kbps). If you configure SD-WAN traffic steering, this value is used by the selection connection method that selects how to forward a traffic flow when multiple available WAN paths have the highest priority. For more information, see Configure SD-WAN Traffic Steering. Note that this value does not affect the CoS (QoS) configuration on the interface.</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
<ul style="list-style-type: none"> ◦ Downlink 	<p>Enter the bandwidth available on the subinterface for downloading data, in kilobits per second (Kbps). If you configure SD-WAN traffic steering, this value is used by the selection connection method that selects how to forward a traffic flow when multiple available WAN paths have the highest priority. For more information, see Configure SD-WAN Traffic Steering. Note that this value does not affect the CoS (QoS) configuration on the interface.</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
Description	Enter a text description for the subinterface. It can be a text string up to 255 characters.
MTU	<p>Enter the size, in bytes, of the largest protocol data unit that the subinterface can receive or transmit.</p> <p><i>Range:</i> 72 through 9000 bytes</p>
Interface Mode	<p>Select the interface mode:</p> <ul style="list-style-type: none"> ◦ Normal ◦ NSH Reflect

Field	Description
	◦ Redundancy
IPv4 (Tab)	
◦ Static Address	Click to use a static IPv4 address for the subinterface.
◦ IP Address/Mask	Click the  Add icon and enter the IP address and prefix length.
DHCPv4	Click to use DHCP to assign an IPv4 address for the subinterface.
◦ Route Preference	<p>Enter the preference for the traffic route. A lower value indicates a higher preference.</p> <p><i>Range:</i> 1 through 255</p> <p><i>Default:</i> None</p>
◦ Vendor Class Identifier	(For Releases 21.2.1 and later.) Enter the vendor class identifier.
◦ Disable Broadcast Flag	Click to disable broadcast on the subinterface's network.
◦ Reachability Monitor	<p>To configure the reachability monitor, enter information for the following fields:</p> <ul style="list-style-type: none"> ◦ Enable ICMP—Click to enable ICMP on the subinterface. ◦ Interval—Enter the time interval after which ICMP reports error messages. ◦ Threshold—Enter the maximum number of ICMP error messages to report.
FQDN	Enter the fully qualified domain name for the IPv4 subinterface.
Directed Broadcast	Click to enable directed broadcast, which sends broadcast packets targeted at hosts in a specified subnet.

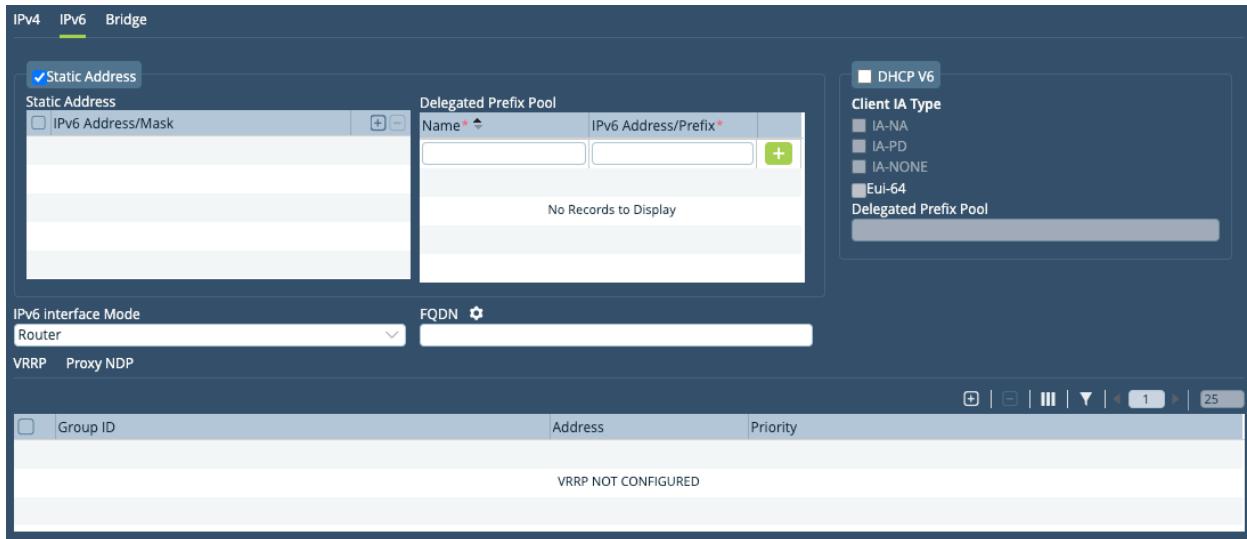
Field	Description
SLA Endpoint	Click if the subinterface is an SLA endpoint.
Static ARP (Tab)	Select to configure a static ARP mapping.
◦ Subnet Address/Mask	Select the static address and mask.
◦ Host IP Address	Enter the IP address of the host.
◦ MAC Address	Enter the MAC address of the host.
◦  Add icon	Click the add icon to configure a static ARP mapping.
VRRP (Tab)	To configure VRRP, see Steps 9 and 10, below.
Standby (Tab)	
	<p>Select the Activate on Monitor tab, and enter information for the following fields.</p> 
◦ Activate on Monitor (Tab)	<ul style="list-style-type: none"> ◦ Monitor Group—Select a monitor group. ◦ Match State—Select a match state: <ul style="list-style-type: none"> ▪ Down ▪ Up ◦ Revert Delay Interval—Enter the revert interval delay value, in seconds. <p><i>Range:</i> 1 through 360 seconds</p> <p><i>Default:</i> 10 seconds</p>

Field	Description
	<p>(For Releases 21.2.1 and later.) Perform a periodic health check on an interface. Enter information for the following fields.</p> <ul style="list-style-type: none"> Health Check (Tab) Track Monitor—Select a monitor to track. Interval— How long to wait before performing a health check on an interface. <i>Range:</i> 1 through 720 hours <i>Default:</i> 10 hours Wait Interval—How long to wait for the monitor to evaluate the health of an interface. <i>Range:</i> 1 through 59 minutes <i>Default:</i> 10 minutes
Proxy ARP (Tab)	<p>(For Releases 21.2.1 and later.) Configure proxy ARP.</p> <p>To use proxy ARP, you configure a set of IPv4 subnet prefixes or prefix ranges to which proxy ARP on the VOS device responds if no ARP entry for an IP address is available. Using a proxy ARP allows a VOS device to respond to ARP requests for IP addresses configured in NAT pools that are both within and outside of the interface's subnet. Proxy ARP provides</p>

Field	Description
	<p>local responses, allowing a VOS device to reduce the amount of broadcast traffic over Layer 2 networks (such as EVPN) across SD-WAN and VXLAN.</p> <p>The MAC address used in response to proxy ARP requests is the port's physical MAC address, which is the MAC address used in response to the interface IP address.</p> <p>When the VOS device installs proxy ARP addresses and responds to proxy ARP requests, the VOS device considers the interface's VRRP state. If the VRRP interface state is not active, the VOS device does not respond to an ARP request for these IP addresses, and the control plane removes the entries provisioned in the data path. This behavior is similar to how devices configured with VRRP respond to the VRRP virtual IP address.</p> <p>When you enable proxy ARP, the existing static ARP configuration in the IPv4 address hierarchy remains unchanged.</p> <p>Note that the IP address range or subnet that you configure for proxy ARP does not need to be within the interface's subnet. You must ensure that the requestor or the peer is in same subnet as the interface IP address.</p>
<ul style="list-style-type: none"> ◦ Proxy ARP Addresses 	<p>Click the  Add icon, and enter the proxy ARP addresses. You can add multiple proxy ARP addresses.</p>
<ul style="list-style-type: none"> ◦ Proxy ARP Address Ranges 	<p>Enter the following information:</p> <ul style="list-style-type: none"> ◦ Range Name—Enter a name for the address range. ◦ IP High—Enter the highest IP address in the address range. ◦ IP Low—Enter the lowest IP address in the address range.

Field	Description
	<ul style="list-style-type: none"> Click the Add icon to add the address range.

6. Click OK.
7. Select the IPv6 tab in the Add Subinterface screen, and enter information for the following fields.



Field	Description
Static Address	Click to use a static IPv6 address for the subinterface.
IPv6 Address/Mask	Click the Add icon, and enter the IPv6 address and prefix length of the static address.
Delegated Prefix Pool	Enter the name and IPv6 address of a delegated prefix pool, and then click the Add icon to add the prefix pool.
DHCPv6 (Group of Fields)	Click to use DHCP to assign an IPv6 address for the subinterface.
Client IA Type	Select the client identity-association (IA) type, which is a collection of addresses assigned to a client: <ul style="list-style-type: none"> EUI-64 (Extended Unique Identifier)—Allows a host to assign itself a unique 64-bit IPv6 interface

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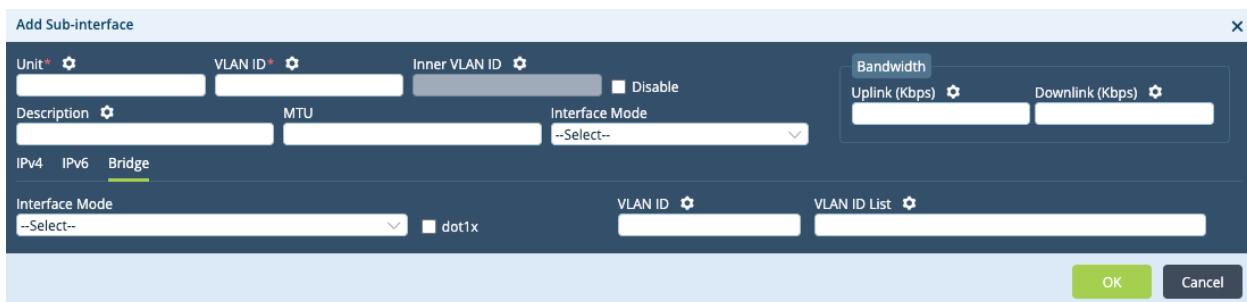
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Field	Description
	<p>identifier</p> <ul style="list-style-type: none"> ◦ IA-NA (non-temporary addresses) ◦ IA-NONE ◦ IA-PD (prefix delegation)
<ul style="list-style-type: none"> ◦ Delegated Prefix Pool 	<p>For client IA type IA-PD, enter the IP address of the delegated prefix pool.</p>
IPv6 Interface Mode	<p>Select the IPv6 interface mode:</p> <ul style="list-style-type: none"> ◦ Host—This is the default. Use to configure stateful DHCPv6. ◦ Router—Select to configure stateless automatic address configuration (SLAAC). You must also configure a router advertisement that corresponds to the IPv6 address and prefix length. For more information, see Configure Virtual Routers.
FQDN	<p>Enter the fully qualified domain name for the IPv6 subinterface.</p>
VRRP (Tab)	<p>To configure VRRP, see Steps 9 and 10 below.</p>
Proxy NDP (Tab)	 <p>(For Releases 21.2.1 and later.) Configure proxy Neighbor Discovery Protocol (NDP).</p> <p>To use proxy NDP, you configure a set of IPv6 subnet prefixes or prefix ranges to which proxy NDP on the VOS device responds if no NDP entry for an IP address is available. Proxy NDP allows a VOS device to respond to NDP requests for IP addresses configured in NAT pools that are both within and outside of the interface's subnet. Proxy NDP provides</p>

Field	Description
	<p>local responses, allowing a VOS device to reduce the amount of broadcast traffic over Layer 2 networks (such as EVPN) across SD-WAN and VXLAN.</p> <p>IPv6 NAT supports proxy NDP for Network Prefix Translation version 6 (NPTv6).</p> <p>Click the  Add icon to configure IPv6 addresses and prefix lengths for proxy NDP. The IP address range or subnet that you configure for proxy NDP does not need to be within the interface's subnet. You must ensure that the requestor or the peer is in same subnet as the interface IP address.</p>

- Select the Bridge tab, and enter information for the following fields.



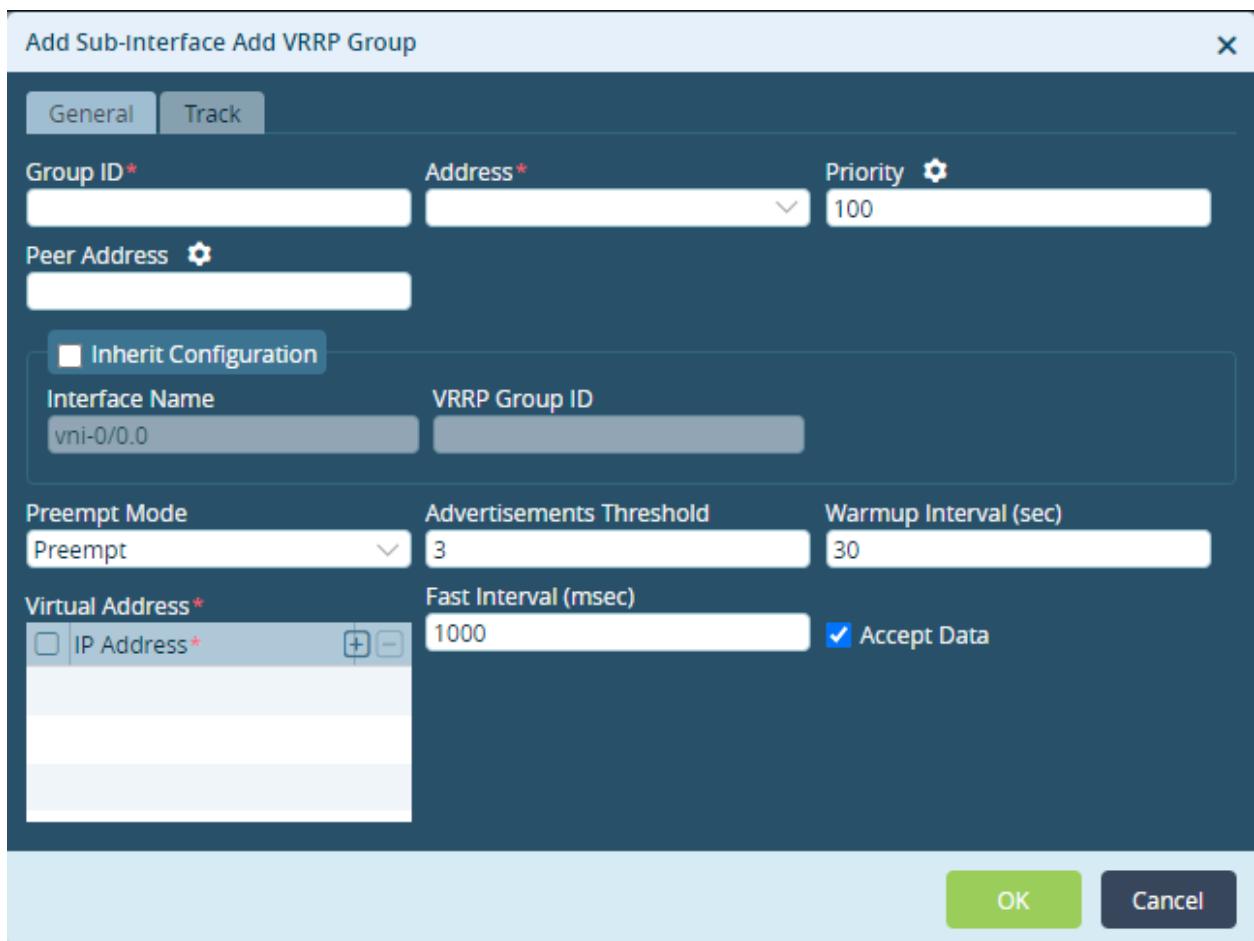
The screenshot shows the 'Add Sub-interface' dialog box. The 'Bridge' tab is selected. The 'Unit*' field is required. The 'VLAN ID*' and 'Inner VLAN ID*' fields are also required. There is a 'Disable' checkbox. The 'MTU' field is present. The 'Interface Mode' dropdown is set to '--Select--'. The 'Bandwidth' section includes 'Uplink (Kbps)' and 'Downlink (Kbps)' fields. The 'VLAN ID List' field is present. At the bottom are 'OK' and 'Cancel' buttons.

Field	Description
Interface Mode	<p>Select the interface mode:</p> <ul style="list-style-type: none"> ◦ Access ◦ Trunk
dot1x	<p>(For Releases 21.2.1 and later.) Click to enable 801.1X on the subinterface.</p>
VLAN ID	<p>For the Access interface mode, enter the VLAN ID for the subinterface.</p> <p><i>Range: 1 through 4094</i></p>

Field	Description
	Note: If you selected the dot1x checkbox above or the Trunk interface mode, the VLAN ID field is grayed out.
VLAN ID List	For the Trunk interface mode, enter the VLAN ID list for the subinterface. Range: 1 through 4094

9. Select the IPv4 > VRRP tab or the IPv6 > VRRP tab to configure active and standby VRRP devices for high availability (HA). With HA, the standby device takes over if the active one is down, thus helping to ensure an uninterrupted traffic flow.

- a. Click the  Add icon to configure a VRRP group.



The screenshot shows the 'Add Sub-Interface Add VRRP Group' dialog box. The 'General' tab is active. Key configuration parameters visible are:

- Group ID***: [Input field]
- Address***: [Input field]
- Priority**: 100
- Peer Address**: [Input field]
- Inherit Configuration**:
- Interface Name**: vni-0/0.0
- VRRP Group ID**: [Input field]
- Preempt Mode**: Preempt
- Advertisements Threshold**: 3
- Warmup Interval (sec)**: 30
- Virtual Address***: [Input field]
- Fast Interval (msec)**: 1000
- Accept Data**:

At the bottom right are the **OK** and **Cancel** buttons.

- b. In the General tab, enter information for the following fields.

Field	Description
Group ID (Required)	<p>Enter an identifier for the VRRP group.</p> <p><i>Range:</i> 1 through 255</p> <p><i>Default:</i> None</p>
Address (Required)	Enter the IP address of the interface on which to configure the VRRP group.
Priority	<p>Enter the priority to assign to the interface. The interface with the higher or highest priority becomes the VRRP active router.</p> <p>The priority value that you configure can be reduced by various objects that VRRP tracks, such as interfaces, routes, monitor objects, and HA state. When choosing a priority value, make sure that you account for a worst-case scenario so that the priority never goes below 0. For example, consider a VRRP group configured on interface vni-0/0.0 with priority of 200 and that is tracking interface vni-0/1.0, which has a priority cost of 20. Here, the vni-0/1.0 interface is the tracking object. If the vni-0/1.0 interface goes down, its priority cost is subtracted from the configured priority of 200, and so the current (dynamic) priority becomes (200 – 20), or 180.</p> <p><i>Range:</i> 1 through 255</p> <p><i>Default:</i> 100</p>
Peer Address	Enter the address of the peer interface.
Inherit Configuration (Group of Fields)	Click to have VRRP inherit the properties of another interface. If you select this option, the following items are grayed out: Track tab, Preempt Mode field, Advertisements Threshold field, Warmup Interval field, and Fast Interface field.
◦ Interface Name	Select the name of the interface whose configuration properties are to be inherited.

◦ VRRP Group ID	Enter the VRRP group ID of the interface whose configuration properties are to be inherited.
Preempt Mode	<p>Select how the VRRP active router is elected from among the routers in the VRRP group:</p> <ul style="list-style-type: none"> ◦ No Preempt—When a VRRP active router goes down and a backup router takes over as the active router, the previous active router remains a backup router when it comes back up even though it has a higher priority than the router that has taken over as the active router. ◦ Preempt—When a VRRP active router goes down and a backup router takes over as the active router, the previous active router takes over again as the active router as soon as it comes back up, because it has a higher priority than the backup router. This is the default mode. <p><i>Default:</i> Preempt</p>
Advertisements Threshold	<p>Enter the number of VRRP advertisements that the backup router can miss before declaring the active router to be down.</p> <p><i>Range:</i> 1 through 15</p> <p><i>Default:</i> None</p>
Warmup Interval	<p>Enter how long the interface waits, in seconds, before determining which VRRP router is the active router and which is the backup.</p> <p><i>Range:</i> 1 through 3600 seconds</p>
Virtual Address (Required)	
◦ IP Address (Required)	Enter the virtual IP address or addresses to include in the VRRP group, and then click the  Add icon.
Fast Interval	For VRRP Version 3 only, enter how often the active and backup routers exchange VRRP advertisement messages, in milliseconds.

	<i>Range:</i> 10 through 50000 milliseconds
Accept Data	Click to have the interface accept data that it receives. Otherwise, the data is routed to another interface.

- c. Select the Track tab to configure tracking for the VRRP group. Enter information for the following fields.

Add Sub-interface Add VRRP Group

General Track

HA Standby Priority Cost Priority Hold Time (sec)

100

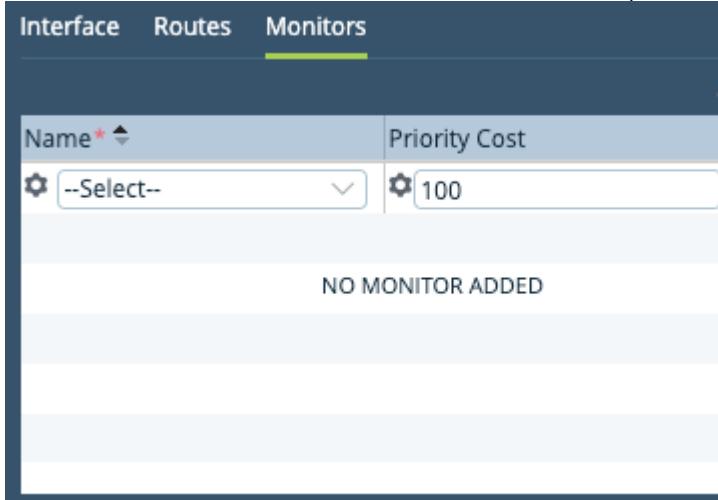
Interface Routes Monitors

Name *	Priority Cost
--Select--	100

NO INTERFACE ADDED

OK Cancel

Field	Description
HA Standby Priority Cost	<p>Enter the value to subtract from the priority when the interchassis HA state of the VOS device changes from active to standby.</p> <p><i>Range:</i> 1 through 254</p> <p><i>Default:</i> 100</p>
Priority Hold Time	<p>Enter the virtual router priority hold time, in seconds.</p> <p><i>Range:</i> 0 through 3600 seconds</p> <p><i>Default:</i> None</p>
Interface (Tab)	
◦ Name (Required)	Select the primary interface on the active router in the VRRP group.
◦ Priority Cost	<p>Enter the cost for the interface. The router with the highest priority in the VRRP group is or becomes the active router.</p> <p><i>Range:</i> 1 through 254</p> <p><i>Default:</i> 100</p>
◦  Add icon	Click to add the interface.
Routes (Tab)	
◦ Prefix (Required)	Enter the route prefix.

◦ Routing Instance (Required)	Select the routing instance.						
◦ Priority Cost (Required)	<p>Enter the cost for the interface. The router with the highest priority in the VRRP group is or becomes the active router.</p> <p><i>Range:</i> 1 through 254</p> <p><i>Default:</i> 100</p>						
◦  Add icon	Click to add the route.						
Monitors (Tab)	 <table border="1"> <thead> <tr> <th>Name *</th> <th>Priority Cost</th> </tr> </thead> <tbody> <tr> <td>--Select--</td> <td>100</td> </tr> <tr> <td colspan="2">NO MONITOR ADDED</td> </tr> </tbody> </table>	Name *	Priority Cost	--Select--	100	NO MONITOR ADDED	
Name *	Priority Cost						
--Select--	100						
NO MONITOR ADDED							
◦ Name (Required)	Select the primary interface on the active router in the VRRP group.						
◦ Priority Cost	<p>Enter the cost for the interface. The router with the highest priority in the VRRP group is or becomes the active router.</p> <p><i>Range:</i> 1 through 254</p> <p><i>Default:</i> 100</p>						
◦  Add icon	Click to add the monitor.						

10. Click OK.

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Configure Aggregated Ethernet Interfaces on a WAN Interface

For Releases 21.1 and later.

You can configure an aggregated Ethernet interface on a WAN interface. An aggregate interface is a bundle of two or more Ethernet interfaces. It is the parent interface and has vni (Ethernet) interfaces as its children. Aggregate interface names start with ae. An aggregated Ethernet interface can increase overall throughput, and it provides redundancy in case one of the links fails.

To configure an aggregated Ethernet interface on a WAN interface, first you configure the individual interfaces that are the members of the aggregation, and then you configure the aggregated Ethernet interface itself. For the member interfaces, you must configure Layer 2 interfaces. You must also configure integrated routing and bridging (IRB) on a WAN interface.

Configure the Individual Interfaces

You configure the individual interfaces that are the members of the aggregated Ethernet interface in an SD-WAN device template. You configure the following types of interfaces:

- Layer 2 interfaces—Interfaces that you want to aggregate as Layer 2 interfaces. You must configure at least two device ports as Layer 2 interfaces so that the aggregated Ethernet interface has at least two members.
- IRB interface—Associates a Layer 3 interface with the Layer 2 interfaces in so that packets can be routed between the Layer 2 LAN and the Layer 3 WAN networks.

Before you begin, you must already created have a post-staging template. For more information, see [Create Device Templates](#).

Start the Interface Configuration Wizard

To configure the individual interfaces for the aggregated Ethernet interface, first navigate to the interface configuration wizard:

1. In Director view, select the Workflows tab in the top menu bar.
2. Select an organization in the Organization field.
3. Select Templates > Templates in the horizontal menu bar.
4. Select the SD-WAN tab. The screen displays the templates that are already configured.

Name	Status	Last Modified Date	Last Modified By	Actions
Branch-5-hub-template	Saved	2020-05-13 11:49:35	Administrator	
Multi_Tenant_PostStaging	Deployed	2019-07-23 14:22:55	Administrator	
Multi_Tenant_PostStaging_Branch5	Deployed	2019-07-23 15:20:02	Administrator	
New-hub-template	Deployed	2021-07-23 23:54:16	Administrator	
S2S-tunnel-template	Saved	2020-11-05 23:36:18	Administrator	
Single_Instance_Branch6	Deployed	2020-05-13 11:58:24	Administrator	
Staging	Deployed	2019-07-23 14:23:05	Administrator	

- Select a template to edit. The interface configuration wizard displays.

Configure Layer 2 Interfaces

Configure one or more Layer 2 interfaces:

- In the configuration wizard, click Next or Step 2, Interfaces. The Step 2, Configure Interfaces screen displays a graphic showing the ports on the device.
- To configure a Layer 2 interface, click the port number, and then select Layer 2 in the popup window.

Device Port Configuration

Device Model: Others, Number of Ports: 6, Configure button

Virtual Ports: 0 WWAN, 0 WIFI, 0 IRB, 0 T1/E1, 0 DSL, Configure button

Legend: Management, WAN, LAN, L2, WAN-LAN, Cross, PPPoE

WAN Interfaces(0), L2 Interfaces(0), LAN Interfaces(0)

Port, Interface, VLAN ID, Network Name, Organizations, Priority, IPv4, IPv6, Circuit Type, Circuit Media, Circuit Tags, Sub Interface, Actions

- The Device Port Configuration screen displays with the selected port in green. Enter information for the following fields.

Device Port Configuration

Port Number: 0, Port Type: L2

Spanning Tree: None

VLANs: 10

Mode: Access

Interface Name: vni-0/0, Organization: Provider

Add, Cancel

Field	Description
VLANs	Enter the VLAN ID to associate with the Layer 2 interface. Use the same VLAN ID for all the Layer 2 interfaces that are members of the aggregated Ethernet interface.
Mode	Select Access as the traffic mode.

4. Click Add.
5. Repeat Steps 7 through 9 for each additional Layer 2 interface that you want to be a member of an aggregated Ethernet interface.
6. Click Done. The screen shows the configured interfaces on the Layer 2 Interfaces tab, here, vni-0/0 and vni-0/1.

The screenshot shows the Versa Director View Workflows interface. The top navigation bar includes Director View, Appliance View, Template View, Monitor, Configuration, Workflows (selected), Administration, Analytics, and a status bar indicating "You are currently in Director View". The main content area is titled "Configure Interfaces" and shows "Template: AE_on_WAN". It features a "Device Port Configuration" section with "Device Model: Others" and "Number of Ports: 6", a "Virtual Ports" summary (0 WWAN, 0 WIFI, 1 IRB, 0 T1/E1, 0 DSL), and a legend for interface types (Management, WAN, LAN, L2, WAN-LAN, Cross, PPPoE). Below this is a summary of configured interfaces: WAN Interfaces(1), L2 Interfaces(2), and LAN Interfaces(0). At the bottom, a table lists two L2 interfaces:

Port	Interface	Unit	Organization	Switch Mgmt.	Virtual Switch	VLANs	Bridge Domain	Mode	Native VLAN ID	Sub Interface	Actions
0	vni-0/0	1	Provider	Provider-default-switch	10			Access	10	+Add Sub Interface	
1	vni-0/1	1	Provider	Provider-default-switch	10			Access	10	+Add Sub Interface	

Buttons at the bottom include Cancel, Back, Save, and Next.

Configure an IRB Interface

To configure an IRB interface:

1. In the Device Port Configuration window, click Configure in the Virtual Ports field. The Virtual Port Configuration screen displays.

Virtual Port

Virtual Port Configuration

WWAN WIFI IRB T1/E1 DSL

WAN Interfaces(0) L2 Interfaces(2) LAN Interfaces(0)

<input type="checkbox"/>	Port	Interface	VLAN ID	Network Name	Priority	IPv4	IPv6	Circuit Type	Circuit Media	Circuit Tags	Actions
No Record Added											

OK Cancel

- In the IRB field, click Add, and then select WAN in the popup field.

Virtual Port

Virtual Port Configuration

WWAN WIFI IRB T1/E1 DSL

Port Type: WAN

Interface Name *: irb1

VLAN ID *: 10

Network Name *: WAN1

Organizations: Provider

IPv4: Static

IPv6: None

Priority: Please Select

Circuit Type: Please Select

Circuit Media: Please Select

Circuit Tags: + Add

Circuit Provider:

Allow SSH To CPE:

Virtual Switch *: Provider-default-switch

Link Monitor: Nexthop

Remote IP:

Bandwidth (Kbps): Downlink Uplink

DNS: Primary Secondary

Add Cancel

- In the Virtual Port Configuration window, enter information for the following fields.

Field	Description
VLAN ID	Enter the VLAN ID for the interface. Use the same VLAN ID that you configured for the Layer 2 interfaces.
Network	Select the network to which the interface connects.

https://docs.versa-networks.com/Secure_SD-WAN/01_Configuration_from_Director/Common_Configuration/Configure_Interface.html

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4. Click Add.
5. Click OK. The WAN Interfaces tab shows the IRB interface, here, irb1.

The screenshot shows the Versa Networks Director View Workflows interface. The top navigation bar includes Director View, Appliance View, Template View, Monitor, Configuration, Workflows (selected), Administration, and Analytics. The left sidebar shows Infrastructure, Template (selected), and Devices. The main area has a progress bar with steps: BASIC (green checkmark), INTERFACES (blue circle with '2'), TUNNELS (grey circle with '1'), ROUTING (grey circle with '1'), SWITCHING (grey circle with '1'), INBOUND NAT (grey circle with '1'), MANAGEMENT SERVERS (grey circle with '1'), and REVIEW (grey circle with '1'). A message says "You are currently in Director View". The breadcrumb path is Workflows > Template > Templates. A "Build" button is visible.

Configure Interfaces

Template: AE_on_WAN

Device Port Configuration

Device Model: Others, Number of Ports: 6, Configure button.

Virtual Ports

WWAN	0	WIFI	0	IRB	1	T1/E1	0	DSL	0
------	---	------	---	-----	---	-------	---	-----	---

Legend: Management (orange), WAN (yellow), LAN (green), L2 (blue), WAN-LAN (purple), Cross (pink), PPPoE (red).

WAN Interfaces(1): irb1 (selected), L2 Interfaces(2), LAN Interfaces(1).

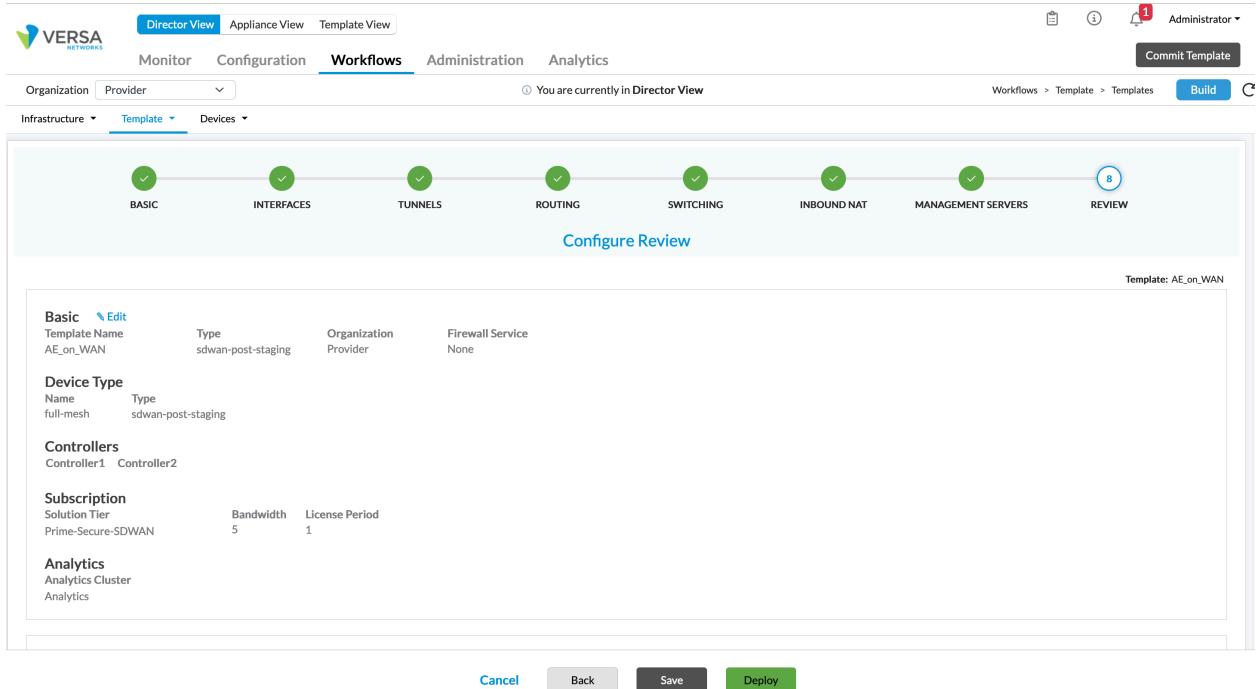
Table: WAN Interface Configuration

Port	Interface	VLAN ID	Network Name	Organizations	Priority	IPv4	IPv6	Circuit Type	Circuit Media	Circuit Tags	Sub Interface	Actions
	irb1	10	WAN1			Static						

Buttons at the bottom: Cancel, Back, Save, Next.

Deploy the Template

1. In the configuration wizard, click Step 8, Review.



- Click Deploy to deploy the template.

Configure the Aggregated Ethernet Interface

- In Director view, select the Configuration tab in the top menu bar.
- Select an organization in the Organization field.
- Select Templates > Device Templates in the horizontal menu bar.
- Select the template in which you configured the IRB interface. The view changes to Configuration view.
- Select Networking > Interfaces in the left menu bar.
- Select the AE tab in the horizontal menu bar, and then Click Add. The Add Ethernet Interface popup window displays
- Select the General tab, and then enter information for the following fields.

https://docs.versa-networks.com/Secure_SD-WAN/01_Configuration_from_Director/Common_Configuration/Configure_Interf...

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Add Ethernet Interface

X

[General](#) Sub Interfaces

Interface *	System ID/MAC			
<input type="text" value="ae"/>	<input type="text" value="hum"/> <input type="checkbox"/> Disable			
Description	Tags			
<input type="text" value="Native VLAN ID"/> 1..4094	<input type="text" value="Chassis ID"/> 1..7	<input type="text" value="MTU"/> 72...9000		
<input type="checkbox"/> Virtual Wire	<input type="checkbox"/> Mirror Interface	<input type="checkbox"/> PPPoE base Interface	<input type="checkbox"/> Promiscuous	<input type="checkbox"/> DHCP Trusted
<input type="checkbox"/> LACP System Priority: <input type="text" value="127"/> Max Links: <input type="text" value="16"/> Periodicity: <input type="text" value="Slow (30 seconds)"/> Mode: <input type="text" value="Active"/> Admin Key: <input type="text" value="1..65535"/>				
Bandwidth Multihoming Uplink (Kbps): <input type="text" value="1..10000000"/> Downlink (Kbps): <input type="text" value="1..10000000"/>				

OK

Cancel

Field	Description
Interface (Required)	Enter a number for the aggregated Ethernet interface. Aggregated Ethernet interface names start with ae.
Promiscuous	Click to enable promiscuous mode for the aggregated Ethernet interface. Note that you must enable promiscuous mode for Layer 2 interfaces.

- Select the Subinterfaces tab, and then click the Add icon. The Add Subinterface popup window displays.

Add Subinterface

General IPv4 IPv6 Bridge

Unit *	VLAN ID 1...4094	Inner VLAN ID 1...4094	<input type="checkbox"/> Disable
Description			
MTU 72...9000			
Publish Address		Bandwidth	
URL	Routing Instance --Select--	Uplink (Kbps) 1...10000000	Downlink (Kbps) 1...10000000

OK **Cancel**

9. Select the General tab, and then enter a number in the Unit field.
10. Select the Bridge tab, and then enter information for the following fields.

Field	Description
Interface mode	Select Access.
VLAN ID	Enter the VLAN ID to associate with the interface. Use the same VLAN ID that you configured for the Layer 2 interfaces to join as members of the aggregated Ethernet interface.

11. Click OK to add the subinterface.
12. Click OK to add the aggregated Ethernet interface.
13. Select the VNI Interfaces tab, and then select one of the Layer 2 interfaces that you created to add to the aggregated Ethernet interface.
14. In the Edit Ethernet Interface popup window, select the Subinterfaces tab.
15. Click Aggregate Member, and in the Interface field, select the aggregated Ethernet interface, here, ae0.

Edit Ethernet Interface - vni-0/0



General Sub Interfaces

Subinterfaces Aggregate Member

Interface * ae0

LACP Priority

OK Cancel

16. Click OK.
17. Repeat Steps 10 through 16 for each interface that you want to add to the aggregated Ethernet interface.
18. Select Others > Organization > Limits in the left menu bar.
19. Select the organization. The Edit Organization Limit window displays.
20. Select the Traffic Identification tab. In the Interfaces table, select the vni interfaces that you added as members of the aggregated Ethernet interface.

Edit Organization Limit - Provider

General Traffic Identification Resources Services QoS

Interfaces

- tvl-0/2.0
- tvl-0/3.0
- ptvl1025
- ptvl513
- vni-0/0.1
- vni-0/1.1

Networks

- LAN
- WAN1

OK Cancel

21. Click the Trash icon to remove the interfaces from the list.
22. In the Interfaces table, click the + Add icon, and then select the aggregated Ethernet interface, here, ae0.1.

Edit Organization Limit - Provider

X

General **Traffic Identification** Resources Services QoS

Interfaces	+	trash
<input type="checkbox"/> tvi-0/2.0		
<input type="checkbox"/> tvi-0/3.0		
<input type="checkbox"/> ptvi1025		
<input type="checkbox"/> ptvi513		
<input type="checkbox"/> vni-0/1.1		
<input type="checkbox"/>	▼	
ae0.1		
vni-0/0		
vni-0/5		

Networks	+	trash
<input type="checkbox"/> LAN		
<input type="checkbox"/> WAN1		

23. Click OK.
24. Select Networking > Virtual Switches in the left menu bar.
25. Select the virtual switch. The Edit Virtual Switch popup window displays.
26. In the Interfaces table, select the vni interfaces that you added as members of the aggregated Ethernet interface.

Edit Provider-default-switch

X

Virtual Switch Details **Spanning Tree Protocol** EVPN L2 Learning

Instance Name *	Description								
Provider-default-switch									
Instance type	EVPN Service Type								
Virtual Switch	VLAN Aware Bundle								
Route Distinguisher <input checked="" type="checkbox"/>	VRF Import Target <input checked="" type="checkbox"/>	VRF Export Target <input checked="" type="checkbox"/>	VRF Both Target <input checked="" type="checkbox"/>						
<input type="checkbox"/> MPLS Services									
<input type="checkbox"/> Interfaces	+								
<input checked="" type="checkbox"/> vni-0/0.1	<input type="checkbox"/>								
<input checked="" type="checkbox"/> vni-0/1.1	<input type="checkbox"/>								
Bridge Domains									
<table border="1"> <thead> <tr> <th></th> <th>Bridge Domain Name</th> <th>VLAN ID</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td>vlan-10</td> <td>10</td> </tr> </tbody> </table>					Bridge Domain Name	VLAN ID	<input type="checkbox"/>	vlan-10	10
	Bridge Domain Name	VLAN ID							
<input type="checkbox"/>	vlan-10	10							
<input type="button" value="OK"/> <input type="button" value="Cancel"/>									

27. Click the  Trash icon to remove the interfaces from the list.
28. In the Interfaces table, click the + Add icon and select the aggregated Ethernet interface, here, ae0.1.

Edit Provider-default-switch

[Virtual Switch Details](#) [Spanning Tree Protocol](#) [EVPN](#) [L2 Learning](#)

Instance Name *	Description																		
Provider-default-switch																			
Instance type	EVPN Service Type																		
Virtual Switch	VLAN Aware Bundle																		
Route Distinguisher	VRF Import Target	VRF Export Target	VRF Both Target																
<input type="checkbox"/> MPLS Services																			
<input type="checkbox"/> Interfaces <table border="1"> <thead> <tr> <th>Bridge</th> <th>Interface</th> <th>Cost</th> <th>Priority</th> </tr> </thead> <tbody> <tr> <td>ae0.1</td> <td>vni-0/0.1</td> <td>10</td> <td>10</td> </tr> <tr> <td></td> <td>vni-0/1.1</td> <td></td> <td></td> </tr> <tr> <td></td> <td>vlan-10</td> <td></td> <td></td> </tr> </tbody> </table>				Bridge	Interface	Cost	Priority	ae0.1	vni-0/0.1	10	10		vni-0/1.1				vlan-10		
Bridge	Interface	Cost	Priority																
ae0.1	vni-0/0.1	10	10																
	vni-0/1.1																		
	vlan-10																		
OK Cancel																			

29. If the Spanning-Tree Protocol is enabled, select the Spanning-Tree Protocol tab.

Edit Provider-default-switch

[Virtual Switch Details](#) [Spanning Tree Protocol](#) [EVPN](#) [L2 Learning](#)

Protocol	Bridge Priority	Forward Delay	Hello Time								
RSTP	32768	15	2								
Max Age	<input type="checkbox"/> Force STP	<input type="checkbox"/> BPDU Block On Edge									
20											
<table border="1"> <thead> <tr> <th>Interface</th> <th>Cost</th> <th>Edge</th> <th>Priority</th> </tr> </thead> <tbody> <tr> <td colspan="4">No Interfaces Added</td> </tr> </tbody> </table>				Interface	Cost	Edge	Priority	No Interfaces Added			
Interface	Cost	Edge	Priority								
No Interfaces Added											
OK Cancel											

30. In the Interface table, click the + icon. The Add Interfaces popup window displays.
 31. In the Interface field, select the aggregated Ethernet interface, and then click OK.
 32. Click OK.

Configure an Aggregated Ethernet Interface on a WAN Interface (for

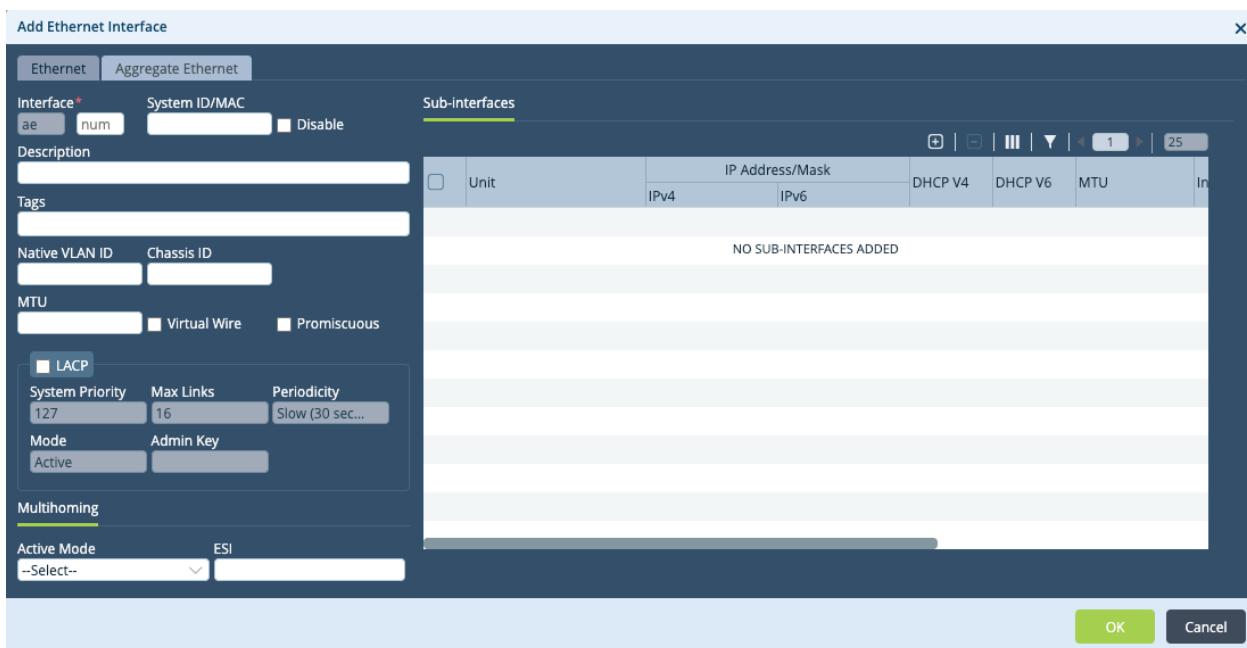
https://docs.versa-networks.com/Secure_SD-WAN/01_Configuration_from_Director/Common_Configuration/Configure_Interface.html
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Release 20.2)

For Release 20.2.

You can configure an aggregated Ethernet interface on a WAN interface. An aggregate interface is a bundle of two or more Ethernet interfaces. It is the parent interface and has vni (Ethernet) interfaces as its children. Aggregate interface names start with ae.

1. In Director view:
 - a. Select the Configuration tab in the top menu bar.
 - b. Select Templates > Device Templates in the horizontal menu bar.
 - c. Select an organization in the left menu bar.
 - d. Select a post-staging template in the main pane. The view changes to Appliance view.
2. Select the Configuration tab in the top menu bar.
3. Select Networking > Interfaces in the left menu bar. The Interfaces dashboard displays.
4. Click the  Add icon. In the Add Ethernet Interface popup window, select the Aggregate Ethernet tab, and then enter information for the following fields.



Field	Description
Interface (Required)	Enter a port number for the aggregate Ethernet interface.
System ID/MAC	Enter the MAC address of the interface.
Disable	Click to not activate the interface after you configure it.
Description	Enter a text description for the interface. It can be a text string up to 255 characters.
Tags	Enter text strings that describe the Aggregate Ethernet interface.
Chassis ID	<p>Enter the chassis ID number, which is used in calculating the port ID that is sent in link aggregation control protocol data units (LACPDU).</p> <p><i>Range:</i> 1 through 7</p> <p><i>Default:</i> None</p>
MTU	Enter the maximum size, in bytes, of the largest protocol data unit that the port can receive or transmit. <i>Range:</i> 72 through 9000 bytes
Virtual Wire	Click if the interface is a part of the virtual wire.
Promiscuous	Click to have the interface accept all data packets that it receives.
LACP (Group of Fields)	Click to enable the link aggregation control protocol (LACP).
◦ System Priority	Enter the system priority.
◦ Max Links	Enter the maximum links.
◦ Periodicity	Select the periodicity: <ul style="list-style-type: none"> ◦ Fast (1 second) ◦ Slow (30 seconds)
◦ Mode	Select the LACP mode:

- Active
- Passive

5. In the Subinterfaces tab, click the  Add icon to add a subinterface. The Add Subinterface screen for aggregate Ethernet interfaces is the same as for Ethernet interfaces. For information about the fields on this screen, see Steps 5 through 9 in [Configure WAN Ethernet Interfaces](#), above. Note that the Add Subinterface screen for Aggregate Ethernet interfaces does not contain the Interface Mode field.
6. Click OK.

Configure LAN Ethernet Interfaces

For Releases 22.1.1 and later.

You can configure the following types of Ethernet interfaces for LAN networks on VOS Layer 2 switches:

- Ethernet
- Aggregated Ethernet, which is a logical linkage of Ethernet connections

LAN Ethernet interfaces are named with the prefix `enet`, for example, `enet0/5`.

To configure a LAN Ethernet interface:

1. Select Director View in the top menu bar.
2. Select Configuration > Devices > Devices in the horizontal menu bar.
3. Click the name of an appliance. The view changed to Appliance view, and the Configuration tab is selected in the horizontal menu bar.
4. Select Networking > Interfaces in the left menu bar.
5. Select the ENet tab in the horizontal menu bar. The following screen displays.

VNI	AE	ENet	IRB	T1/E1	Tunnel	DSL	WWAN	Wi-Fi	uCPE	Loopback	Fabric	Management
		enet-0/19.0										None
		enet-0/4										172.18.18.1/24
		enet-0/56.0										None
		enet-0/6										None
												enet-0/6.1
												enet-0/6.2
												enet-0/6.3

https://docs.versa-networks.com/Secure_SD-WAN/01_Configuration_from_Director/Common_Configuration/Configure_Interf...

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6. Click + Add to add a LAN Ethernet interface. The Add Enet Interface popup window.
7. Select the General tab, and enter information for the following fields.

Add ENet Interface

General Sub Interfaces

Interface * - / Disable

Description

Tags

Promiscuous Virtual Wire Mirror Interface PPPoE base Interface DHCP Trusted

Native VLAN ID MTU Outer TPID Role Breakout Mode

Bandwidth | Others | Hold Time | PoE | Multihoming

Uplink (Kbps) Downlink (Kbps)

OK **Cancel**

Field	Description
Interface (Required)	Enter the port and slot numbers for the enet interface.
Disable	Click to not activate the interface after you configure it.
Description	Enter a text description for the interface. It can be a text string up to 255 characters.
Tags	Enter one or more text strings that describe the Ethernet interface. A tag is an alphanumeric text descriptor with no white spaces or special characters that you can use to search interface names. You can specify multiple tags.
Promiscuous	Click to have the interface accept all data packet sent towards it.
Virtual Wire	Click if the interface is part of a virtual wire. When you select this option, you cannot configure any other parameters on the popup window.
Mirror Interface	Click to create a copy of the interface.
PPPoE-Based Interface	Click to have the interface act as a Point-to-Point Protocol over Ethernet (PPPoE) interface. In a PPPoE session, the device encapsulates each Point-to-Point Protocol (PPP) frame in an Ethernet frame and transports the frames over an Ethernet loop.
DHCP Trusted	(For Releases 22.1.3 and later.) Click to enable the ports to be DHCP trusted ports. You can designate a port as trusted for DHCP if it connects to a legitimate DHCP server. Doing this allows the port to send DHCP requests and acknowledgements.
Native VLAN ID	Enter the native VLAN ID for the Ethernet interface.
MTU	Enter the maximum transmission unit size, in bytes, of the largest protocol data unit that the port can receive or transmit. <i>Range:</i> 72 through 9000 bytes
Outer TPID	Select the outer tag protocol identifier (TPID), which is a 16-bit field that identifies the frame as an IEEE 802.1Q-tagged frame: <ul style="list-style-type: none"> ◦ 0x8100 ◦ 0x88a8—Select if you are configuring Q-in-Q for routed interfaces (dual VLAN).

Role	(For Releases 22.1.3 and later.) Select the user's role: <ul style="list-style-type: none"> ◦ Client Port ◦ Uplink Port
Breakout Mode	(For Releases 22.1.4 and later.) For CSG3000 series devices and CSX4000 switches, select the Ethernet port breakout mode. You can use port breakout to channelize a high-bandwidth port into multiple independent lower-speed ports. You can use port breakout on ports that are 100-Gigabit Ethernet or faster. For example, you can break out a 100-Gigabit Ethernet port into the following speed ports: <ul style="list-style-type: none"> ◦ One 40-GB port ◦ Two 50-GB ports ◦ Four 10-GB ports ◦ Four 25-GB ports
Bandwidth (Tab)	Specify the bandwidth available on a link to upload and download data. This information is used in computing adaptive traffic shaping.
◦ Uplink	Enter the bandwidth available on the link for uploading data, in kilobits per second (Kbps). <i>Range:</i> 1 through 10000000 Kbps <i>Default:</i> None
◦ Downlink	Enter the bandwidth available on the link for downloading data, in kilobits per second (Kbps). <i>Range:</i> 1 through 10000000 Kbps <i>Default:</i> None
Others (Tab)	Configure link-related parameters
◦ Link Speed	Select the speed of the link: <ul style="list-style-type: none"> ◦ Auto Speed—Automatically determine the speed

	<p>of the link.</p> <ul style="list-style-type: none"> ◦ 10-Mbps Interface ◦ 100-Mbps Interface ◦ 1-Gbps Interface
◦ Link Mode	<p>Select the mode to use on the link:</p> <ul style="list-style-type: none"> ◦ Auto Duplex—Automatically determine the mode of the link. ◦ Half-Duplex Interface ◦ Full-Duplex Interface
Link FEC	<p>Select the type of forward error correction (FEC) to use, if any:</p> <ul style="list-style-type: none"> ◦ None ◦ Auto ◦ fec74 ◦ fec91 ◦ fec108
Hold Time (Tab)	<p>Enter the link up hold time, in milliseconds. When you configure a link up hold time, when the interface state goes from Down to Up, the hold time is triggered. The VOS device holds the link state as down for the configured interval, and any interface state transitions that occur during this time are ignored. When the hold time expires, if the interface state is Up, the VOS device advertises the interface as being active.</p> <p><i>Range:</i> 0 through 4294967295 milliseconds</p> <p><i>Default:</i> None</p>
PoE	<p>Configure PoE parameters on PoE interfaces. When configuring PoE, you can enable the PoE interface for the port to provide power to a connected device. When a new device connects on a higher-priority port, a lower-priority port is powered off automatically if the overall power budget of the NIC is exceeded.</p>

◦ Power Mode	Select the power mode: ◦ Disabled ◦ Enabled
Multihoming (Tab)	Configure EVPN multihoming mode.
◦ Active Mode	Select the active mode: ◦ All Active ◦ Single Active
◦ ESI (Required)	Enter a hexadecimal list for the Ethernet Segment Indicator (ESI).

8. Select the Subinterfaces tab. The window displays the subinterfaces that are already configured.

The screenshot shows the 'Add Enet Interface' dialog box with the 'SubInterfaces' tab selected. At the top, there are two radio buttons: 'Subinterfaces' (selected) and 'Aggregate Member'. Below the tabs, there is a toolbar with icons for adding, deleting, and filtering, followed by a page number '1' and a dropdown '25'. The main table has the following columns: UNIT, VLAN ID, IP ADDRESS/MASK (with sub-columns for IPV4 and IPV6), DHCPV4, DHCPV6, MTU, BRIDGE, INTERFACE MODE, VLAN ID, and VLA. A message 'No Subinterfaces Added' is displayed below the table. At the bottom right are 'OK' and 'Cancel' buttons.

9. Click the + icon to configure a new subinterface. The Add Subinterface popup window displays. You can configure up to 4095 subinterfaces on an interface.

Add Subinterface

General **IPv4** **IPv6** **Bridge**

Unit *	VLAN ID	Inner VLAN ID	<input type="checkbox"/> Disable
Description 			
MTU	Interface Mode --Select--	Publish Address	
		URL	Routing Instance --Select--
Bandwidth			
Uplink (Kbps)	Downlink (Kbps)		

OK **Cancel**

10. Select the General tab on the Add Subinterface popup window, and enter information for the following fields.

Field	Description
Unit (Required)	Enter a unit number for the subinterface.
VLAN ID	Enter the virtual LAN ID for the subinterface. <i>Range:</i> 0 through 4094
Inner VLAN ID	Enter the inner VLAN ID for the subinterface.
Disable	Click to not activate the subinterface after you commit the configuration.
Description	Enter a text description for the interface. It can be a text string up to 255 characters.
MTU	Enter the size, in bytes, of the largest protocol data unit that the subinterface can receive or transmit. <i>Range:</i> 72 through 9000 bytes
Interface Mode	Select the interface mode: <ul style="list-style-type: none"> ◦ Normal ◦ NSH Reflect ◦ Redundancy
Publish Address (Group of Fields)	
◦ URL	Enter the URL to access.
◦ Routing Instance	Select the routing instance for the subinterface to use to access the URL.
Bandwidth (Group of Fields)	
◦ Uplink	Enter the bandwidth available on the subinterface for uploading data, in kilobits per second (Kbps). <i>Range:</i> 1 through 10000000 Kbps <i>Default:</i> None

<ul style="list-style-type: none"> ◦ Downlink 	<p>Enter the bandwidth available on the subinterface for downloading data, in kilobits per second (Kbps).</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
--	--

11. Select the IPv4 tab on the Add Subinterface popup window, and enter information for the following fields.

The screenshot shows the 'Add Subinterface' dialog box with the 'IPv4' tab selected. The interface is divided into several sections:

- General:** Includes tabs for General, IPv4, IPv6, and Bridge. The IPv4 tab is active.
- Static Address:** Contains an input field for 'IP Address/Mask' which is currently empty and displays the message 'IP Address/Mask Not Configured'. There is also a '+' button and a delete icon next to the input field.
- DHCPv4:** Contains an unchecked checkbox for 'DHCPv4'.
- Route Preference:** An input field containing '1...255'.
- Vendor Class Identifier:** An input field.
- Disable Broadcast Flag:** An unchecked checkbox.
- Reachability Monitor:** Contains two input fields for 'Interval' (1...60) and 'Threshold' (1...60), and an unchecked checkbox for 'Enable ICMP'.
- FQDN:** An input field.
- Directed Broadcast:** An unchecked checkbox.
- SLA Endpoint:** An unchecked checkbox.
- Static ARP:** A link to the Static ARP configuration page.
- ARP Configuration:** A table with three columns: 'Subnet Address/Mask *', 'Host IP Address *', and 'MAC Address *'. The first column has a dropdown menu with 'Select--'. The second column is empty. The third column has an empty input field and a '+' button.
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

Field	Description
Static Address	Click to use a static IPv4 address for the subinterface. You can configure either a static IPv4 address or use DHCP on the subinterface, but not both.
Static Address	Click the + Add icon and enter the IPv4 address to use for the subinterface.
DHCPv4 (Group of Fields)	Click to use DHCP to dynamically assign an IPv4 address to the subinterface. You can configure either a static IPv4 address or use DHCP on the subinterface, but not both.
<ul style="list-style-type: none"> ◦ Route Preference 	<p>Enter the preference for the traffic route. A lower preference value indicates a higher preference for using the route.</p> <p><i>Range:</i> 1 through 255</p> <p><i>Default:</i> None</p>
<ul style="list-style-type: none"> ◦ Vendor Class Identifier 	Enter the vendor class identifier.
<ul style="list-style-type: none"> ◦ Disable Broadcast Flag 	Click to disable broadcasting on the subinterface's network.
<ul style="list-style-type: none"> ◦ Reachability Monitor (Group of Fields) 	Configure a reachability monitor.
<ul style="list-style-type: none"> ◦ Interval 	Enter the time interval after which ICMP reports error messages.
<ul style="list-style-type: none"> ◦ Threshold 	Enter the maximum number of ICMP error messages to report.
<ul style="list-style-type: none"> ◦ Enable ICMP 	Click to enable ICMP on the subinterface.
FQDN	Enter the fully qualified domain name for the IPv4 subinterface.
Directed Broadcast	Click to enable directed broadcast, which sends broadcast packets targeted at hosts in a specified subnet.
SLA Endpoint	Click if the subinterface is an SLA endpoint.

12. On the IPv4 tab on the Add Subinterface popup window, select the Static ARP tab in the horizontal menu bar to

https://docs.versa-networks.com/Secure_SD-WAN/01_Configuration_from_Director/Common_Configuration/Configure_Interf...

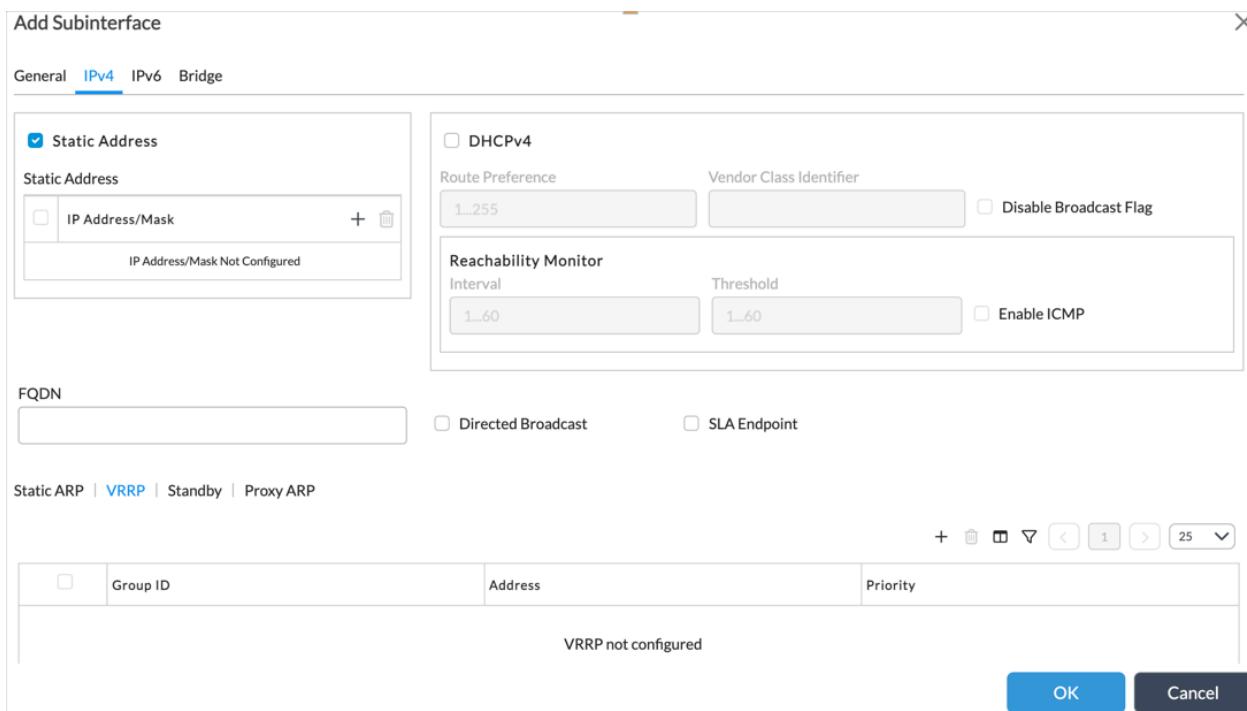
Updated: Wed, 23 Oct 2024 08:27:04 GMT

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configure a static ARP mapping, and then enter information for the following fields.

Field	Description
Subnet Address/Mask (Required)	Select the static address and mask.
Host IP Address (Required)	Enter the IP address of the host.
MAC Address (Required)	Enter the MAC address of the host.
 Add icon	Click the Add icon to add the static ARP entry.

- On the IPv4 tab on the Add Subinterface popup window, select the VRRP tab in the horizontal menu bar to configure active and standby VRRP devices for high availability (HA) on the subinterface.



- Click the + Add icon. In the Add Subinterface Add VRRP Group popup window, and then enter information for the following fields.

Add Subinterface Add VRRP Group

[General](#) [Track](#)

Group ID *	Address *	Priority	Peer Address
1...255		100	

Inherit Configuration

Interface Name	VRRP Group ID
vni-0/0.0	

Preempt Mode	Advertisements Threshold	Warmup Interval (sec)
Preempt	3	30

Virtual Address *

<input type="checkbox"/> IP Address *	+ -
IP Address Not Configured	

HA Standby Priority Cost

100	<input checked="" type="checkbox"/> Accept Data
-----	---

[OK](#) [Cancel](#)

Field	Description
Group ID (Required)	<p>Enter an identifier for the VRRP group.</p> <p><i>Range:</i> 1 through 255</p> <p><i>Default:</i> None</p>
Address (Required)	Enter the IPv4 address of the subinterface on which to configure the VRRP group.
Priority	<p>Enter the priority to assign to the interface. The interface with the higher or highest priority becomes the VRRP active router.</p> <p>The priority value that you configure can be reduced by various objects that VRRP tracks, such as interfaces, routes, monitor objects, and HA state. When choosing a priority value, make sure that you account for a worst-case scenario so that the priority never goes below 0. For example, consider a VRRP group configured on interface enet-0/0.0 with priority of 200 and that is tracking interface enet-0/1.0, which has a priority cost of 20. Here, the vni-0/1.0 interface is the tracking object. If the enet-0/1.0 interface goes down, its priority cost is subtracted from the configured priority of 200, and so the current (dynamic) priority becomes (200 – 20), or 180.</p> <p><i>Range:</i> 1 through 255</p> <p><i>Default:</i> 100</p>
Peer Address	Enter the address of the peer subinterface.
Inherit Configuration	Click to have VRRP inherit the properties of another interface.
<ul style="list-style-type: none"> ◦ Interface Name 	Select the name of the subinterface whose configuration properties are to be inherited.
<ul style="list-style-type: none"> ◦ VRRP Group ID 	Enter the VRRP group ID of the subinterface whose configuration properties are to be inherited.

Preempt Mode	Select how the VRRP active router is elected from among the routers in the VRRP group: <ul style="list-style-type: none"> ◦ Preempt—When a VRRP active router goes down and a backup router takes over as the active router, the previous active router takes over again as the active router as soon as it comes back up, because it has a higher priority than the backup router. This is the default mode. ◦ No Preempt—When a VRRP active router goes down and a backup router takes over as the active router, the previous active router remains a backup router when it comes back up even though it has a higher priority than the router that has taken over as the active router. <p><i>Default:</i> Preempt</p>
Advertisements Threshold	Enter the number of VRRP advertisements that the backup router can miss before declaring the active router to be down. <i>Range:</i> 1 through 15 <i>Default:</i> None
Warmup Interval	Enter how long the interface waits, in seconds, before determining which VRRP router is the active router and which is the backup. <i>Range:</i> 1 through 3600 seconds
Virtual Address	Configure a virtual address for the subinterface.
◦ IP Address	Enter the virtual IP address or addresses to include in the VRRP group, and then click the  Add icon.
HA Standby Priority Cost	Enter the value to subtract from the priority when the interchassis HA state of the VOS device changes from active to standby. <i>Range:</i> 1 through 254 <i>Default:</i> 100
Accept Data	Click to have the interface accept data that it receives. Otherwise, the data is routed to another interface.

15. Click OK to add the VRRP group to the subinterface.
16. On the IPv4 tab on the Add Subinterface popup window, select the Standby tab in the horizontal menu bar to activate standby mode based on a monitor, and then enter information for the following fields.

Add Subinterface

General IPv4 IPv6 Bridge

Static Address

Static Address

<input type="checkbox"/> IP Address/Mask	+	<input type="button" value="Delete"/>
IP Address/Mask Not Configured		

DHCPv4

Route Preference
1...255

Vendor Class Identifier

Disable Broadcast Flag

Reachability Monitor

Interval
1...60

Threshold
1...60

Enable ICMP

FQDN

<input type="text"/>

Directed Broadcast

SLA Endpoint

Static ARP | VRRP | **Standby** | Proxy ARP

Activate on Monitor | Health Check

Monitor Group
--Select--

Match State
--Select--

Revert Delay Interval
1...360

OK **Cancel**

Field	Description
Activate on Monitor (Tab)	Select to activate standby mode based on a monitor.
◦ Monitor Group	Select the name of monitor group.
◦ Match State	Select the match state of the monitor group to match: ◦ Down ◦ Up
◦ Revert Delay Interval	Enter the revert interval delay, in seconds. <i>Range:</i> 1 through 360 seconds <i>Default:</i> 10 seconds
Health Check (Tab)	Select to perform a periodic health check on the subinterface.
◦ Track Monitor	Select the monitor to use for tracking.
◦ Interval	Enter how long to wait before performing a health check on the subinterface. <i>Range:</i> 1 through 720 hours <i>Default:</i> 10 hours
◦ Wait Interval	Enter how long to wait for the monitor to evaluate the health of the subinterface. <i>Range:</i> 1 through 59 minutes <i>Default:</i> 10 minutes

17. On the IPv4 tab on the Add Subinterface popup window, select the Proxy ARP tab in the horizontal menu bar to configure proxy ARP, and then enter information for the following fields.

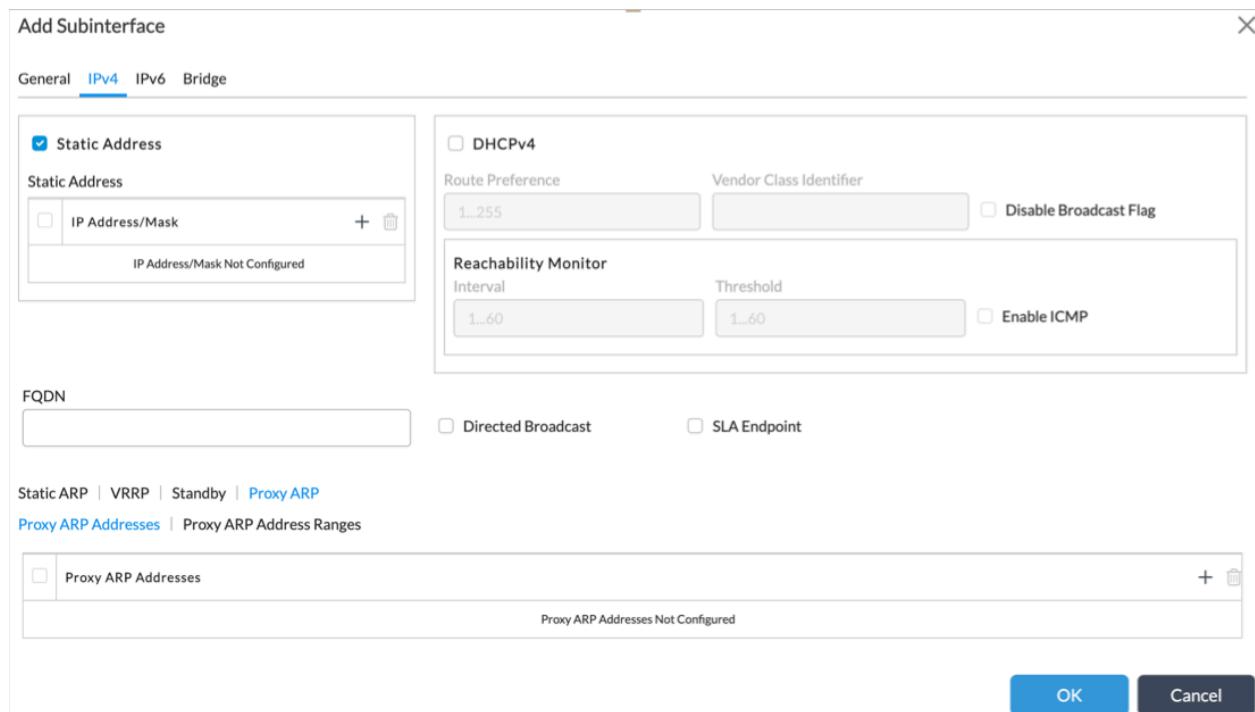
To use proxy ARP, you configure a set of IPv4 subnet prefixes or prefix ranges to which proxy ARP on the VOS device responds if no ARP entry for an IP address is available. Using proxy ARP allows a VOS device to respond to ARP requests for IP addresses configured in NAT pools that are both within and outside of the interface's subnet. Proxy ARP provides local responses, allowing a VOS device to reduce the amount of broadcast traffic over Layer 2 networks (such as EVPN) across SD-WAN and VXLAN.

The MAC address used in response to proxy ARP requests is the port's physical MAC address, which is the MAC address used in response to the interface IP address.

When the VOS device installs proxy ARP addresses and responds to proxy ARP requests, the VOS device considers the interface's VRRP state. If the VRRP interface state is not active, the VOS device does not respond to an ARP request for these IP addresses, and the control plane removes the entries provisioned in the data path. This behavior is similar to how devices configured with VRRP respond to the VRRP virtual IP address.

When you enable proxy ARP, the existing static ARP configuration in the IPv4 address hierarchy remains unchanged.

Note that the IP address range or subnet that you configure for proxy ARP does not need to be within the interface's subnet. You must ensure that the requestor or the peer is in same subnet as the interface IP address.



Field	Description
Proxy ARP Addresses (Tab)	Click the + Add icon. Then, in the box that displays below the Proxy ARP Addresses field, enter the proxy ARP IP address or addresses. You can add multiple proxy ARP addresses.
Proxy ARP Address Ranges (Tab)	Configure the range of IP addresses to use for proxy ARP.
◦ Range Name	Enter a name for the proxy ARP address range.
◦ IP High	Enter the highest IP address in the address range.
◦ IP Low	Enter the lowest IP address in the address range.
+ Add icon	Click the + Add icon to add the proxy ARP address range.

18. Click OK to complete the configuration of the subinterface's IPv4 properties.
19. On the Add Subinterface popup window, select the IPv6 tab, and then enter information for the following fields.

Add Subinterface

General IPv4 **IPv6** Bridge

Static Address

Static Address

<input type="checkbox"/>	IPv6 Address/Mask	+	–
IPv6 Address/Mask Not Configured			

Delegated Prefix Pool

Name *	IPv6 Address/Prefix *

No Records to Display

DHCPv6

Client IA Type

IA NA IA PD IA NONE

EUI-64

Delegated Prefix Pool

--

IPv6 Interface Mode

--Select--

FQDN

Interface Identifier

VRRP | Proxy NDP

+ **–** **□** **▽** **◀** **▶** **1** **25** **▼**

<input type="checkbox"/>	Group ID	Address	Priority
VRRP not configured			

OK **Cancel**

Field	Description
Static Address (Group of Fields)	Click to use a static IPv6 address for the subinterface. You can configure either an IPv6 static address or use DHCP on the subinterface, but not both.
<ul style="list-style-type: none"> ◦ Static Address 	Click the + Add icon, and enter the IPv6 address and prefix length of the static address to use for the subinterface.
<ul style="list-style-type: none"> ◦ Delegated Prefix Pool 	Enter the name and IPv6 address of a delegated prefix pool, and then click the  Add icon to add the prefix pool.
DHCPv6 (Group of Fields)	Click to use DHCP to assign an IPv6 address for the subinterface. You can configure either an IPv6 static address or use DHCP on the subinterface, but not both.
<ul style="list-style-type: none"> ◦ Client IA Type 	Select the client identity-association (IA) type, which is a collection of addresses assigned to a client: <ul style="list-style-type: none"> ◦ IA-NA—Use non-temporary addresses. ◦ IA-NONE—Do not use a client IA. ◦ IA-PD—Use prefix delegation.
<ul style="list-style-type: none"> ◦ EUI-64 	Click to use Extended Unique Identifier 64, which allows a host to assign itself a unique 64-bit IPv6 interface identifier.
IPv6 Interface Mode	<p>Select the IPv6 interface mode:</p> <ul style="list-style-type: none"> ◦ Host—Select to configure stateful DHCPv6. This is the default. ◦ Router—Select to configure stateless automatic address configuration (SLAAC). You must also configure a router advertisement that corresponds to the IPv6 address and prefix length. For more information, see Configure Virtual Routers. <p><i>Default:</i> Host</p>
FQDN	Enter the fully qualified domain name for the IPv6 subinterface.

Interface Identifier	Enter the 64-bit interface identifier used to identify a host's network interface. The interface identifier is the second part of an IPv6 unicast or anycast address.
----------------------	---

20. On the IPv6 tab on the Add Subinterface popup window, select the VRRP tab in the horizontal menu bar to configure active and standby VRRP devices for high availability (HA).
21. Click the + Add icon. The Add Subinterface Add VRRP Group popup window displays.

Add Subinterface Add VRRP Group

General Track

Group ID *	Address *	Priority	Peer Address
<input type="text"/>	<input type="text"/>	100	<input type="text"/>
<input type="checkbox"/> Inherit Configuration	Interface Name <input type="text"/>	VRRP Group ID <input type="text"/>	
Preempt Mode <input type="text"/> Preempt	Advertisements Threshold <input type="text"/> 3	Warmup Interval (seconds) <input type="text"/> 30	
Virtual Address *		<input type="button" value="+"/>	
<input type="checkbox"/> IP ADDRESS *		IP Address Not Configured <input type="text"/>	
Fast Interval (msec) <input type="text"/> 1000	Virtual Link Local Address <input type="text"/>	HA Standby Priority Cost <input type="text"/> 100	
<input checked="" type="checkbox"/> Accept Data			
		<input type="button" value="OK"/>	<input type="button" value="Cancel"/>

22. On the Add Subinterface Add VRRP Group popup window, select the General tab, and then enter information for the following fields.

https://docs.versa-networks.com/Secure_SD-WAN/01_Configuration_from_Director/Common_Configuration/Configure_Interf...

Updated: Wed, 23 Oct 2024 08:27:04 GMT

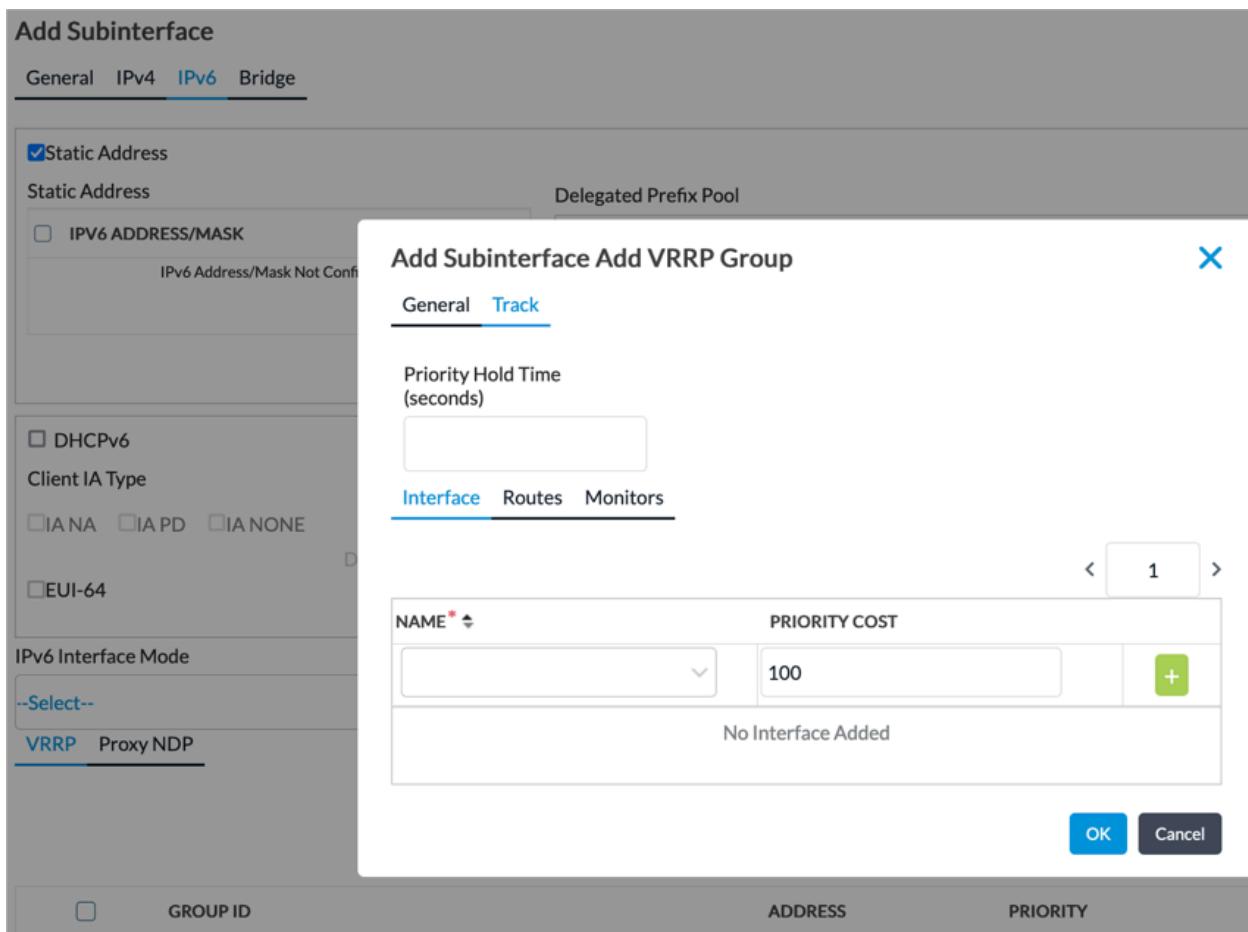
Copyright © 2024, Versa Networks, Inc.

Field	Description
Group ID (Required)	<p>Enter an identifier for the VRRP group.</p> <p><i>Range:</i> 1 through 255</p> <p><i>Default:</i> None</p>
Address (Required)	Enter the IPv6 address of the subinterface on which to configure the VRRP group.
Priority	<p>Enter the priority to assign to the interface. The interface with the higher or highest priority becomes the VRRP active router.</p> <p>The priority value that you configure can be reduced by various objects that VRRP tracks, such as interfaces, routes, monitor objects, and HA state. When choosing a priority value, make sure that you account for a worst-case scenario so that the priority never goes below 0. For example, consider a VRRP group configured on interface enet-0/0.0 with priority of 200 and that is tracking interface enet-0/1.0, which has a priority cost of 20. Here, the enet-0/1.0 interface is the tracking object. If the vni-0/1.0 interface goes down, its priority cost is subtracted from the configured priority of 200, and so the current (dynamic) priority becomes (200 – 20), or 180.</p> <p><i>Range:</i> 1 through 255</p> <p><i>Default:</i> 100</p>
Peer Address	Enter the address of the peer subinterface.
Inherit Configuration	Click to have VRRP inherit the properties of another interface.
<ul style="list-style-type: none"> ◦ Interface Name 	Select the name of the subinterface whose configuration properties are to be inherited.
◦ VRRP Group ID	Enter the VRRP group ID of the subinterface whose configuration properties are to be inherited.

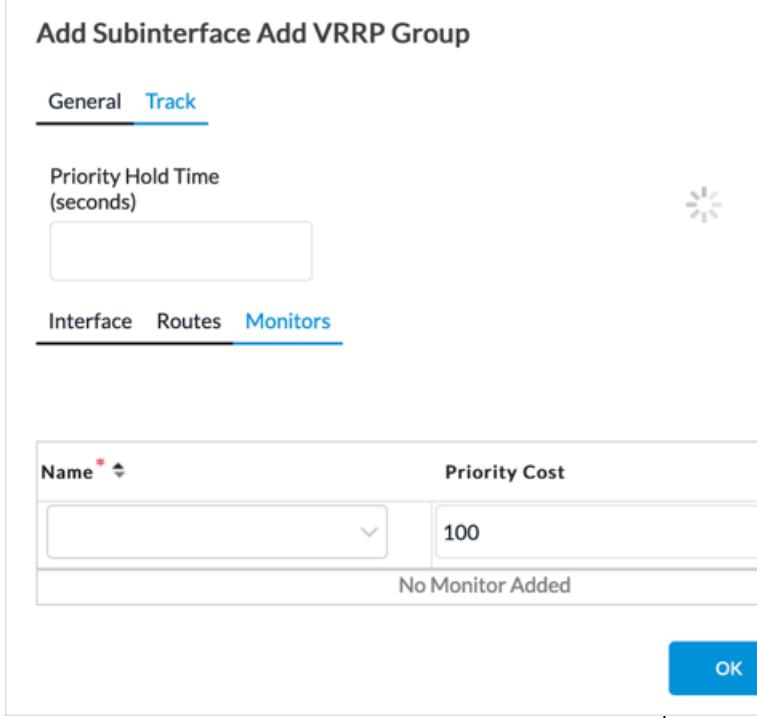
Preempt Mode	<p>Select how the VRRP active router is elected from among the routers in the VRRP group:</p> <ul style="list-style-type: none"> ◦ Preempt—When a VRRP active router goes down and a backup router takes over as the active router, the previous active router takes over again as the active router as soon as it comes back up, because it has a higher priority than the active router. This is the default mode. ◦ No Preempt—When a VRRP active router goes down and a backup router takes over as the active router, the previous active router remains a backup router when it comes back up even though it has a higher priority than the router that has taken over as the active router. <p><i>Default:</i> Preempt</p>
Advertisements Threshold	<p>Enter the number of VRRP advertisements that the backup router can miss before declaring the active router to be down.</p> <p><i>Range:</i> 1 through 15</p> <p><i>Default:</i> None</p>
Warmup Interval	<p>Enter how long the interface waits, in seconds, before determining which VRRP router is the active router and which is the backup.</p> <p><i>Range:</i> 1 through 3600 seconds</p>
Virtual Address (Required)	Configure a virtual address for the subinterface.
◦ IP Address	Enter the virtual IP address or addresses to include in the VRRP group, and then click the  Add icon.
Fast Interval	<p>For VRRP Version 3 only, enter how often the active and backup routers exchange VRRP advertisement messages, in milliseconds.</p> <p><i>Range:</i> 10 through 50000 milliseconds</p>
Virtual Link Local Address	Enter an address to explicitly configure a link local

	address for the VRRP group.
HA Standby Priority Cost	Enter the value to subtract from the priority when the interchassis HA state of the VOS device changes from active to standby. <i>Range:</i> 1 through 254 <i>Default:</i> 100
Accept Data	Click to have the interface accept data that it receives. Otherwise, the data is routed to another interface.

23. On the Add Subinterface Add VRRP Group popup window, select the Track tab, and then enter information for the following fields.



Field	Description						
Priority Hold Time	<p>Enter the virtual router priority hold time, in seconds.</p> <p><i>Range:</i> 0 through 3600 seconds</p> <p><i>Default:</i> None</p>						
Interface (Tab)							
◦ Name	<p>Select the primary interface on the active router in the VRRP group.</p>						
◦ Priority Cost	<p>Enter the cost for the interface. The router with the highest priority in the VRRP group is or becomes the active router.</p> <p><i>Range:</i> 1 through 254</p> <p><i>Default:</i> 100</p>						
 Add icon	<p>Click the  Add icon to add the interface to the VRRP group.</p>						
Routes (Tab)	<p>Add Subinterface Add VRRP Group</p> <p><u>General</u> <u>Track</u></p> <p>Priority Hold Time (seconds)</p> <p>Interface <u>Routes</u> Monitors</p> <p>Prefix *  Routing Instance *  Priority Cost *</p> <table border="1"> <tr> <td><input type="text"/></td> <td><input type="text"/></td> <td>100</td> </tr> <tr> <td colspan="3">No Route Added</td> </tr> </table> <p>OK</p>	<input type="text"/>	<input type="text"/>	100	No Route Added		
<input type="text"/>	<input type="text"/>	100					
No Route Added							

◦ Prefix (Required)	Enter the route prefix.
◦ Routing Instance (Required)	Select the routing instance.
◦ Priority Cost (Required)	<p>Enter the cost for the interface. The router with the highest priority in the VRRP group is or becomes the active router.</p> <p><i>Range:</i> 1 through 254</p> <p><i>Default:</i> 100</p>
◦ 	Click the Add icon to add the interface.
Monitors (Tab)	
◦ Name (Required)	Select the primary interface on the active router in the VRRP group.
◦ Priority Cost	Enter the cost for the interface. The router with the highest priority in the VRRP group is or becomes the active router.

	<p><i>Range:</i> 1 through 254</p> <p><i>Default:</i> 100</p>
◦ 	Click the + Add icon to add the monitor to the VRRP group.

24. Click OK.
25. On the IPv6 tab on the Add Subinterface popup window, select the Proxy NDP tab in the horizontal menu bar to configure proxy NDP. To use proxy NDP, you configure a set of IPv6 subnet prefixes or prefix ranges to which proxy NDP on the VOS device responds if no NDP entry for an IP address is available. Proxy NDP allows a VOS device to respond to NDP requests for IP addresses configured in NAT pools that are both within and outside of the interface's subnet. Proxy NDP provides local responses, allowing a VOS device to reduce the amount of broadcast traffic over Layer 2 networks (such as EVPN) across SD-WAN and VXLAN. IPv6 NAT supports proxy NDP for Network Prefix Translation version 6 (NPTv6).
26. Click the + Add icon to configure proxy NDP on the subinterface. To use proxy NDP, you configure a set of IPv6 subnet prefixes or prefix ranges to which proxy NDP on the VOS device responds if no NDP entry for an IP address is available. Proxy NDP allows a VOS device to respond to NDP requests for IP addresses configured in NAT pools that are both within and outside of the interface's subnet. Proxy NDP provides local responses, allowing a VOS device to reduce the amount of broadcast traffic over Layer 2 networks (such as EVPN) across SD-WAN and VXLAN. IPv6 NAT supports proxy NDP for Network Prefix Translation version 6 (NPTv6).

Click the  Add icon to configure IPv6 addresses and prefix lengths for proxy NDP. The IP address range or subnet that you configure for proxy NDP does not need to be within the interface's subnet. You must ensure that the requestor or the peer is in same subnet as the interface IP address.

Add Subinterface

General IPv4 **IPv6** Bridge

Static Address

Static Address

IPV6 ADDRESS/MASK + 
IPv6 Address/Mask Not Configured

Delegated Prefix Pool

NAME*	IPV6 ADDRESS/PREFIX*

No Records To Display +

DHCPv6

Client IA Type

IA NA IA PD IA NONE

EUI-64

Delegated Prefix Pool

IPv6 Interface Mode

-Select- FQDN Interface Identifier

VRPP **Proxy NDP**

IPV6 ADDRESS/LENGTH + 

+

OK **Cancel**

27. Select the Bridge tab in the Add Subinterface popup window, and enter information for the following fields.

Add Subinterface

General IPv4 IPv6 **Bridge**

Interface Mode

-Select- VLAN ID VLAN ID List

dot1x

OK **Cancel**

Field	Description
Interface Mode	Select the interface mode: ◦ Access ◦ Trunk
dot1x	Click to enable 801.1X on the subinterface.
VLAN ID	For the Access interface mode, enter the VLAN ID for the subinterface. <i>Range:</i> 1 through 4094
VLAN ID List	For the Trunk interface mode, enter the VLAN ID list for the subinterface. <i>Range:</i> 1 through 4094

28. In the Add Enet Interface popup window, in the Subinterfaces tab, click Aggregate Member to using the Link Aggregation Control Protocol (LACP) to bundle severl physical links to form a single logical link. LACP allows a network device to negotiate an automatic bundling of links by sending LACP packets to their peer, a directly connected device that also implements LACP. Enter information for the following fields.

Add Enet Interface

General SubInterfaces

Subinterfaces Aggregate Member

Interface *

LACP Priority

OK Cancel

Field	Description
Interface (Required)	Select the interface name.
LACP Priority	Enter an LACP priority number. <i>Range:</i> 1 through 65535 <i>Default:</i> 127

29. Click OK to complete configuration of the LAN Ethernet interface.

Configure IRB Interfaces

For information about configuring IRB interfaces, see [Configure IRB Interfaces](#) in [Configuring Layer 2 Forwarding](#).

Configure T1/E1 Interfaces

You can configure T1/E1 interfaces on VOS devices that can operate in T1 networks (in North America) or E1 networks (rest of the world). T1/E1 interfaces support line coding, framing, and diagnostics options that you can use to verify and troubleshoot connectivity issues. T1/E1 interfaces facilitate data and control plane functionality, such as a WAN interface-level control plane, and they support encapsulation and decapsulation (PPP, Frame Relay, and high-level data link control [HDLC]).

For Releases 22.1.1 and later, you can specify the cable length for each T1 interface link, either short or long haul, which then configures the appropriate transmission waveform on T1 interface.

To configure a T1/E1 interface:

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 > Interfaces in the left menu bar.
4. Select the T1/E1 tab in the horizontal menu bar.

The screenshot shows the Versa Networks Appliance View Configuration interface. The top navigation bar includes Director View, Appliance View (selected), Template View, SDWAN-Branch6, Administrator, and various status icons. The main menu tabs are Monitor, Analytics, Configuration (selected), and Administration. Below the tabs, a message says "You are currently in Appliance View". The left sidebar has categories: Networking, Services, Objects & Connectors, and Others, with "Interfaces" selected. The main content area has tabs: VNI, AE, ENet, IRB, T1/E1 (selected), Tunnel, DSL, LTE, Wi-Fi, uCPE, Loopback, Fabric, and Management. A search bar and filter icons are at the top of the list table. The table columns are NAME, MULTILINK, DESCRIPTION, and IP ADDRESS/PREFIX. A message "No T1/E1 Interface Added" is displayed above the table. A blue "+ Add" button is located at the bottom right of the table area.

- Click the Add icon. In the Add T1/E1 Interface popup window, enter information for the following fields.

Add T1/E1 Interface

T1/E1 Interface ML T1/E1 Interface X

T1 E1

Interface * slot / port Disable

Mirror Interface Multilink

Description

Channel Group * **Cable Length**

Clock Source * **Time Slot Begin *** **Time Slot End ***

Encapsulation*

Frame Relay HDLC PPP

Lowest DLCI Channel Number **Total Number of DLCI Channels** **Maximum Receive SDU Size (bytes)**

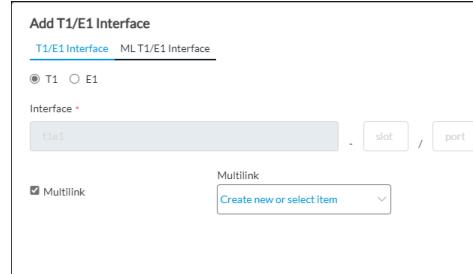
Maximum Transmit SDU Size (bytes)

Subinterfaces

<input type="checkbox"/>	UNIT	IP ADDRESS/MASK	DHCPV4	DHCPV6	MTU	INTERFACE MODE	VLAN ID	VLAN ID LIST
		IPv4 IPv6						
No Subinterfaces Added								

OK Cancel

Field	Description
T1	Click to configure a T1 interface.
E1	Click to configure an E1 interface.
Interface (Required)	Enter the slot and port numbers for the T1/E1 interface. The slot number must be 0. The port number can be a number from 0 through 3.
Disable	Click to not activate the T1/E1 interface after you configure it.

Field	Description
Mirror Interface	Click to create a copy of the interface.
Multilink	<p>(For Releases 21.2.1 and later.) Click to configure a multilink interface and then select the multilink Frame Relay or multilink PPP interface type. For more information, see Step 6.</p> 
Description	Enter a text description for the T1/E1 interface. It can be a text string up to 255 characters.
Channel Group (Required)	Enter the channel group number. For Versa CSG appliances, channel group must be 0.
Cable Length	<p>(For Releases 22.1.1 and later.) Select the link cable length:</p> <ul style="list-style-type: none"> ◦ Long—Use long haul. Then select the attenuation: <ul style="list-style-type: none"> ▪ 0 dB ▪ -7.5 dB ▪ -15 dB ▪ -22.5 dB ◦ Short—Use short haul. Then select the length: <ul style="list-style-type: none"> ▪ 110 ft. ▪ 220 ft. ▪ 330 ft. ▪ 440 ft. ▪ 550 ft. ▪ 660 ft. <p><i>Default:</i> Long haul, 0 dB</p>

Field	Description
Clock Source (Required)	<p>Select the clock source:</p> <ul style="list-style-type: none"> ◦ External ◦ Internal
Time Slot Begin (Required)	<p>Enter a starting number for the interface time slots.</p> <p><i>Range:</i> 0 through 23 (for T1 interfaces), 0 through 31 (for E1 interfaces)</p>
Time Slot End (Required)	<p>Enter an ending number for the interface time slots.</p> <p><i>Range:</i> 0 through 23 (for T1 interfaces), 0 through 31 (for E1 interfaces)</p>
Encapsulation (Group of Fields)	<p>You must configure an encapsulation.</p>
◦ Frame Relay	<p>Click to use Frame Relay encapsulation. For Frame Relay, you can configure subinterfaces with multiple units.</p>
◦ Lowest DLCI Channel Number	<p>Enter the lowest data link connection identifier (DLCI) channel number allowed.</p>
◦ Total Number of DLCI Channels	<p>Enter the total number of DLCI channels that can be created on the interface.</p>
◦ Maximum Receive SDU Size	<p>Enter the maximum receive SDU size, in bytes.</p>
◦ Maximum Transmit SDU Size	<p>Enter the maximum transmit SDU size, in bytes.</p>
◦ HDLC	<p>Click to use HDLC encapsulation. Subinterface with only unit 0 is allowed in HDLC encapsulation.</p>
◦ Framing	<p>For a T1 interface, select the encapsulation HDLC framing type:</p> <ul style="list-style-type: none"> ◦ T1 ESF—T1 extended superframe <p>For an E1 interface, select the encapsulation HDLC framing type:</p>

Field	Description
	<ul style="list-style-type: none"> ◦ E1 CRC4 ◦ E1 No CRC4 ◦ E1 Unframed
<ul style="list-style-type: none"> ◦ PPP 	<p>Click to use PPP encapsulation, to encapsulate network layer protocol information over point-to-point links. With PPP encapsulation, you can configure subinterfaces with only unit 0.</p> <p>Select the authentication protocol:</p> <ul style="list-style-type: none"> ◦ None—No authentication ◦ CHAP—Challenge handshake authentication protocol (CHAP) ◦ PAP—Password authentication protocol (PAP)
<ul style="list-style-type: none"> ◦ Authentication Protocol 	<p>For PPP encapsulation, select the authentication protocol:</p> <ul style="list-style-type: none"> ◦ CHAP—Challenge handshake authentication protocol ◦ None—No authentication ◦ PAP—Password authentication protocol

6. Click the ML T1/E1 Interface tab to configure a multilink T1/E1 interface. Enter information for the following fields.

Add T1/E1 Interface

T1/E1 Interface [ML T1/E1 Interface](#)

Interface * / Disable Mirror Interface

Description

Channel Group Clock Source

Time Slot Begin Time Slot End Cable Length -7.5dB

Encapsulation*

Multilink Frame Relay Multilink PPP

Auth Proto Maximum Received Reconstructed Unit (bytes)

Subinterfaces

UNIT	IP ADDRESS/MASK	DHCPV4	DHCPV6	MTU	INTERFACE MODE	VLAN ID	VLAN ID LIST
IPV4	IPV6						
No Subinterfaces Added							

Field	Description
Interface (Required)	Enter the slot and port numbers for the multilink T1/E1 interface. The slot number must be 0. The port number can be 0 or 1.
Disable	Click to not activate the multilink T1/E1 interface after you configure it.
Mirror Interface	Click to create a copy of the multilink T1/E1 interface.
Description	Enter a text description for the multilink T1/E1 interface. It can be a text string up to 255 characters.
Channel Group	Enter the channel group number. For Versa CSG appliances, the channel group number must be 0.
Clock Source	Select the clock source: <ul style="list-style-type: none"> ◦ External ◦ Internal

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Field	Description
Time Slot Begin	<p>Enter a starting number for the multilink T1/E1 interface time slot.</p> <p><i>Range:</i> 0 through 23 (for T1 interfaces); 0 through 31 (for E1 interfaces)</p>
Time Slot End	<p>Enter an ending number for the multilink T1/E1 interface time slot.</p> <p><i>Range:</i> 0 through 23 (for T1 interfaces); 0 through 31 (for E1 interfaces)</p>
Cable Length	<p>(For Releases 22.1.1 and later.) Select the link cable length:</p> <p>Long—Use long haul. Then select the attenuation:</p> <ul style="list-style-type: none"> ◦ 0 dB ◦ -7.5 dB ◦ -15 dB ◦ -22.5 dB <p>Short—Use short haul. Then select the length:</p> <ul style="list-style-type: none"> ◦ 110 ft. ◦ 220 ft. ◦ 330 ft. ◦ 440 ft. ◦ 550 ft. ◦ 660 ft. <p><i>Default:</i> Long haul, 0 dB</p>
Encapsulation (Group of Fields)	
◦ Multilink Frame Relay	<p>Click to use multilink frame relay encapsulation. In multilink frame relay, you can configure subinterfaces with multiple units.</p>
◦ Multilink PPP	<p>Click to use multilink PPP encapsulation, to encapsulate network layer protocol information over point-to-point links. For multilink PPP encapsulation, you can configure subinterfaces with unit 0 only.</p>
◦ Authentication Protocol	<p>For multilink PPP encapsulation, select the</p>

Field	Description
	<p>authentication protocol:</p> <ul style="list-style-type: none"> ◦ CHAP—Challenge handshake authentication protocol ◦ None—No authentication ◦ PAP—Password authentication protocol
◦ Maximum Received Reconstructed Unit	Enter the maximum received reconstructed unit, in bytes.

7. In the Subinterfaces table, click the Add icon. In the Add Subinterface popup window, enter information for the following fields.

Field	Description
Unit (Required)	Enter a unit number for the subinterface.

Field	Description
Disable	Click to not activate the subinterface after you configure it.
Description	Enter a text description for the subinterface. It can be a text string up to 255 characters.
Interface DLCI	<p>Enter the Frame Relay data link connection identifier.</p> <p><i>Range:</i> 17 through 1024</p>
MTU	<p>Enter the size, in bytes, of the largest protocol data unit that the subinterface can receive or transmit.</p> <p><i>Range:</i> 72 through 9000 bytes</p>
HA Interface Mode	<p>Select the HA interface mode:</p> <ul style="list-style-type: none"> ◦ Normal ◦ Redundancy
IPv4 (Tab)	
◦ Static Address	Click to use a static IPv4 address for the subinterface.
◦ IP Address/Mask	Enter the IP address and prefix length, and then click the  Add icon.
◦ DHCPv4	Click to use DHCP to assign an IPv4 address for the subinterface.
◦ Route Preference	Enter the preference for the traffic route. A lower value indicates a higher preference.
◦ Disable Broadcast Flag	Click to disable broadcast on the subinterface's network.
◦ Reachability Monitor	<p>To configure the reachability monitor, enter information for the following fields:</p> <ul style="list-style-type: none"> ◦ Enable ICMP—Click to enable ICMP on the subinterface. ◦ Interval—Enter the time interval after which ICMP

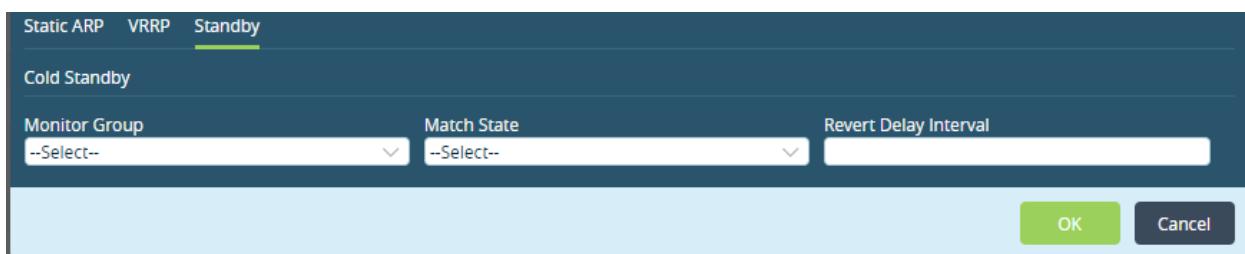
Field	Description
	<p>reports error messages.</p> <ul style="list-style-type: none"> ◦ Threshold—Enter the maximum number of ICMP error messages to report.
<ul style="list-style-type: none"> ◦ FQDN 	Enter the fully qualified domain name for the IPv4 subinterface.
<ul style="list-style-type: none"> ◦ Directed Broadcast 	Click to enable directed broadcast, which sends broadcast packets targeted at hosts in a specified subnet.
<ul style="list-style-type: none"> ◦ SLA Endpoint 	Click if this is an SLA endpoint.
IPv6 (Tab)	
<ul style="list-style-type: none"> ◦ Static Address 	Click to use a static IPv6 address for the subinterface.
<ul style="list-style-type: none"> ◦ IPv6 Address/Mask 	Enter the IPv6 address and prefix length, click the  Add icon.
<ul style="list-style-type: none"> ◦ Delegated Prefix Pool 	Enter the name and IP address of the delegated prefix pool.
<ul style="list-style-type: none"> ◦ DHCPv6 	Click to use DHCP to assign an IPv6 address for the subinterface.
<ul style="list-style-type: none"> ◦ Client IA Type 	<p>Select the client identity association type:</p> <ul style="list-style-type: none"> ◦ EUI 64 ◦ IA-NA ◦ IA-NONE ◦ IA-PD
<ul style="list-style-type: none"> ◦ Delegated Prefix Pool 	Enter the name and IP address of the delegated prefix pool.
<ul style="list-style-type: none"> ◦ IPv6 Interface Mode 	<p>Select the IPv6 interface mode:</p> <ul style="list-style-type: none"> ◦ Host—This is the default. Use to configure stateful DHCPv6. ◦ Router—Select to configure stateless automatic address configuration (SLAAC). You must also

Field	Description
	configure a router advertisement that corresponds to the IPv6 address and prefix length. For more information, see Configure Virtual Routers .
◦ FQDN	Enter the fully qualified domain name for the IPv6 subinterface.
Bridge (Tab)	
◦ Interface Mode	Select the interface mode: ◦ Access ◦ Trunk
◦ VLAN ID	Enter the VLAN ID for the subinterface.
◦ VLAN ID List	Enter the VLAN ID list for the subinterface.

8. Select the Static ARP tab to configure a static ARP mapping. Enter information for the following fields.

Fields	Description
Subnet Address/Mask (Required)	Select the static subnet IP address.
Host IP Address (Required)	Enter the IP address of the host.
MAC Address (Required)	Enter the MAC address of the host.
 Add icon	Click to configure the static ARP mapping.

9. Select the VRRP tab to configure an active and a standby VRRP device for high availability (HA) mode. For more information, see Step 13 through 15 in [Configure LAN Ethernet Interfaces](#).
10. Select the Standby tab, and enter information for the following fields.



The screenshot shows the 'Standby' configuration tab for a VRRP device. At the top, there are tabs for 'Static ARP', 'VRRP', and 'Standby', with 'Standby' being the active tab. Below the tabs, the word 'Cold Standby' is displayed. Underneath, there are three dropdown menus: 'Monitor Group' (set to '--Select--'), 'Match State' (set to '--Select--'), and 'Revert Delay Interval' (empty). At the bottom right of the configuration area are two buttons: 'OK' and 'Cancel'.

Fields	Description
Monitor Group	Select the name of the monitor group.
Match State	Select the state of monitor group to match: <input type="radio"/> Down <input type="radio"/> Up
Revert Delay Interval	Enter the revert delay interval, in seconds.

11. Click OK.

Configure the T1/E1 Authentication Protocol

For Releases 21.2.1 and later.

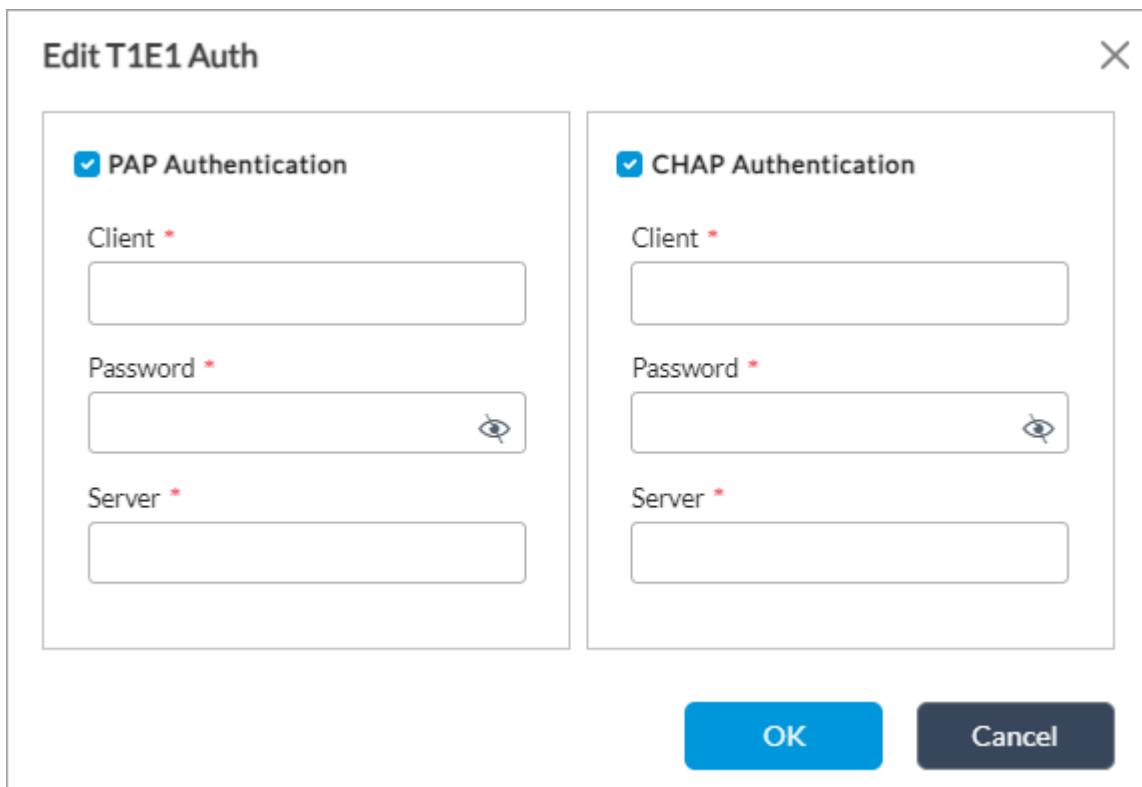
You can configure the T1/E1 authentication protocol and associated password using the Password Authentication Protocol (PAP) and Challenge Handshake Authentication Protocol (CHAP) authentication methods. PAP and CHAP are used by PPP to authenticate its peer. When a PPP connection is established, each end can request that the other end authenticate itself. PAP authentication uses a clear text-based username and password to authenticate the PPP peer. With CHAP authentication, the authenticator sends a randomly generated challenge string to the client with its hostname. The client uses the hostname to look up the appropriate secret, combines it with the challenge, and encrypts the string using a one-way hashing function. The client returns the result to the server along with the client's hostname. The server then performs the same computation and acknowledges the client if it arrives at the same result.

To configure T1/E1 authentication protocol:

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 > T1/E1 Authentication in the left menu bar.

The screenshot shows the Director View interface with the Configuration tab selected. The left sidebar lists various network components like Networking Services, Objects & Connectors, and others. Under 'T1/E1 Auth', there is a red box around the 'Edit' icon. The main pane shows two sections: 'PAP Auth Param' and 'CHAP Auth Param'. Each section has 'Client' and 'Server' fields.

- In the T1/E1 Authentication pane, click the Edit icon. In the Edit T1/E1 Authentication popup window, enter information for the following fields.



Field	Description
Client (Required)	Enter client username. The username is used as a reference for the PAP and CHAP password database.
Password (Required)	Enter the password to use to authenticate the server connection request.

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Field	Description
Server (Required)	Enter the username to use to authenticate the server connection request.

5. Click OK.

Configure Tunnel Interfaces

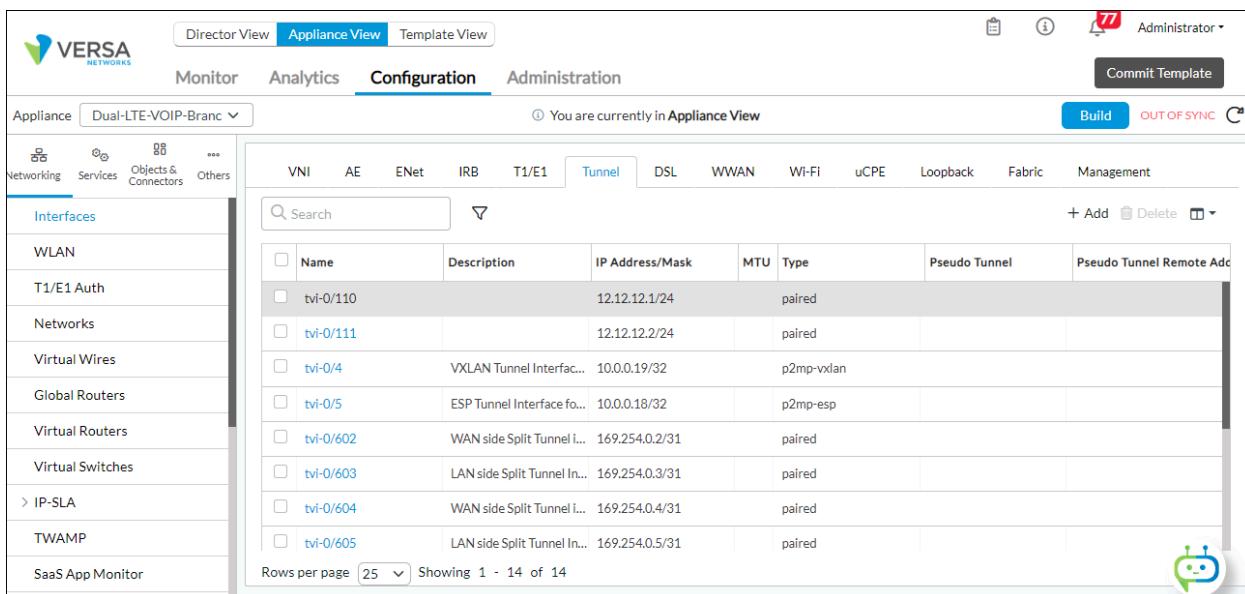
You use tunnel interfaces to configure an IPsec tunnel and high availability (HA) between two VOS devices. For SD-WANs, you create multiple tunnel interfaces to connect a branch with a Controller device.

Tunnel interfaces are named with the prefix *tni*, for tunnel virtual interface.

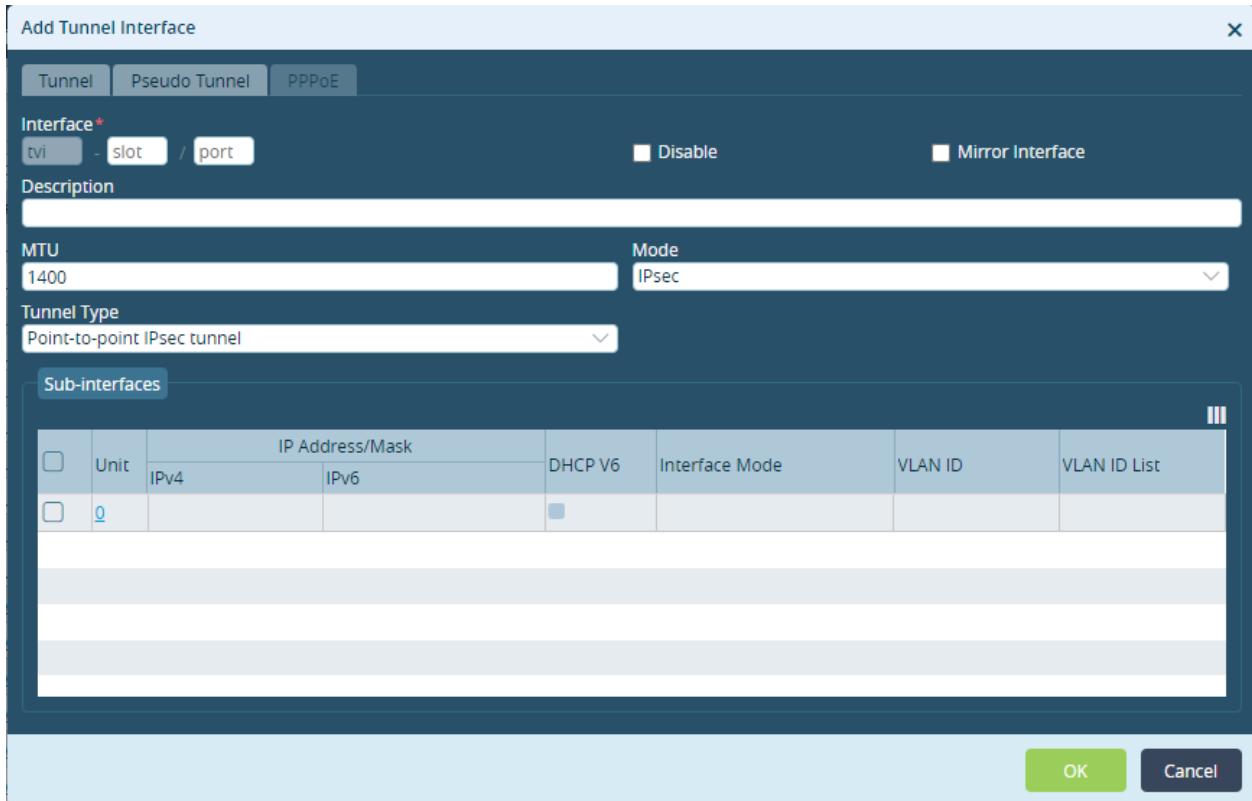
For information about tunnel interface numbering, see [Understand SD-WAN Interface Numbering](#).

To configure a tunnel interface:

1. In Director view:
 - a. Select the Configuration tab in the top menu bar.
 - b. Select Templates > Device Templates in the horizontal menu bar.
 - c. Select an organization in the left menu bar.
 - d. Select a Controller in the main pane. The view changes to Appliance view.
 2. Select the Configuration tab in the top menu bar.
 3. Select Networking > Interfaces in the left menu bar.
 4. Select the Tunnel tab in the horizontal menu bar.



5. Click the  Add icon. In the Add Tunnel Interface popup window, select the Tunnel tab and enter information for the following fields.



Add Tunnel Interface

Tunnel Pseudo Tunnel PPPoE

Interface*
tv1 - slot / port Disable Mirror Interface

Description

MTU
1400

Mode
IPsec

Tunnel Type
Point-to-point IPsec tunnel

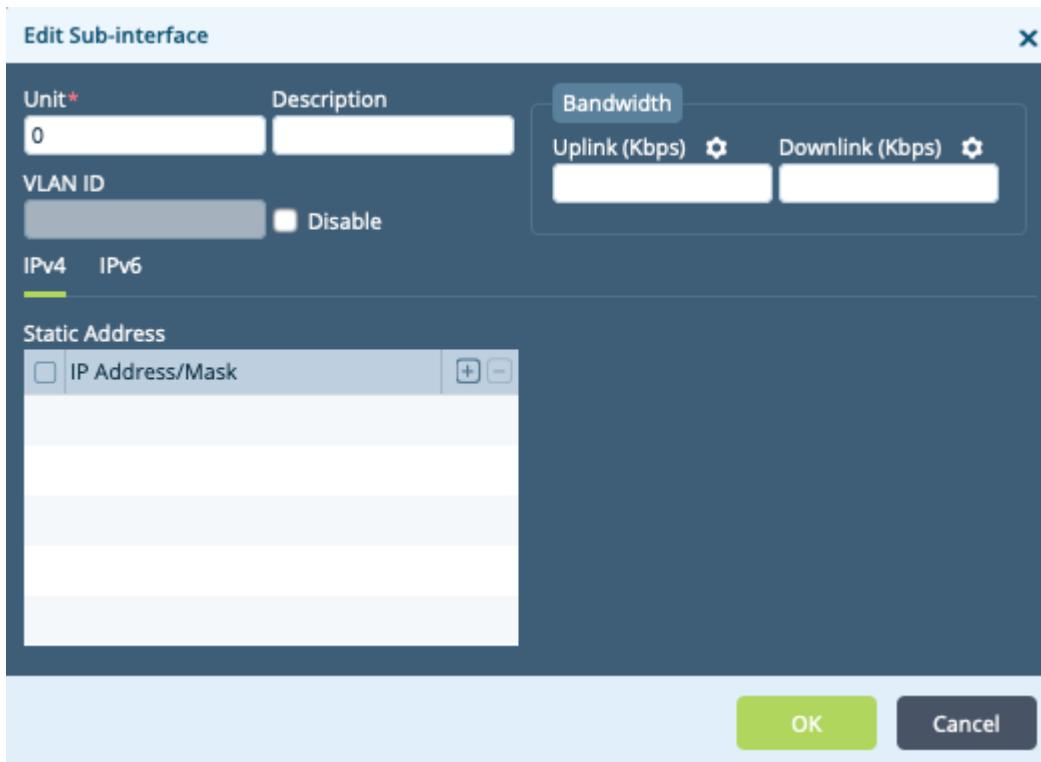
	Unit	IP Address/Mask	DHCP V6	Interface Mode	VLAN ID	VLAN ID List
<input type="checkbox"/>	0	IPv4	<input type="checkbox"/>			

OK Cancel

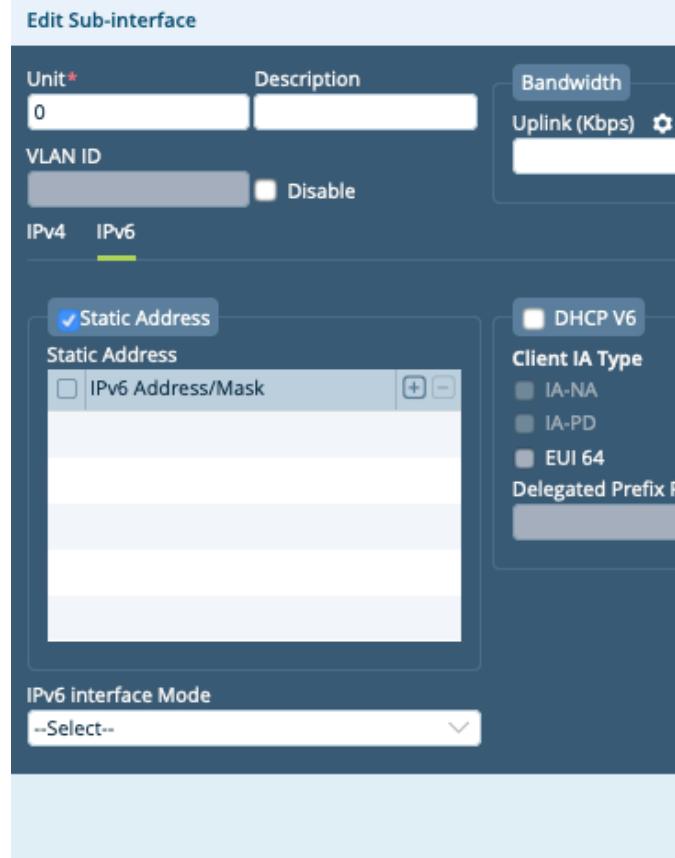
Field	Description
Interface (Required)	Enter the port and slot numbers for the tunnel (tvi) interface.
Description	Enter a text description for the tunnel interface. It can be a string up to 255 characters.
Disable	Click to not activate the tunnel interface after it is configured.
Mirror Interface	Click to have the tunnel interface be a mirror interface.
MTU	<p>Enter the maximum transmission unit size, in bytes, of largest protocol data unit that the port can receive or transmit. <i>Range:</i> 72 through 9000 bytes</p>
Mode	<p>Select the tunnel mode:</p> <ul style="list-style-type: none"> ◦ IPsec—Use for IPsec. ◦ Redundancy—Use for HA.
Tunnel Type	<p>Select the tunnel type:</p> <ul style="list-style-type: none"> ◦ Ethernet over GRE—Use to leverage existing low-end residential gateways to provide mobility services to mobile nodes. ◦ (For Releases 22.1.1 and later.) IPv6 IPIP tunnel—IPv4 tunnel over IPv6 transport. Note: To use static Mapping of Address and Port with Encapsulation (MAP-E), configure the CE with an IPv6 IPIP tunnel. IPv4 packets are sent through this tunnel between the CE and a border relay (BR) device. For MAP-E, Versa supports network address port translation (NAPT), and TCP, UDP, and ICMP protocols. To steer LAN-side packets to the tunnel, define a CGNAT rule under the tenant organization using NAT mode NAPT-44. For information about configuring CGNAT rules, see Configure CGNAT. ◦ Paired. ◦ Point-to-multipoint clear-text SD-WAN tunnel. ◦ Point-to-multipoint GRE tunnel—Generic Routing Encapsulation tunnels encapsulate a variety of network layer protocols inside point-to-point links. GRE tunnels are used to send packets from one

- network to another over the internet or an insecure network.
- Point-to-multipoint IPsec tunnel—An IPsec tunnel that helps protect site-to-site traffic between networks.
 - Point-to-multipoint secure SD-WAN tunnel.
 - Point-to-multipoint VXLAN tunnel—Virtual Extensible LAN tunnels connect VXLAN tunnel endpoints (VTEPs). The endpoints can be either virtual or physical switch ports.
 - Point-to-point GRE tunnel.
 - Point-to-point IPsec tunnel.
 - Point-to-point V6 GRE tunnel.
 - PPPoE—Point-to-Point Protocol over Ethernet encapsulates PPP frames inside Ethernet frames. PPPoE is used with DSL services in which individual users connect to a DSL modem over Ethernet.

6. In the Subinterfaces table, select an existing subinterface.
7. In the Edit Subinterface popup window, enter information for the following fields.



Field	Description
Unit (Required)	Enter the subinterface number.
Description	Enter a text description for the subinterface. It can be a string up to 255 characters.
Bandwidth (Tab)	Allows you to specify the bandwidth available on a link to upload and download data. This information is used in computing adaptive traffic shaping.
<ul style="list-style-type: none"> <li data-bbox="208 629 404 656">◦ Uplink (Kbps) 	<p>Enter the bandwidth available on the link for uploading data, in kilobits per second (Kbps).</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
<ul style="list-style-type: none"> <li data-bbox="208 918 437 946">◦ Downlink (Kbps) 	<p>Enter the bandwidth available on the link for downloading data, in kilobits per second (Kbps).</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
VLAN ID	Enter the VLAN ID for the subinterface.
Disable	Click to not activate the tunnel interface after it is configured.
IPv4 (Tab)	
<ul style="list-style-type: none"> <li data-bbox="208 1334 409 1362">◦ Static Address 	Click to use a static IPv4 address for the subinterface.
<ul style="list-style-type: none"> <li data-bbox="208 1453 442 1480">◦ IP Address/Mask 	Enter the IP address and prefix length, and then click the  Add icon.

IPv6 (Tab)	
◦ Static Address	Click to use a static IPv6 address for the subinterface.
◦ IPv6 Address/Mask	Enter the IPv6 address and prefix length, click the  Add icon.
◦ DHCPv6	Click to use DHCP to assign an IPv6 address for the subinterface.
◦ Client IA Type	<p>Select the client identity association type:</p> <ul style="list-style-type: none"> ◦ EUI 64 ◦ IA-NA ◦ IA-NONE ◦ IA-PD
◦ Delegated Prefix Pool	Enter the name and IP address of the delegated prefix pool.

<ul style="list-style-type: none"> ◦ IPv6 Interface Mode 	<p>Select the IPv6 interface mode:</p> <ul style="list-style-type: none"> ◦ Host—This is the default. Use to configure stateful DHCPv6. ◦ Router—Select to configure stateless automatic address configuration (SLAAC). You must also configure a router advertisement that corresponds to the IPv6 address and prefix length. For more information, see Configure Virtual Routers.
---	---

8. Click OK.
9. Select the Pseudo Tunnel tab, and then enter information for the following fields.

Add Tunnel Interface				
Tunnel	Pseudo Tunnel	PPPoE		
1				
Name*	Parent Interface*	Remote IP Address*	Enable / Disable*	+
ptvi*	tvi-0/3.0		Enable	
NO PSEUDO TUNNEL ADDED				
OK Cancel				

Field	Description
Name (Required)	Enter a number to identify the pseudo tunnel interface.
Parent Interface (Required)	Select the parent tunnel interface to use for the pseudo tunnel.
Remote IP Address (Required)	Enter the IP address of the remote endpoint of the pseudo tunnel
Enable/Disable (Required)	Select to enable or disable the pseudo tunnel interface.
+ Add icon	Click the + Add icon to add the pseudo tunnel.

10. If you selected the PPPoE tunnel type, click the PPoE tab, and then enter information for the following fields.

Add Tunnel Interface

The dialog box has tabs for Tunnel, Pseudo Tunnel, and PPPoE. The PPPoE tab is selected. Fields include:

- VNI Interface: Select --Select--
- Preferred IP: [Input field]
- Service Name: [Input field]
- Access Concentrator: [Input field]
- User Name: [Input field]
- Password: [Input field]
- Icp Echo Interval: [Input field]
- Icp Echo Failure: [Input field]
- Route Preference: [Input field]

Buttons: OK, Cancel.

Field	Description
VNI Interface	Select a VNI interface.
Preferred IP	Enter the preferred source IP address for the tunnel.
Service Name	Enter the service name.
Access Concentrator	Enter the name of the access concentrator. The access concentrator name on both the client and the server must be the same to establish the PPPoE session.
Username	Enter the username.
Password	Enter the password.
ICP Echo Interval	Enter how often to send ICP echo requests to peer, in seconds.
ICP Echo Failure	Enter the number of ICP echo requests to send without receiving a valid ICP echo reply before assuming that the peer is unreachable (dead).
Route Preference	Enter the route preference to use when installing the default route.

11. Click OK.

Configure GRE Tunnel Interfaces

You can configure three types of GRE tunnels.

- IPv4 GRE

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- Ethernet over GRE
- IPv6 GRE

The GRE tunnels have the following common input parameters:

- Source—IPv4 (GRE, Ethernet over GRE) or IPv6 (IPv6 GRE) address that must be configured on any of the local VNI/TVI interfaces. This parameter uses the source IP in the IPv4 header and adds as GRE encapsulation. The remote end sends packets back to this IP, so that if the packet is not configured in any local interface, then the packet does not terminate in VOS.
- Destination—IPv4 (GRE, Ethernet over GRE) or IPv6 (IPv6 GRE) address of the remote tunnel endpoint that can be any device supporting the GRE tunnel.
- Routing instance—Routing instance in which the VNI/TVI interface resides, using its IP address as a source in the GRE tunnel configuration.

A TVI interface applies in the routing instance and in the organization.

GRE and IPv6 GRE tunnels support only one subinterface, unit 0, and Ethernet-over-GRE tunnels can have subinterfaces with VLAN IDs from 0 to 4095. Subinterfaces can have either IPv4 or IPv6 addresses.

To configure a GRE tunnel:

1. In Director view:
 - a. Select the Configuration tab in the top menu bar.
 - b. Select Templates > Device Templates in the horizontal menu bar.
 - c. Select an organization in the left menu bar.
 - d. Select a Controller in the main pane. The view changes to Appliance view.
2. Select the Configuration tab in the top menu bar.
3. Select Networking > Interfaces in the left menu bar.
4. Select the Tunnel tab in the horizontal menu bar.

The screenshot shows the VERSA Networks web interface. The top navigation bar includes tabs for Director View, Appliance View (which is selected), and Template View. On the far right, there are icons for a clipboard, a user profile, and an administrator status. Below the navigation is a secondary menu with Monitor, Analytics, Configuration (selected), and Administration. A dropdown for 'Appliance' shows 'Dual-LTE-VOIP-Bran'.

The main content area is titled 'Appliance View' and displays a table for managing 'Tunnel' interfaces. The table has columns for Name, Description, IP Address/Mask, MTU, Type, Pseudo Tunnel, and Pseudo Tunnel Remote Ad. There are 14 rows listed, each with a checkbox and a delete icon. The rows show various tunnel types like paired, p2mp-vxlan, and p2mp-esp, with IP addresses ranging from 12.12.12.1/24 to 169.254.0.3/31.

On the left sidebar, there's a vertical list of network-related sections: Networking, Services, Objects & Connectors, Others, Interfaces (selected), WLAN, T1/E1 Auth, Networks, Virtual Wires, Global Routers, Virtual Routers, Virtual Switches, IP-SLA, TWAMP, and SaaS App Monitor. At the bottom, there are buttons for 'Build' and 'OUT OF SYNC'.

- Click the  Add icon. In the Add Tunnel Interface popup window, select the Tunnel tab and enter information for the following fields.

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Add Tunnel Interface

Tunnel Pseudo Tunnel

Interface* tvi - 0 / 1 Disable

Description

MTU 1400 Mode IPsec

Tunnel Type Point-to-point GRE tunnel Paired Interface* tvi - slot / port

Source* 78.78.78.2 Destination* 1.2.3.4

Routing Instance* WAN1-Transport-VR

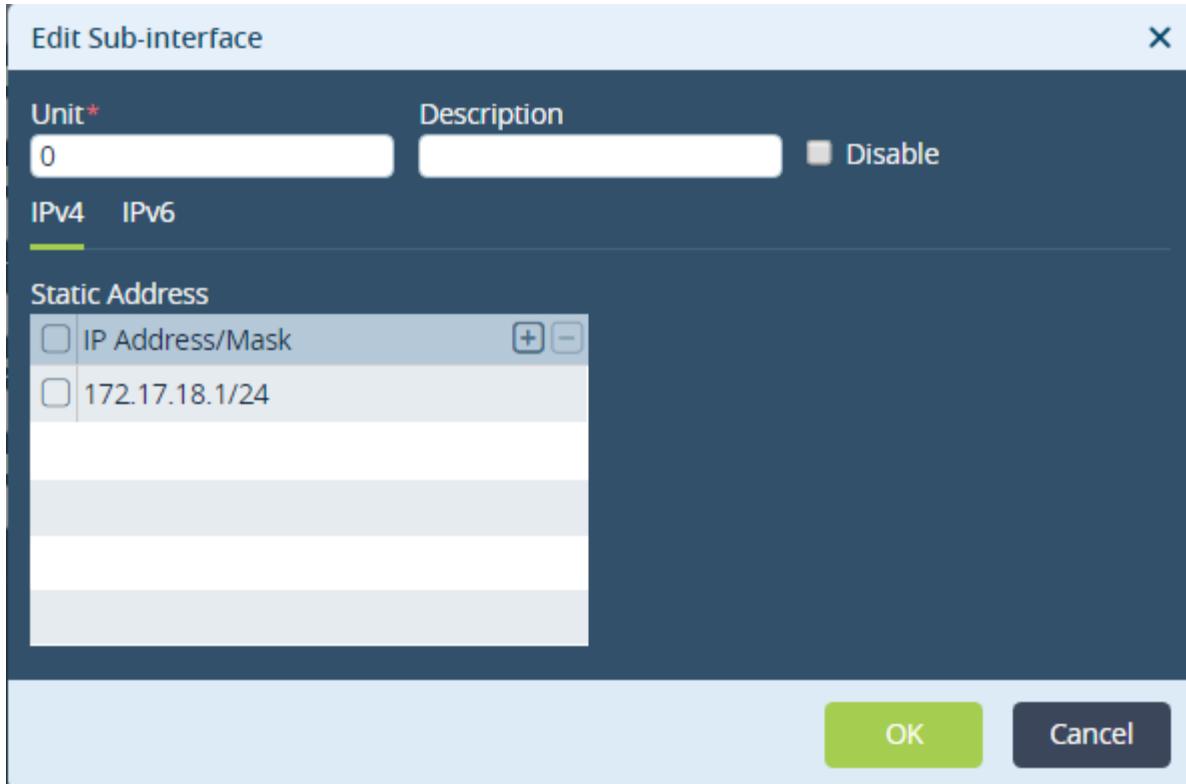
Sub-interfaces

<input type="checkbox"/>	Unit	IP Address/Mask
<input type="checkbox"/>	0	

OK Cancel

Field	Description
Interface	Enter the port and slot numbers for the tunnel (tvi) interface.
Description	Enter a text description for the tunnel interface. It can be a string up to 255 characters.
Disable	Click to not activate the tunnel interface after it is configured.
MTU	Enter the maximum transmission unit size, in bytes, of largest protocol data unit that the port can receive or transmit. <i>Range:</i> 72 through 9000 bytes
Mode	Select the tunnel mode: <ul style="list-style-type: none"> ◦ IPsec—Use for IPsec ◦ Redundancy—Use for HA
Tunnel Type	Select the tunnel type: <ul style="list-style-type: none"> ◦ Ethernet over GRE ◦ Point-to-point GRE ◦ Point-to-point IPv6 GRE
Source	Enter the source IP address of the tunnel.
Destination	Enter the destination IP address of the tunnel.
Routing Instance	Select the routing instance in which the tunnel interface resides.

4. In the Subinterfaces table, select an existing subinterface and enter information for the following fields.



Field	Description
Unit	Enter the unit number of the subinterface. This is the VLAN ID, which is the virtual LAN ID of the subinterface. If the unit value is 0, VLAN ID is disabled. <i>Range:</i> 0 through 4095
Description	Enter a text description for the subinterface.
Disable	Click to not activate the subinterface after it is configured.
Static Address	Select the IP address and subnet mask for the subinterface.

5. Click OK twice.

Configure DSL Interfaces

You can configure digital subscriber line (DSL) WAN interfaces on VOS devices. These interfaces can operate in asymmetric digital subscriber line (ADSL2+) mode and very high speed digital subscriber line (VDSL2) mode networks. ADSL2+ and VDSL2 interfaces support a single WAN interface, allowing you to connect to ADSL2 and VDSL2 networks.

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and providing high-speed digital data transmission between customer premises equipment (CPE) and DSL access multiplexers (DSLAMs). You can use these interfaces to upgrade existing xDSL infrastructure.

VDSL2 interfaces support triple-play services, such as voice, video, data, and high-definition television (HDTV).

You can deploy VOS SD-WAN, security, routing, and network performance management features on ADSL2+ and VDSL2 interfaces.

ADSL2+ and VDSL2 interfaces support the following encapsulation types:

- Point-to-Point Protocol over Ethernet (PPPoE)
- Point-to-Point Protocol over Ethernet over ATM (PPPoEoA)
- VLAN

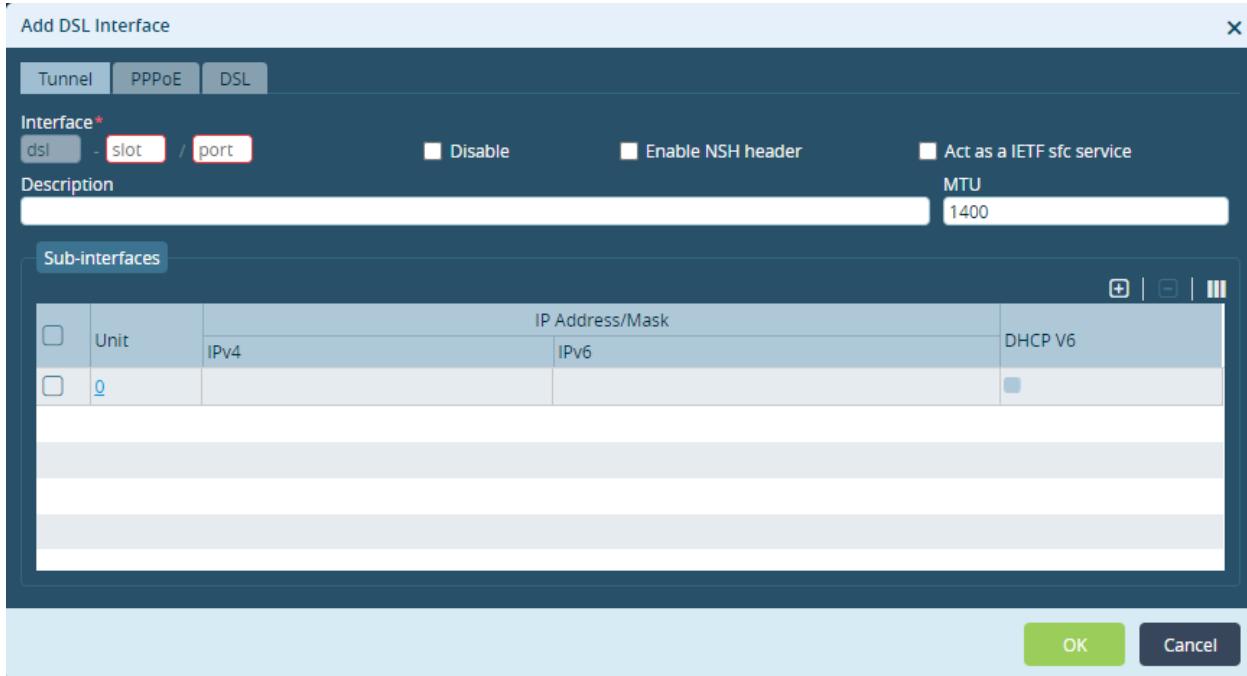
You can configure ATM, LLC, or VC-MUX-based transparent bridging for the NIC with the virtual path identifier (VPI)/virtual channel identifier (VCI) configuration option. VOS network packet processing includes a full set of Layer 2, Layer 3, and Layer 4 to Layer 7 functions, including VLAN and other methods to separate traffic.

To configure a DSL interface:

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 > Interfaces in the left menu bar.
4. Select the DSL tab in the horizontal menu bar.

The screenshot shows the Versa Networks Director View interface. The top navigation bar includes tabs for Director View, Appliance View (which is selected), and Template View. On the right, there are buttons for Commit Template, Build, and OUT OF SYNC. The main header has tabs for Monitor, Analytics, Configuration (selected), and Administration. A sub-header indicates "You are currently in Appliance View". The left sidebar lists categories: Networking, Services, Objects & Connectors, and Others. Under Networking, "Interfaces" is selected, showing sub-options: WLAN, T1/E1 Auth, Networks, Virtual Wires, Global Routers, Virtual Routers, Virtual Switches, IP-SLA, TWAMP, and SaaS App Monitor. The main content area is titled "DSL" and shows a table with columns: VNI, AE, ENet, IRB, T1/E1, Tunnel, DSL (selected), WWAN, Wi-Fi, uCPE, Loopback, Fabric, and Management. A search bar and a "No DSL Interface Added" message are present. A large blue "Add" button is at the bottom. At the bottom left, there's a "Rows per page" dropdown set to 25. A small green robot icon is in the bottom right corner.

5. Click the  Add icon. In the Add DSL Interface popup window, select the Tunnel tab and enter information for the following fields.



Field	Description
Interface (Required)	Enter the slot and port numbers for the DSL interface.
Disable	Click to not activate the DSL interface after you configure it.
Enable NSH Header	Click to enable network service header-based service chaining.
Act as a IETF SFC Service	Click to have the interface perform IETF service function chaining with no service function forwarder configuration.
Description	Enter a text description for the T1 interface. It can be a text string up to 255 characters.
MTU	Enter the size, in bytes, of the largest protocol data unit that the interface can receive or transmit. <i>Range: 72 through 9000 bytes</i>

6. In the Subinterfaces tab, and click the  Add icon. In the Add Subinterface window, enter information for the

https://docs.versa-networks.com/Secure_SD-WAN/01_Configuration_from_Director/Common_Configuration/Configure_Interf...

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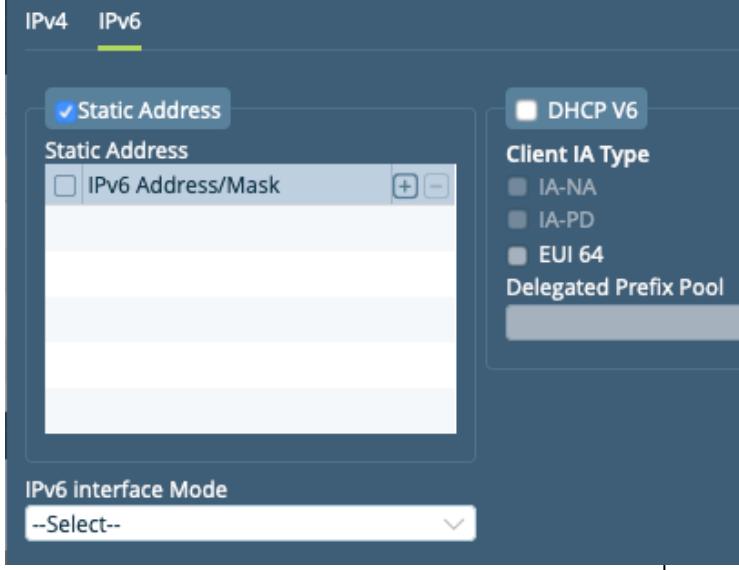
following fields.

Add Sub-interface

Unit*	Description	<input checked="" type="checkbox"/> Disable																				
Bandwidth																						
Uplink (Kbps)	Downlink (Kbps)																					
IPv4 IPv6																						
Static Address																						
<table border="1"><tr><td><input type="checkbox"/></td><td>IP Address/Mask</td><td></td><td></td></tr><tr><td colspan="4"> </td></tr><tr><td colspan="4"> </td></tr><tr><td colspan="4"> </td></tr><tr><td colspan="4"> </td></tr></table>			<input type="checkbox"/>	IP Address/Mask																		
<input type="checkbox"/>	IP Address/Mask																					
OK Cancel																						

Field	Description
Unit (Required)	Enter a unit number for the subinterface. Subinterface with only unit 0 is allowed.
Description	Enter a text description for the subinterface. It can be a text string up to 255 characters.
Disable	Click to not activate the subinterface after you configure it.
Bandwidth (Group of Fields)	Allows you to specify the bandwidth available on a link to upload and download data. This information is used in computing adaptive traffic shaping.
◦ Uplink (Kbps)	Enter the bandwidth available on the link for uploading data, in kilobits per second (Kbps). If you configure SD-WAN traffic steering, this value is used by the selection connection method that selects how to

Field	Description
	<p>forward a traffic flow when multiple available WAN paths have the highest priority. For more information, see Configure SD-WAN Traffic Steering. Note that this value does not affect the CoS (QoS) configuration on the interface.</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
<ul style="list-style-type: none"> ◦ Downlink (Kbps) 	<p>Enter the bandwidth available on the link for downloading data, in kilobits per second (Kbps). If you configure SD-WAN traffic steering, this value is used by the selection connection method that selects how to forward a traffic flow when multiple available WAN paths have the highest priority. For more information, see Configure SD-WAN Traffic Steering. Note that this value does not affect the CoS (QoS) configuration on the interface.</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
IPv4 (Tab)	<p>Click the  Add icon under Static Address and enter the IPv4 address and prefix length.</p>

Field	Description
IPv6 (Tab)	 <p>The screenshot shows the IPv6 configuration interface. At the top, there are tabs for IPv4 and IPv6, with IPv6 selected. Below the tabs, there is a section for "Static Address" which is currently checked. An input field for "IPv6 Address/Mask" is present, along with a plus icon (+) and a minus icon (-) for managing entries. To the right of this, there is a "Client IA Type" dropdown menu with options: IA-NA, IA-PD, and EUI 64. Below the static address section, there is another dropdown labeled "IPv6 interface Mode" with the option "-Select--".</p>
◦ Static Address	Click to use a static IPv6 address for the subinterface.
◦ IPv6 Address/Mask	Click the  Add icon and enter the IPv6 address and prefix length.
◦ DHCPv6	Click to use DHCP to assign an IPv6 address for the subinterface.
◦ Client IA Type	<p>Select the client identity association type:</p> <ul style="list-style-type: none"> ◦ IA-NA ◦ IA-PD ◦ EUI 64
◦ Delegated Prefix Pool	Enter the name and IP address of the delegated prefix pool.
◦ IPv6 Interface Mode	<p>Select the IPv6 interface mode:</p> <ul style="list-style-type: none"> ◦ Host—This is the default. Use to configure stateful DHCPv6. ◦ Router—Select to configure stateless automatic address configuration (SLAAC). You must also configure a router advertisement that corresponds to the IPv6 address and prefix

Field	Description
	length. For more information, see Configure Virtual Routers .

7. Click OK.
8. Select the PPPoE tab to configure a mapping, and enter information for the following fields.

The screenshot shows a configuration dialog titled "Add DSL Interface". The "PPPoE" tab is active. The interface includes fields for Preferred IP, Service Name, Access Concentrator, User Name, Password, Lcp Echo Interval, Lcp Echo Failure, and Route Preference. There are "OK" and "Cancel" buttons at the bottom. An "eye" icon is present next to the Password field.

Fields	Description
Preferred IP	Enter the preferred source IP address for the tunnel.
Service Name	Enter the service name.
Access Concentrator	Enter the name of the access concentrator. The access concentrator name on both the client and the server must be the same to establish the PPPoE session.
Username	Enter the username.
Password	Enter the password.
LCP Echo Interval	Enter how often to send LCP echo requests to peer, in seconds. <i>Range:</i> 1 through 255 seconds <i>Default:</i> 5 seconds
LCP Echo Failure	Enter the number of LCP echo requests to send without receiving a valid LCP echo reply before assuming that the peer is unreachable (dead).

Fields	Description
	<p><i>Range:</i> 1 through 255</p> <p><i>Default:</i> 3</p>
Route Preference	<p>Enter the route preference to use when installing the default route.</p> <p><i>Range:</i> 1 through 255</p>

9. Click OK.
10. Select the DSL tab, and enter information for the following fields.

Add DSL Interface

Multiplexing Type* LLC ATM VC-MUX

VLAN Tag*

VCI*

VPI*

OK Cancel

Fields	Description
Multiplexing Type (Required)	<p>Select the multiplexing type:</p> <ul style="list-style-type: none"> <input type="radio"/> ATM <input checked="" type="radio"/> LLC <input type="radio"/> VC-MUX
VLAN Tag (Required)	Enter the VLAN ID configured for the DSL line.
VCI (Required)	<p>Enter the ATM virtual channel identifier.</p> <p><i>Range:</i> 32 through 65535; 0 through 31 are reserved</p>
VPI (Required)	<p>Enter the virtual path identifier.</p> <p><i>Range:</i> 0 through 256</p>

11. Click OK.

Configure WiFi Interfaces

For information about configuring WiFi interfaces, see [Configure WiFi](#).

Configure WWAN Interfaces

For information about configuring WWAN interfaces for LTE, 4G, or 5G service, see [Configure WWAN](#).

Configure uCPE Interfaces

To configure a uCPE interface:

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 > Interfaces in the left menu bar.
4. Select the uCPE tab in the horizontal menu bar.

The screenshot shows the Versa Networks Director View. The top navigation bar includes Director View, Appliance View (selected), and Template View. The right side of the header shows the user is an Administrator and has an OUT OF SYNC status. The main menu tabs are Monitor, Analytics, Configuration (selected), and Administration. On the left, a sidebar lists Networking, Services, Objects & Connectors, and Others, with 'Interfaces' selected. The main content area shows a table for uCPE configuration with columns: VNI, AE, ENet, IRB, T1/E1, Tunnel, DSL, WWAN, Wi-Fi, uCPE (which is highlighted in blue), Loopback, Fabric, and Management. A search bar and a 'No uCPE Added' message are present. At the bottom, there is a 'Rows per page' dropdown set to 25 and a large green 'Add' button.

5. Click the Add icon. In the Add uCPE Interface popup window, enter information for the following fields.

Add uCPE

Ethernet

Interface*
--Select-- Disable

Description

Tags

MTU
 Virtual Wire Promiscuous

Bandwidth

	URI	Uplink (Kbps)	Downlink (Kbps)
<input type="checkbox"/> Auto Configuration	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input checked="" type="radio"/> Sub-interfaces	<input type="text"/> <input type="button" value="+"/> <input type="button" value="⊖"/> <input type="button" value="☰"/> <input type="button" value="☰☰"/>		
<input type="checkbox"/>	Unit	VLAN ID	IP Address/Mask
			IPv4 IPv6
<input type="checkbox"/>	0		DHCP V4 DHCP V6 MTU

OK **Cancel**

Field	Description
Interface	Select the interface on which to configure uCPE.
Disable	Click to disable the uCPE configuration on the interface.
Description	Enter a text description of the interfaces.
Tags	Enter a keyword or phrase that allows you to filter the uCPE interface. This is useful when you have many profiles and want to view those that are tagged with a particular keyword.

Field	Description
MTU	<p>Enter a value for the maximum transmission unit (MTU), which is the size, in bytes, of the largest protocol data packet that the port can receive or transmit.</p> <p><i>Range:</i> 72 through 9000 bytes</p> <p><i>Default:</i> None</p>
Virtual Wire	Click to enable virtual wire on the interface.
Promiscuous	Click to enable promiscuous mode on the interface so that the interface forwards all traffic it receives.
Autoconfiguration	Click to disable autoconfiguration. Then, enter the URI for the uCPE interface.
URI	If you disable autoconfiguration, enter the Uniform Resource Identifier (URI) for the uCPE interface.
Bandwidth (Group of Fields)	Allows you to specify the bandwidth available on a link to upload and download data. This information is used in computing adaptive traffic shaping.
◦ Uplink (Kbps)	<p>Enter the bandwidth available on the link for uploading data, in kilobits per second (Kbps).</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
◦ Downlink (Kbps)	<p>Enter the bandwidth available on the link for downloading data, in kilobits per second (Kbps).</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
Subinterfaces	Click to create VLAN based subinterface.

6. Click the  Add icon to add a subinterface. In the Add Subinterface popup window, enter information for the following fields.

https://docs.versa-networks.com/Secure_SD-WAN/01_Configuration_from_Director/Common_Configuration/Configure_Interf...

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Add Sub-interface

Unit*	VLAN ID	MTU	Bandwidth									
<input type="text"/>	<input type="text"/>	<input type="text"/>	Uplink (Kbps) <input type="text"/> Downlink (Kbps) <input type="text"/>									
Description	Interface Mode --Select--											
FQDN												
<input checked="" type="checkbox"/> DHCP V4	<input checked="" type="checkbox"/> Disable	IPv6 interface Mode --Select--										
Static Address	Delegated Prefix Pool											
<input type="checkbox"/> IPv4 or IPv6 Address/Mask <input type="button" value="+"/> <input type="button" value="-"/>	<table border="1"> <thead> <tr> <th>Name*</th> <th>IPv6 Address/Prefi...</th> </tr> </thead> <tbody> <tr><td><input type="text"/></td><td><input type="text"/></td></tr> <tr><td colspan="2">No Records to Display</td></tr> </tbody> </table>			Name*	IPv6 Address/Prefi...	<input type="text"/>	<input type="text"/>	No Records to Display				
Name*	IPv6 Address/Prefi...											
<input type="text"/>	<input type="text"/>											
No Records to Display												
Static ARP	<table border="1"> <thead> <tr> <th>Subnet Address/Mask*</th> <th>Host IP Address*</th> <th>MAC Address*</th> </tr> </thead> <tbody> <tr> <td><input type="text"/> -Select--</td> <td><input type="text"/></td> <td><input type="text"/> <input type="button" value="+"/></td> </tr> <tr><td colspan="3">No Records to Display</td></tr> </tbody> </table>			Subnet Address/Mask*	Host IP Address*	MAC Address*	<input type="text"/> -Select--	<input type="text"/>	<input type="text"/> <input type="button" value="+"/>	No Records to Display		
Subnet Address/Mask*	Host IP Address*	MAC Address*										
<input type="text"/> -Select--	<input type="text"/>	<input type="text"/> <input type="button" value="+"/>										
No Records to Display												
<input type="button" value="OK"/> <input type="button" value="Cancel"/>												

Field	Description
Unit (Required)	Enter a unit number for the subinterface.
VLAN ID	Enter the virtual LAN ID for the subinterface. <i>Range:</i> 0 through 4094
MTU	Enter the size, in bytes, of the largest protocol data unit that the subinterface can receive or transmit. <i>Range:</i> 72 through 9000 bytes <i>Default:</i> None
Bandwidth (Group of Fields)	Allows you to specify the bandwidth available on a link to upload and download data. This information is used in computing adaptive traffic shaping.

Field	Description
<ul style="list-style-type: none"> ◦ Uplink (Kbps) 	<p>Enter the bandwidth available on the link for uploading data, in kilobits per second (Kbps).</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
<ul style="list-style-type: none"> ◦ Downlink (Kbps) 	<p>Enter the bandwidth available on the link for downloading data, in kilobits per second (Kbps).</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
Description	Enter a text description for the subinterface. It can be a text string up to 255 characters.
Interface Mode	<p>Select the interface mode:</p> <ul style="list-style-type: none"> ◦ Normal ◦ NSH Reflect ◦ Redundancy
FQDN	Enter the fully qualified domain name for the IPv4 subinterface.
DHCP v4	Click to use DHCP to assign an IPv4 address for the subinterface.
Disable	Click to not activate the subinterface after you configure it.
IPv6 Interface Mode	<p>Select the IPv6 interface mode:</p> <ul style="list-style-type: none"> ◦ Host—Use to configure stateful DHCPv6. This is the default. ◦ Router—Select to configure stateless automatic address configuration (SLAAC). You must also configure a router advertisement that corresponds to the IPv6 address and prefix length. For more information, see Configure Virtual Routers.

Field	Description
Static Address	Use a static IPv4 or IPv6 address for the subinterface. Click the  Add icon and enter the IPv4 or IPv6 address and subnet mask.
Delegated Prefix Pool	Enter the name and IPv6 address of the delegated prefix pool, then click the  Add icon to add the delegated prefix pool.
DHCPv6	Click to use DHCP to assign an IPv6 address for the subinterface.
<ul style="list-style-type: none"> <li data-bbox="208 720 850 756"><input type="radio"/> Client IA Type 	Select the client identity association type: <ul style="list-style-type: none"> <li data-bbox="882 741 997 777"><input type="radio"/> IA-NA <li data-bbox="882 783 997 819"><input type="radio"/> IA-PD
<ul style="list-style-type: none"> <li data-bbox="208 882 850 918"><input type="radio"/> Delegated Prefix Pool 	If you selected IA-PD as the client IA type, enter the name and IP address of the delegated prefix pool.
Static ARP (Tab)	Select to configure static ARP mapping.
<ul style="list-style-type: none"> <li data-bbox="208 1072 850 1108"><input type="radio"/> Subnet Address/Mask 	Select the subnet address and mask.
<ul style="list-style-type: none"> <li data-bbox="208 1163 850 1199"><input type="radio"/> Host IP Address 	Enter the IP address of the host.
<ul style="list-style-type: none"> <li data-bbox="208 1254 850 1290"><input type="radio"/> MAC Address 	Enter the MAC address of the host.
<ul style="list-style-type: none"> <li data-bbox="208 1366 850 1402"> Add icon 	Click to add the static ARP mapping.

7. Click OK.

Configure Loopback Interfaces

You configure loopback interfaces in routing instances that route large amounts of data traffic and that require continuous connectivity. Loopback interfaces are always up. Loopback interfaces are primarily used for OSPF and BGP, because connectivity is never down. A routing instance or domain can have only one loopback interface.

A loopback interface does not need to have a standard IP address. However, its mask is always /32, and you cannot

change this value.

For a service provider with two routers, each router has a loopback interface and the routers maintain data connectivity over the loopback interface.

To configure a loopback interface:

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 > Interfaces in the left menu bar.
4. Select the Loopback tab in the horizontal menu bar.

The screenshot shows the Versa Director View interface. At the top, there are tabs for Director View, Appliance View, and Template View. Below that is a navigation bar with Monitor, Analytics, Configuration (which is selected and highlighted in blue), and Administration. On the far right of the navigation bar are icons for Commit Template, Build (which is blue), and OUT OF SYNC. The main content area has a title bar with Appliance (Dual-LTE-VOIP-Branc) and a note: "You are currently in Appliance View". Below this is a sub-navigation bar with tabs for VNI, AE, ENet, IRB, T1/E1, Tunnel, DSL, WWAN, Wi-Fi, uCPE, Loopback (which is selected and highlighted in blue), Fabric, and Management. A search bar labeled "Search" is followed by a "No Loopback Interface Added" message and a large blue "Add" button. To the left of the main content area is a sidebar with categories: Networking (selected), Services, Objects & Connectors, and Others. Under Networking, the "Interfaces" category is expanded, showing sub-options: WLAN, T1/E1 Auth, Networks, Virtual Wires, Global Routers, Virtual Routers, Virtual Switches, IP-SLA, TWAMP, and SaaS App Monitor. At the bottom right of the main content area is a green circular icon with a white robot head.

5. Click the Add icon. In the Add Loopback Interface popup window, enter information for the following fields.

Add Loopback Interface

Interface *

Description

Subinterfaces

<input type="checkbox"/>	Unit	IP Address
No Subinterfaces added		

OK **Cancel**

Field	Description
Interface (Required)	Enter the slot number for the loopback interface. Loopback interface names start with lo.
Description	Enter a text description for the interface. It can be a text string up to 255 characters.

6. Click the Add icon to add a subinterface. In the Add Subinterface popup window, enter information for the following fields.

Add Subinterface

Unit *

Description

IP Addresses

<input type="checkbox"/>	IP Address	+	Delete	Edit
IP Address Not Configured				

Bandwidth

Uplink(Kbps)	Downlink (Kbps)
1...10000000	1...10000000

OK **Cancel**

Field	Description
Description	Enter a text description for the subinterface. It can be a text string up to 255 characters.
IP Address	Click the  Add icon and enter an IP address for the subinterface.
Bandwidth (Group of Fields)	Allows you to specify the bandwidth available on a link to upload and download data. This information is used in computing adaptive traffic shaping.
◦ Uplink (Kbps)	<p>Enter the bandwidth available on the link for uploading data, in kilobits per second (Kbps).</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>
◦ Downlink (Kbps)	<p>Enter the bandwidth available on the link for downloading data, in kilobits per second (Kbps).</p> <p><i>Range:</i> 1 through 10000000 Kbps</p> <p><i>Default:</i> None</p>

7. Click OK.

Configure Management Interfaces

A management interface is an out-of-band network that enables you to log in to a VOS device using SSH. You can also use a management interface for SNMP operations.

To configure a management interface:

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 > Interfaces in the left menu bar.

4. Select the Management tab.

5. Click the Add icon. In the Add Management Interface popup window, enter information for the following fields.

Add Management Interface

Interface *	Type										
<input type="text" value="eth"/> - <input type="text" value="slot"/> / <input type="text" value="port"/>	<input type="checkbox" value="Disable"/> --Select--										
Description											
MTU	Speed (Mb/s)	Duplex	MAC Address								
<input type="text" value="68...1500"/>	<input type="text" value="--Select--"/>	<input type="text" value="--Select--"/>	<input type="text"/>								
Subinterfaces <table border="1"> <thead> <tr> <th></th> <th>Unit</th> <th>VLAN ID</th> <th>IP Address/Mask</th> </tr> </thead> <tbody> <tr> <td colspan="4">No Subinterfaces added</td> </tr> </tbody> </table>					Unit	VLAN ID	IP Address/Mask	No Subinterfaces added			
	Unit	VLAN ID	IP Address/Mask								
No Subinterfaces added											

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Field	Description
Interface (Required)	Enter the port and slot numbers for the management interface. Management interfaces are Ethernet interfaces, and their names start with eth. The port number must be 0, and the slot number must be 0.
Disable	Select to disable the interface after you configure it.
Type	<p>Select the interface type:</p> <ul style="list-style-type: none"> <input type="radio"/> External <input type="radio"/> Internal
MTU	<p>Enter the maximum transmission unit size, in bytes, of largest protocol data unit that the port can receive or transmit.</p> <p><i>Range:</i> 72 through 9000 bytes</p>
Speed	<p>Select the data transfer speed, in megabits per second (Mbps):</p> <ul style="list-style-type: none"> <input type="radio"/> 10 <input type="radio"/> 100 <input type="radio"/> 1000
Duplex	<p>Select how to negotiate between the device interface and switch interface:</p> <ul style="list-style-type: none"> <input type="radio"/> Full—Transmit data in both directions on a signal carrier at the same time. <input type="radio"/> Half
MAC Address	Enter the MAC address of the interface.
Description	Enter a text description for the interface. It can be a string up to 255 characters.

- Click the  Add icon in the Subinterfaces table to add a subinterface. In the Add Subinterface popup window, enter information for the following fields.

Add Subinterface

Unit *

VLAN ID Disable

Description

Static Address DHCP

Addresses < >

IP Address *	Prefix Length *	Gateway	Broadcast	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="+"/>
No Addresses added				

OK **Cancel**

Field	Description
Unit (Required)	Enter the subinterface number.
VLAN ID	Enter virtual LAN ID of the subinterface. You cannot configure VLAN IDs for subinterfaces based on the eth-0/0 interface, so do not configure any value in the VLAN ID field.
Disable	Click to not activate the subinterface after it is configured.
Description	Enter a text description for the subinterface. It can be a text string up to 255 characters.
Static Address	Click and select the IP address for the subinterface. Click the  Add icon to add a static address.
DHCP	Click to use DHCP to assign an IP address for the subinterface.
Address (Table)	Enter IP addresses for the subinterface.
◦ IP Address (Required)	Enter the IP address for the subinterface.
◦ Prefix Length (Required)	Enter the prefix length for the IP address.
◦ Gateway	Enter the IP address of the gateway.
◦ Broadcast	Enter the broadcast address for the subinterface.

5. Click OK.

Configure a Management Port To Be a Data Port

For Releases 20.2.4, 21.1.3, 21.2.1, and later.

On some Versa CSG series appliances, you can reconfigure a management port so that it can be used as a data port. Doing this is useful if you are running out of physical ports on a VOS device and want to repurpose a management port so that it can be used to send data traffic.

The eth0 port on CSG series appliances, which is labeled on the chassis with a wrench tool symbol, is an out-of-band management port. By default, this port is configured as a host-exclusive port, which means it can be used only by the host OS. On the following appliances, you can configure the following ports to be data-exclusive ports so that they can

carry data traffic:

Versa CSG Series Appliance	Interface	Port
Versa CSG350	vni-0/3	Port 3
Versa CSG355	vni-0/5	Port 5
Versa CSG365	vni-0/5	Port 5
Versa CSG730	vni-0/5	Port 5
Versa CSG750	vni-0/5	Port 5
Versa CSG770	vni-0/5	Port 5
V110-ECO	vni-0/3	Port 3

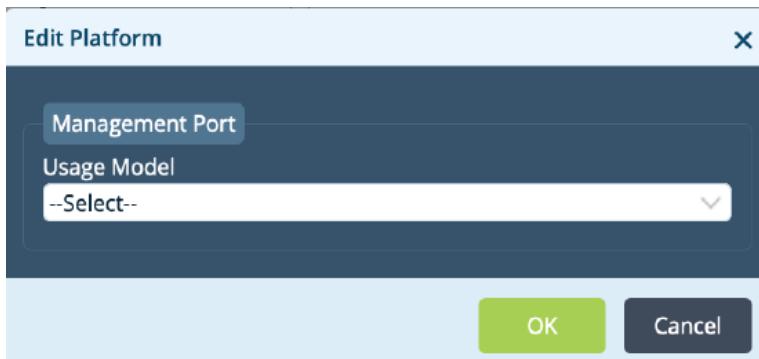
To configure a management port to be a data port:

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 device in the main pane. The view changes to Appliance view.
2. Select the Configuration tab in the top menu bar.
3. Select Others  > System > Configuration > Configuration in the left menu bar.
4. In the main pane, locate the Platform panel.

The screenshot shows the SD-WAN Branch1 Configuration page. The left sidebar has a 'Configuration' section selected. The main area contains several configuration groups:

- Banner**: Includes fields for Inter-thread pkt rings size (16), Large Packet Buffer Cache (0), and Ignore SDWAN Peer Classification.
- Parameters**: Includes fields for App ID Max Packet Number (20), App ID On HTTP Header End (1), Cache Flush Threshold (days) (1000), Max DPI Stream Depth (4294967295), Panic On Assert (1), DPI File Stream Buffer Size (2097152), Receive Checksum Computation, Hard Disk Common Pool Size (512), and Security Memory Limit (90).
- ARP**: Includes Age Interval (60) and Rate Limit (300).
- Console**: Includes Enable (checked) and Idle timeout (-).
- SSH**: Includes Client Alive Interval (300).
- Upgrade Options**: Includes Connect Wait (-).

5. Click the Edit icon. In the Edit Platform popup window, enter information for the following fields.



Field	Description
Management Port (Group of Fields)	<p>Select the usage model for the platform's management port:</p> <ul style="list-style-type: none"> Usage Model

https://docs.versa-networks.com/Secure_SD-WAN/01_Configuration_from_Director/Common_Configuration/Configure_Interf...

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Field	Description
	<p>port to transmit VOS data traffic.</p> <ul style="list-style-type: none"> ◦ Host Exclusive—Use the management port exclusively for the host OS. Selecting this option keeps the eth0 interface as part of the Linux name space. This is the default. ◦ Shared—Share the management port between Versa services and the host OS. Note that it is recommended that you not use this option in production environments. <p><i>Default:</i> Host Exclusive</p>

6. Click OK
7. For the changes to take effect, restart the Versa services manually, either from the shell or the CLI on the appliance.

```
| admin@csg:~$ vsh restart
```

```
| admin@csg-cli> request system restart
```

Supported Software Information

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

- In Releases 20.2.4, 21.1.3, 21.2.1, and later, you can configure a management port to be a data port on some CSG appliances.
- Release 21.1.1 adds support for DSL and T1 Interfaces.
- Release 21.2.1 adds support for proxy ARP, proxy NDP, specifying uplink and downlink bandwidth per subinterface or unit for adaptive shaping, specifying a chassis ID and admin key for aggregated Ethernet interfaces, multilink for T1/E1 interfaces, configuring PAP and CHAP authentication parameters for T1/E1 authentication, and configuring PoE support for Ethernet interfaces.
- Releases 22.1.1 and later support configuration of T1 interface cable length and IPv4 IPIP tunnels; LTE interfaces are renamed to WWAN interfaces.
- Release 22.1.4 adds support for breakout mode to channelize 100-Gigabit Ethernet ports on CSX4000 switches and CSG3000 series devices.

Additional Information

[Configure Basic Features](#)

[Configure Device Location Tracking](#)

[Configure SD-WAN Traffic Steering](#)

[Configure uCPE on a VOS Device](#)

[Configure Virtual Routers](#)

[Configure WiFi](#)

[Configure WWAN](#)

[Understand SD-WAN Interface Numbering](#)