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.

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
VRF	Enter the identifier of the VRF.
Enhance ECMP Keying	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
Add DNS	
Primary DNS Address (IPv4)	Enter the IP address of the primary IPv4 DNS server in this VRF.
Secondary DNS Address (IPv4)	Enter the IP address of a secondary IPv4 DNS server in this VRF.
Add DNS IPv6	
Primary DNS Address (IPv6)	Enter the IP address of the primary IPv6 DNS server in this VRF.
Secondary DNS Address (IPv6)	Enter the IP address of a secondary IPv6 DNS server in this VRF.

Host Mapping

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

Route

Field	Description
Add IPv4 Static Route	
Network address	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.
Subnet Mask*	Enter the subnet mask.

Field	Description

Gateway*	Choose one of the following options to configure the next hop to reach the static route:
	• **nextHop**: When you choose this option and click **Add Next Hop**, the following fields appear:
	  • **Address**: Enter the next-hop IPv4 address.
	  • **Administrative distance**: Enter the administrative distance for the route.
	• **dhcp**
	• **null0**: When you choose this option, the following field appears:
	  • **Administrative distance**: Enter the administrative distance for the route.

Add IPv6 Static Route	
Prefix	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.

Next Hop/Null 0/NAT	Choose one of the following options to configure the next hop to reach the static route:
	• **Next Hop**: When you choose this option and click **Add Next Hop**, the following fields appear:
	  • **Address**: Enter the next-hop IPv6 address.
	  Administrative distance: Enter the administrative distance for the route.
	• **Null 0**: When you choose this option, the following field appears:
	  • **IPv6 Route Null 0**: 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.
	• **NAT**: When you choose this option, the following field appears:
	  • **IPv6 NAT***: Choose NAT64 or NAT66.

ACL IPv4

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

Field	Description
ACL Sequence Name	Specifies the name of the ACL sequence.

Field	Description
Standard	Standard ACLs control traffic by the comparison of the source address of the IP packets to the addresses configured in the ACL.
Extended	Extended ACLs control traffic by the comparison of the source and destination addresses of the IP packets to the addresses configured in the ACL.
Add ACL Sequence	Sequential collection of permit and deny conditions that apply to an IP packet
Import ACL Sequence	Import an ACL sequence into the device
Drop or Accept	Action to perform if match exists or not.
Edit ACL Sequence	
ACL Sequence Name	Enter a name for the ACL Sequence.
Source Address	Source address of IP packets
Source Address Host	A single source address host
Action Type	The default value is accept
Accept Actions	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
Type	Choose a feature from the drop-down list.
Feature Name	Enter a name for the feature.
Description	Enter a description of the feature. The description can contain any characters and spaces.

DNS

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

Host Mapping

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

IPv4/IPv6 Static Route

Field	Description
Add IPv4 Static Route	
Network Address*	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.
Subnet Mask*	Enter the subnet mask.

Gateway*	Choose one of the following options to configure the next hop to reach the static route:
	• **nextHop**: When you choose this option and click **Add Next Hop**, the following fields appear:
	  • **Address***: Enter the next-hop IPv4 address.
	  • **Administrative distance***: Enter the administrative distance for the route.
	• **dhcp**
	• **null0**: When you choose this option, the following field appears:
	  • **Administrative distance**: Enter the administrative distance for the route.

Add IPv6 Static Route	
Prefix*	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
Next Hop/Null 0	Choose one of the following options to configure the next hop to reach the static route: • **Next Hop**: When you choose this option and click **Add Next Hop**, the following fields appear: • **Address***: Enter the next-hop IPv6 address. **Administrative distance***: Enter the administrative distance for the route. • **Null 0**: When you choose this option, the following field appears: • **NULL0***: 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.

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
Name	Name of the tracker. The name can be up to 128 alphanumeric characters. You can configure up to eight trackers.
Description	Enter a description for the Object Tracker
Object Tracker ID	Name of the object tracker
Interface Name	Enter the global or device-specific tracker interface name. For example, Gigabitethernet1 or Gigabitethernet2
Interface Track Type	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: • Line-protocol • Ip-routing • Ipv6-routing
Route IP	Route IP prefix of the network
Route IP Mask	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: • **Either**: 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. • **Both**: 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.
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
Routing Sequence Name	Specifies the name of the routing sequence.
Protocol	Specifies the internet protocol. The options are IPv4, IPv6, or Both.
Condition	Specifies the routing condition. The options are: • Address • AS Path List • Community List • Extended Community List • BGP Local Preference • Metric • Next Hop • Interface • OSPF Tag
Action Type	Specifies the action type. The options are: Accept or Reject.
Accept Condition	Specifies the accept condition type. The options are: • AS Path • Community • Local Preference • Metric • Metric Type • Next Hop • Origin • OSPF Tag • Weight

VRF

DNS

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

Field	Description
VRF Name	Enter a name for the VRF.
RD	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
DNS	
IP Address	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
Add New Host Mapping	
Hostname	Enter the hostname of the DNS server. The limit is 128 characters.
List of IP	Enter IP addresses to associate with the hostname. Separate the entries with commas

Route

Field	Description
Add IPv4 Static Route	
Network address	Enter the IPv4 address or prefix, in decimal four-point-dotted notation, to configure the VRF.
Subnet Mask	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
Gateway	Choose one of the following options to configure the Next Hop to reach the static route: • **Next Hop**: When you choose this option and click **Add** , the following fields are displayed : • **Address**: Specify the next-hop IPv4 address. • **Administrative distance**: Specify the administrative distance for the route. • **Object Tracker/Object Tracker Group**: 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. Select an object from the drop-down list. • **Null 0**: 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. • **Administrative distance:** Specify the administrative distance for the route. • **dhcp** • **Administrative distance**: Enter the administrative distance for the route. • **Interface**: Click **Add** and specify the following details: • **Interface Name**: Specify a valid interface or choose a value from the drop-down list. • **Add Next Hop**: • **Address**: Specify the next-hop IPv4 address. • **Administrative distance**: Specify the administrative distance for the route.
IPv6 Static Route	
Prefix	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	Choose one of the following options to configure the Next Hop to reach the static route:
	• **Next Hop**: Select this option and click **Add**,the following fields are displayed :
	  • **Address**: Specify the next-hop IPv4 address.
	  • **Administrative distance**: Specify the administrative distance for the route.
	• **Null 0**: 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.
	  • **Administrative distance:** Specify the administrative distance for the route.
	• **Interface**: Click **Add** and specify the following details:
	  • **Interface Name**:Specify a valid interface or choose a value from the drop-down list.
	  • **Next Hop**:
	  • **Address**: Specify the next-hop IPv4 address.
	  • **Administrative distance**: Specify the administrative distance for the route.

NAT

NAT	
NAT Enable	Use the toggle button to enable NAT
Add NAT Interfaces	Add interfaces that are facing the Interne 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

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

Basic Configuration

Field	Description
Shutdown	Enable or disable the interface.
Control Connection	Select on to enable control connections on the tunnel.
Bind Interface	Enter the name of a physical interface to bind to a loopback interface
Interface Name	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.
Description	Enter a description for the interface
IPv4 Settings	Configure an IPv4 VRF interface. • **Dynamic**: Choose **Dynamic** to set the interface as a Dynamic Host Configuration Protocol (DHCP) client so that the interface receives its IP address from a DHCP server. • **Static**: Choose **Static** to enter an IP address that doesn't change.
Dynamic DHCP Distance	Enter an administrative distance value for routes learned from a DHCP server. This option is available when you choose **Dynamic**. Default: 1
IPv4 Settings	Enter a static IPv4 address. This option is available when you choose **Static**. .
Subnet Mask	Enter the subnet mask
Configure Secondary IP Address	Enter up to four secondary IPv4 addresses for a service-side interface. • IP Address: Enter the IP address • Subnet Mask: Enter the subnet mask
DHCP Helper	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
IPv6 Settings	Configure an IPv6 VPN interface. • **Dynamic**: Choose **Dynamic** to set the interface as a Dynamic Host Configuration Protocol (DHCP) client so that the interface receives its IP address from a DHCP server. • **Static**: Choose **Static** to enter an IP address that doesn't change. • **None**
IPv6 Address Primary	Enter a static IPv6 address. This option is available when you choose **Static**.

BFD

Field	Description
Enable BFD	Enable this option to detect link failures

ARP

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

ACL

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

Advanced

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

Field	Description
MAC Address	Specify a MAC address to associate with the interface, in colon-separated hexadecimal notation.
IP MTU	Specify the maximum MTU size of packets on the interface. Range: 576 through 9216 Default: 1500 bytes
Interface MTU	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
TCP MSS	Specify the maximum segment size (MSS) of TPC 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
Speed	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
ARP Timeout	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
Autonegotiate	Enable this option to turn on autonegotiation.
Media Type	Specify the physical media connection type on the interface. Choose one of the following: • **auto-select**: A connection is automatically selected. • **rj45**: Specifies an RJ-45 physical connection. • **sfp**: Specifies a small-form factor pluggable (SFP) physical connection for fiber media.
Load Interval	Enter an interval value for interface load calculation

Field	Description
IP Directed Broadcast	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. 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. 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.
ICMP Redirect Disable	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. By default, an interface allows ICMP redirect messages.