



## Transport and Management Profile

The Transport and Management Profile helps you configure a VRF at WAN level. For each parameter of the feature that has a default value, the scope is set to Default (indicated by a check mark), and the default setting or value is shown.

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## Transport VRF

The Transport VRF feature helps you configure the VRF for WAN.

For each parameter of the feature that has a default value, the scope is set to Default (indicated by a check mark), and the default setting or value is shown.

The following table describes the options for configuring the Transport VPN feature.

### Basic Configuration

Field	Description
<b>VRF</b>	Enter the identifier of the VRF.
<b>Enhance ECMP Keying</b>	Enable the use in the ECMP hash key of Layer 4 source and destination ports, in addition to the combination of the source IP address, destination IP address, protocol, and DSCP field, as the ECMP hash key.  Default: Disabled

**DNS**

Field	Description
<b>Add DNS</b>	
<b>Primary DNS Address (IPv4)</b>	Enter the IP address of the primary IPv4 DNS server in this VRF.
<b>Secondary DNS Address (IPv4)</b>	Enter the IP address of a secondary IPv4 DNS server in this VRF.
<b>Add DNS IPv6</b>	
<b>Primary DNS Address (IPv6)</b>	Enter the IP address of the primary IPv6 DNS server in this VRF.
<b>Secondary DNS Address (IPv6)</b>	Enter the IP address of a secondary IPv6 DNS server in this VRF.

**Host Mapping**

Field	Description
<b>Add New Host Mapping</b>	
<b>Hostname</b>	Enter the hostname of the DNS server. The name can be up to 128 characters.
<b>List of IP</b>	Enter up to 14 IP addresses to associate with the hostname. Separate the entries with commas.

**Route**

Field	Description
<b>Add IPv4 Static Route</b>	
<b>Network address</b>	Enter the IPv4 address or prefix, in decimal four-point-dotted notation, and the prefix length of the IPv4 static route to configure in the VRF.
<b>Subnet Mask*</b>	Enter the subnet mask.

Field	Description
<b>Gateway*</b>	<p>Choose one of the following options to configure the next hop to reach the static route:</p> <ul style="list-style-type: none"> <li>• <b>nextHop</b>: When you choose this option and click <b>Add Next Hop</b>, the following fields appear: <ul style="list-style-type: none"> <li>• <b>Address</b>: Enter the next-hop IPv4 address.</li> <li>• <b>Administrative distance</b>: Enter the administrative distance for the route.</li> </ul> </li> <li>• <b>dhcp</b></li> <li>• <b>null0</b>: When you choose this option, the following field appears: <ul style="list-style-type: none"> <li>• <b>Administrative distance</b>: Enter the administrative distance for the route.</li> </ul> </li> </ul>
<b>Add IPv6 Static Route</b>	
<b>Prefix</b>	Enter the IPv6 address or prefix, in decimal four-point-dotted notation, and the prefix length of the IPv6 static route to configure in the VRF.
<b>Next Hop/Null 0/NAT</b>	<p>Choose one of the following options to configure the next hop to reach the static route:</p> <ul style="list-style-type: none"> <li>• <b>Next Hop</b>: When you choose this option and click <b>Add Next Hop</b>, the following fields appear: <ul style="list-style-type: none"> <li>• <b>Address</b>: Enter the next-hop IPv6 address.</li> <li>• <b>Administrative distance</b>: Enter the administrative distance for the route.</li> </ul> </li> <li>• <b>Null 0</b>: When you choose this option, the following field appears: <ul style="list-style-type: none"> <li>• <b>IPv6 Route Null 0</b>: Enable this option to set the next hop to be the null interface. All packets sent to this interface are dropped without sending any ICMP messages.</li> </ul> </li> <li>• <b>NAT</b>: When you choose this option, the following field appears: <ul style="list-style-type: none"> <li>• <b>IPv6 NAT*</b>: Choose NAT64 or NAT66.</li> </ul> </li> </ul>

## ACL IPv4

The following table describe the options for configuring the ACL IPv4 feature.

Field	Description
<b>ACL Sequence Name</b>	Specifies the name of the ACL sequence.

Field	Description
<b>Standard</b>	Standard ACLs control traffic by the comparison of the source address of the IP packets to the addresses configured in the ACL.
<b>Extended</b>	Extended ACLs control traffic by the comparison of the source and destination addresses of the IP packets to the addresses configured in the ACL.
<b>Add ACL Sequence</b>	Sequential collection of permit and deny conditions that apply to an IP packet
<b>Import ACL Sequence</b>	Import an ACL sequence into the device
<b>Drop or Accept</b>	Action to perform if match exists or not.
Edit ACL Sequence	
<b>ACL Sequence Name</b>	Enter a name for the ACL Sequence.
<b>Source Address</b>	Source address of IP packets
<b>Source Address Host</b>	A single source address host
<b>Action Type</b>	The default value is accept
<b>Accept Actions</b>	Select log from the drop-down list to log messages about packets that are permitted or denied by a standard IP access list.

You can select the specific ACL sequence in the ACL Policy window to edit, delete or add.



**Note** You can also configure **ACL Policy** features from Transport and Service Profile configuration groups.

## Management VRF

The following table describes the options for configuring the Management VRF feature.

Field	Description
<b>Type</b>	Choose a feature from the drop-down list.
<b>Feature Name</b>	Enter a name for the feature.
<b>Description</b>	Enter a description of the feature. The description can contain any characters and spaces.

**DNS**

Field	Description
<b>Add DNS</b>	
<b>Primary DNS Address (IPv4)</b>	Enter the IPv4 address of the primary DNS server in this VPN.

**Host Mapping**

Field	Description
<b>Hostname</b>	Enter the hostname of the DNS server. The name can be up to 128 characters.
<b>List of IP Address</b>	Enter IP addresses to associate with the hostname. Separate the entries with commas.

**IPv4/IPv6 Static Route**

Field	Description
<b>Add IPv4 Static Route</b>	
<b>Network Address*</b>	Enter the IPv4 address or prefix, in decimal four-point-dotted notation, and the prefix length of the IPv4 static route to configure in the VRF.
<b>Subnet Mask*</b>	Enter the subnet mask.
<b>Gateway*</b>	Choose one of the following options to configure the next hop to reach the static route: <ul style="list-style-type: none"> <li>• <b>nextHop</b>: When you choose this option and click <b>Add Next Hop</b>, the following fields appear: <ul style="list-style-type: none"> <li>• <b>Address*</b>: Enter the next-hop IPv4 address.</li> <li>• <b>Administrative distance*</b>: Enter the administrative distance for the route.</li> </ul> </li> <li>• <b>dhcp</b></li> <li>• <b>null0</b>: When you choose this option, the following field appears: <ul style="list-style-type: none"> <li>• <b>Administrative distance</b>: Enter the administrative distance for the route.</li> </ul> </li> </ul>
<b>Add IPv6 Static Route</b>	
<b>Prefix*</b>	Enter the IPv6 address or prefix, in decimal four-point-dotted notation, and the prefix length of the IPv6 static route to configure in the VRF.

Field	Description
<b>Next Hop/Null 0</b>	<p>Choose one of the following options to configure the next hop to reach the static route:</p> <ul style="list-style-type: none"> <li>• <b>Next Hop</b>: When you choose this option and click <b>Add Next Hop</b>, the following fields appear: <ul style="list-style-type: none"> <li>• <b>Address*</b>: Enter the next-hop IPv6 address.</li> <li>• <b>Administrative distance*</b>: Enter the administrative distance for the route.</li> </ul> </li> <li>• <b>Null 0</b>: When you choose this option, the following field appears: <ul style="list-style-type: none"> <li>• <b>NULL0*</b>: Enable this option to set the next hop to be the null interface. All packets sent to this interface are dropped without sending any ICMP messages.</li> </ul> </li> </ul>

## Object Tracker

Use the Tracker feature to track the status of the tracker endpoints

The following table describes the options for configuring the Object Tracker feature.

### Basic Settings

Parameter Name	Description
<b>Name</b>	Name of the tracker. The name can be up to 128 alphanumeric characters. You can configure up to eight trackers.
<b>Description</b>	Enter a description for the Object Tracker
<b>Object Tracker ID</b>	Name of the object tracker
<b>Interface Name</b>	Enter the global or device-specific tracker interface name. For example, Gigabitethernet1 or Gigabitethernet2
<b>Interface Track Type</b>	<p>Duration to wait for the probe to return a response before declaring that the transport interface is down. Range: 100 through 1000 milliseconds. Default: 300 milliseconds . The options are:</p> <ul style="list-style-type: none"> <li>• Line-protocol</li> <li>• Ip-routing</li> <li>• Ipv6-routing</li> </ul>
<b>Route IP</b>	Route IP prefix of the network
<b>Route IP Mask</b>	Subnet mask of the network

Parameter Name	Description
VRF Name	VRF name to be used as the basis to track route reachability
Delay Up (Seconds)	Sets delay of from 0 to 180 seconds before communication of up status of the tracked object or list of objects
Delay Down (Seconds)	Sets delay of from 0 to 180 seconds before communication of down status of the tracked object or list of objects

## Object Tracker Group

Use this feature to configure an object tracker group. To ensure accurate tracking, add at least two object trackers before creating an object tracker group.

### Basic Settings

Parameter Name	Description
Object tracker ID	Enter an ID for the object tracker group. Range: 1 through 1000
Object tracker	Select a minimum of two previously created object trackers from the drop-down list.
Reachable	Choose one of the following values: <ul style="list-style-type: none"> <li>• <b>Either:</b> Ensures that the transport interface status is reported as active if either one of the associated trackers of the tracker group reports that the route is active.</li> <li>• <b>Both:</b> Ensures that the transport interface status is reported as active if both the associated trackers of the tracker group report that the route is active.</li> </ul>
Delay Up (Seconds)	Sets delay of from 0 to 180 seconds before communication of up status of the tracked object or list of objects
Delay Down (Seconds)	Sets delay of from 0 to 180 seconds before communication of down status of the tracked object or list of objects

## Route Policy

Use this feature to configure the policy-based routing if you want certain packets to be routed through a specific path other than the obvious shortest path.

The following table describes the options for configuring the route policy feature.

Field	Description
<b>Routing Sequence Name</b>	Specifies the name of the routing sequence.
<b>Protocol</b>	Specifies the internet protocol. The options are IPv4, IPv6, or Both.
<b>Condition</b>	Specifies the routing condition. The options are: <ul style="list-style-type: none"> <li>• Address</li> <li>• AS Path List</li> <li>• Community List</li> <li>• Extended Community List</li> <li>• BGP Local Preference</li> <li>• Metric</li> <li>• Next Hop</li> <li>• Interface</li> <li>• OSPF Tag</li> </ul>
<b>Action Type</b>	Specifies the action type. The options are: Accept or Reject.
<b>Accept Condition</b>	Specifies the accept condition type. The options are: <ul style="list-style-type: none"> <li>• AS Path</li> <li>• Community</li> <li>• Local Preference</li> <li>• Metric</li> <li>• Metric Type</li> <li>• Next Hop</li> <li>• Origin</li> <li>• OSPF Tag</li> <li>• Weight</li> </ul>

## VRF

### DNS

The following table describes the options for configuring the Management VRF feature.



Field	Description
<b>VRF Name</b>	Enter a name for the VRF.
<b>RD</b>	Specify a route distinguisher for the VRF or use the system default.  A route distinguisher helps distinguish the distinct virtual private network routes of customers who connect to the provide
<b>DNS</b>	
<b>IP Address</b>	Enter the IP address of the primary DNS server in this VRF  This IP address is used for resolving the Cisco SD-WAN Validator hostname

**Host Mapping**

Field	Description
<b>Add New Host Mapping</b>	
<b>Hostname</b>	Enter the hostname of the DNS server. The limit is 128 characters.
<b>List of IP</b>	Enter IP addresses to associate with the hostname. Separate the entries with commas

**Route**

Field	Description
<b>Add IPv4 Static Route</b>	
<b>Network address</b>	Enter the IPv4 address or prefix, in decimal four-point-dotted notation, to configure the VRF.
<b>Subnet Mask</b>	Enter the subnet mask for the prefix or the IP address. You can also choose a subnet mask from the drop-down list.

Field	Description
<b>Gateway</b>	<p>Choose one of the following options to configure the Next Hop to reach the static route:</p> <ul style="list-style-type: none"> <li>• <b>Next Hop:</b> When you choose this option and click <b>Add</b> , the following fields are displayed : <ul style="list-style-type: none"> <li>• <b>Address:</b> Specify the next-hop IPv4 address.</li> <li>• <b>Administrative distance:</b> Specify the administrative distance for the route.</li> <li>• <b>Object Tracker/Object Tracker Group:</b> <p>Object tracking is a mechanism for tracking an object to take any client action on another object as configured by the client. You can identify each tracked object by a unique name that is specified by the track parameter.</p> <p>Select an object from the drop-down list.</p> </li> </ul> </li> <li>• <b>Null 0:</b> Enable this option to set the next hop to be the null interface. All packets sent to this interface are dropped without sending any ICMP messages. <ul style="list-style-type: none"> <li>• <b>Administrative distance:</b> Specify the administrative distance for the route.</li> </ul> </li> <li>• <b>dhcp</b> <ul style="list-style-type: none"> <li>• <b>Administrative distance:</b> Enter the administrative distance for the route.</li> </ul> </li> <li>• <b>Interface:</b> Click <b>Add</b> and specify the following details: <ul style="list-style-type: none"> <li>• <b>Interface Name:</b> Specify a valid interface or choose a value from the drop-down list.</li> <li>• <b>Add Next Hop:</b> <ul style="list-style-type: none"> <li>• <b>Address:</b> Specify the next-hop IPv4 address.</li> <li>• <b>Administrative distance:</b> Specify the administrative distance for the route.</li> </ul> </li> </ul> </li> </ul>
<b>IPv6 Static Route</b>	
<b>Prefix</b>	Enter the IPv6 address or prefix, in decimal four-point-dotted notation, and the prefix length of the IPv6 static route to configure in the VRF.

Field	Description
Gateway	<p>Choose one of the following options to configure the Next Hop to reach the static route:</p> <ul style="list-style-type: none"> <li>• <b>Next Hop:</b> Select this option and click <b>Add</b>, the following fields are displayed : <ul style="list-style-type: none"> <li>• <b>Address:</b> Specify the next-hop IPv4 address.</li> <li>• <b>Administrative distance:</b> Specify the administrative distance for the route.</li> </ul> </li> <li>• <b>Null 0:</b> Enable this option to set the next hop to be the null interface. All packets sent to this interface are dropped without sending any ICMP messages. <ul style="list-style-type: none"> <li>• <b>Administrative distance:</b> Specify the administrative distance for the route.</li> </ul> </li> <li>• <b>Interface:</b> Click <b>Add</b> and specify the following details: <ul style="list-style-type: none"> <li>• <b>Interface Name:</b> Specify a valid interface or choose a value from the drop-down list.</li> <li>• <b>Next Hop:</b> <ul style="list-style-type: none"> <li>• <b>Address:</b> Specify the next-hop IPv4 address.</li> <li>• <b>Administrative distance:</b> Specify the administrative distance for the route.</li> </ul> </li> </ul> </li> </ul>

**NAT**

NAT	
NAT Enable	Use the toggle button to enable NAT
Add NAT Interfaces	Add interfaces that are facing the Internet and the internal servers
Static NAT	Add a static NAT mapping
Static NAT Subnet	Define the subnet for the NAT mapping
NAT Port Forward	Define NAT port forwarding rules
Dynamic NAT	Define Dynamic NAT rules.

**Route Leak**

Route leak from Global VRF
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<b>Route Protocol</b>	Choose a protocol from the available options to leak routes from global VRF to the service VRF that you are configuring.
<b>Select Route Policy</b>	Choose a route policy from the drop-down list.
<b>Redistribution (in VRF)</b>	
<b>Protocol</b>	Choose a protocol from the available options to redistribute the leaked routes.
<b>Select Route Policy</b>	Choose a route policy from the drop-down list.
<b>Route leak to Global VRF</b>	
<b>Route Protocol</b>	Choose a protocol from the available options to leak routes from the service VRF that you are configuring to the global VRF.
<b>Select Route Policy</b>	Choose a route policy from the drop-down list.
<b>Redistribution (in global VRF)</b>	
<b>Protocol</b>	Choose a protocol from the available options to redistribute the leaked routes.
<b>Select Route Policy</b>	Enter the name of the route policy.
<b>Route leak from other Service VRF(s)</b>	
<b>Source VRF</b>	Enter a value of the source VRF.
<b>Route Protocol</b>	Choose a protocol from the available options to leak routes from the source service VRF to the service VRF that you are configuring.
<b>Select Route Policy</b>	Choose a route policy from the drop-down list.
<b>Redistribution (in Service VRF)</b>	
<b>Protocol</b>	Choose a protocol from the available options to redistribute the leaked routes.
<b>Select Route Policy</b>	Choose a route policy from the drop-down list.

## Ethernet Interface

This feature helps you configure Ethernet Interface in the VRF.

The following table describes the options for configuring the Ethernet Interface feature.

Field	Description
<b>Type</b>	Choose a VRF from the drop-down list
<b>Associated VRF</b>	Choose a VRF

**Basic Configuration**

Field	Description
<b>Shutdown</b>	Enable or disable the interface.
<b>Control Connection</b>	Select on to enable control connections on the tunnel.
<b>Bind Interface</b>	Enter the name of a physical interface to bind to a loopback interface
<b>Interface Name</b>	Enter a name for the interface. Spell out the interface names completely (for example, GigabitEthernet0/0/0).  Configure all the interfaces of the router, even if you are not using them, so that they are configured in the shutdown state and so that all default values for them are configured.
<b>Description</b>	Enter a description for the interface
<b>IPv4 Settings</b>	Configure an IPv4 VRF interface. <ul style="list-style-type: none"> <li>• <b>Dynamic</b>: Choose <b>Dynamic</b> to set the interface as a Dynamic Host Configuration Protocol (DHCP) client so that the interface receives its IP address from a DHCP server.</li> <li>• <b>Static</b>: Choose <b>Static</b> to enter an IP address that doesn't change.</li> </ul>
<b>Dynamic DHCP Distance</b>	Enter an administrative distance value for routes learned from a DHCP server. This option is available when you choose <b>Dynamic</b> .  Default: 1
<b>IPv4 Settings</b>	Enter a static IPv4 address. This option is available when you choose <b>Static</b> .  .
<b>Subnet Mask</b>	Enter the subnet mask
<b>Configure Secondary IP Address</b>	Enter up to four secondary IPv4 addresses for a service-side interface. <ul style="list-style-type: none"> <li>• IP Address: Enter the IP address</li> <li>• Subnet Mask: Enter the subnet mask</li> </ul>
<b>DHCP Helper</b>	To designate the interface as a DHCP helper on a router, enter up to eight IP addresses, separated by commas, for DHCP servers in the network. A DHCP helper interface forwards BOOTP (broadcast) DHCP requests that it receives from the specified DHCP servers

Field	Description
<b>IPv6 Settings</b>	Configure an IPv6 VPN interface. <ul style="list-style-type: none"> <li>• <b>Dynamic:</b> Choose <b>Dynamic</b> to set the interface as a Dynamic Host Configuration Protocol (DHCP) client so that the interface receives its IP address from a DHCP server.</li> <li>• <b>Static:</b> Choose <b>Static</b> to enter an IP address that doesn't change.</li> <li>• <b>None</b></li> </ul>
<b>IPv6 Address Primary</b>	Enter a static IPv6 address. This option is available when you choose <b>Static</b> .

**BFD**

Field	Description
<b>Enable BFD</b>	Enable this option to detect link failures

**ARP**

Field	Description
<b>IP Address</b>	Enter the IP address for the ARP entry in dotted decimal notation or as a fully qualified host name.
<b>MAC Address</b>	Enter the MAC address in colon-separated hexadecimal notation.

**ACL**

Field	Description
<b>ACL IPv4 Ingress</b>	Enter the name of an IPv4 access list to packets being received on the interface
<b>ACL IPv4 Egress</b>	Enter the name of an IPv4 access list to packets being transmitted on the interface
<b>ACL IPv6 Ingress</b>	Enter the name of an IPv6 access list to packets being received on the interface
<b>ACL IPv6 Egress</b>	Enter the name of an IPv6 access list to packets being transmitted on the interface

**Advanced**

Field	Description
<b>Duplex</b>	Specify whether the interface runs in full-duplex or half-duplex mode. Default: full

Field	Description
<b>MAC Address</b>	Specify a MAC address to associate with the interface, in colon-separated hexadecimal notation.
<b>IP MTU</b>	Specify the maximum MTU size of packets on the interface. Range: 576 through 9216 Default: 1500 bytes
<b>Interface MTU</b>	Enter the maximum transmission unit size for frames received and transmitted on the interface. Range: 1500 through 1518 (GigabitEthernet0), 1500 through 9216 (other GigabitEthernet) Default: 1500 bytes
<b>TCP MSS</b>	Specify the maximum segment size (MSS) of TCP SYN packets passing through the router. By default, the MSS is dynamically adjusted based on the interface or tunnel MTU such that TCP SYN packets are never fragmented. Range: 500 to 1460 bytes Default: None
<b>Speed</b>	Specify the speed of the interface, for use when the remote end of the connection does not support autonegotiation. Values: 10, 100, 1000, 2500, or 10000 Mbps
<b>ARP Timeout</b>	ARP timeout controls how long we maintain the ARP cache on a router. Specify how long it takes for a dynamically learned ARP entry to time out. Range: 0 through 2147483 seconds Default: 1200 seconds
<b>Autonegotiate</b>	Enable this option to turn on autonegotiation.
<b>Media Type</b>	Specify the physical media connection type on the interface. Choose one of the following: <ul style="list-style-type: none"> <li>• <b>auto-select</b>: A connection is automatically selected.</li> <li>• <b>rj45</b>: Specifies an RJ-45 physical connection.</li> <li>• <b>sfp</b>: Specifies a small-form factor pluggable (SFP) physical connection for fiber media.</li> </ul>
<b>Load Interval</b>	Enter an interval value for interface load calculation

Field	Description
<b>IP Directed Broadcast</b>	<p>An IP directed broadcast is an IP packet whose destination address is a valid broadcast address for some IP subnet, but which originates from a node that is not itself part of that destination subnet.</p> <p>A device that is not directly connected to its destination subnet forwards an IP directed broadcast in the same way it would forward unicast IP packets destined to a host on that subnet. When a directed broadcast packet reaches a device that is directly connected to its destination subnet, that packet is broadcast on the destination subnet. The destination address in the IP header of the packet is rewritten to the configured IP broadcast address for the subnet, and the packet is sent as a link-layer broadcast.</p> <p>If directed broadcast is enabled for an interface, incoming IP packets whose addresses identify them as directed broadcasts intended for the subnet to which that interface is attached are broadcast on that subnet.</p>
<b>ICMP Redirect Disable</b>	<p>ICMP redirects are sent by a router to the sender of an IP packet when a packet is being routed sub-optimally. The ICMP redirect informs the sending host to forward subsequent packets to that same destination through a different gateway.</p> <p>By default, an interface allows ICMP redirect messages.</p>