
VPN-Interface-PPP-Ethernet

You can use the VPN-Interface-PPP-Ethernet template for vEdge Cloud and vEdge router devices.

Point-to-Point Protocol (PPP) is a data link protocol used to establish a direct connection between two nodes. PPP properties are associated with a PPPoE-enabled interface on vEdge routers to connect multiple users over an Ethernet link.

To configure PPPoE on vEdge routers using vManage templates:

1. Create a VPN-Interface-PPP-Ethernet feature template to configure a PPPoE-enabled interface as described in this article.
2. Create a VPN-Interface-PPP feature template to configure PPP parameters for the PPP virtual interface. See the Configuration ► Templates ► [VPN-Interface-PPP](#) help topic
3. Optionally, create a VPN feature template to modify the default configuration of VPN 0. See the Configuration ► Templates ► [VPN](#) help topic.
4. Create a device template that incorporates the VPN-Interface-PPP, VPN-Interface-PPP-Ethernet, and VPN feature templates. See the Configuration ► [Templates](#) help topic.

Some versions of the VPN-Interface-PPP-Ethernet feature template include sections for VRRP and ARP. You cannot configure VRRP or ARP on PPPoE-enabled interfaces, so do not use these sections of the template.

Navigate to the Template Screen

1. In vManage NMS, select the Configuration ► Templates screen.
2. From the Templates title bar, select Feature.
3. Click Add Template.
4. In the left pane, select one or more devices. The right pane displays the available templates for the selected devices.
5. Select the VPN-interface-PPP-Ethernet template.

The right pane displays the VPN-Interface-PPP-Ethernet template form.

- The top of the form contains fields for naming the template.
- The bottom contains fields for defining parameters applicable to that template.
- A drop-down menu to the left of each parameter field defines the scope of the parameter. When you first open a feature template form, for each parameter that has a default value, the scope is set to Default. To edit a parameter field, change the scope to Global or Device Specific. Note that if a parameter's scope is Device Specific, you cannot enter a value for it in the feature template. Instead, you enter a value when you attach the template to a device.
- A plus sign (+) is displayed to the right when you can add multiple entries for the same parameter.



Minimum PPPoE-Enabled Interface Configuration

The following parameters are required (unless otherwise indicated) to create a PPPoE-enabled interface on a vEdge router:

| Step | Parameter Field | Procedure |
|------|------------------------|--|
| 1. | Template Name | Enter a name for the template. It can be up to 128 characters and can contain only alphanumeric characters. |
| 2. | Description (Template) | Enter a description for the template. It can be up to 2048 characters and can contain only alphanumeric characters. |
| 3. | Shutdown | Click No to enable the PPPoE-enabled interface. |
| 4. | Interface name | Enter the name of the physical interface in VPN 0 to associate with the PPP interface. |
| 5. | Description (optional) | Enter a description of the PPPoE-enabled interface. |
| 6. | IP configuration | Select Dynamic to set the interface as a DHCP client, to allow the interface to receive its IP address from a DHCP server. If you select Dynamic, you can set the DHCP distance to specify the administrative distance of routes learned from a DHCP server. The default DHCP distance is 1. |
| 7. | IPv4 address | Enter the IPv4 address of the interface if the interface is not receiving its IP address from a DHCP server. |
| 8. | DHCP helper (optional) | Enter up to four IP addresses for DHCP servers in the network, separated by commas, to have the interface be a DHCP helper. A DHCP helper interface forwards BOOTP (Broadcast) DHCP requests that it receives from the specified DHCP servers. |
| 9. | Save | Click Save to save the feature template. |

CLI equivalent:

```
vpn 0
interface pppnumber
description text
dhcp-helper ip-address
(ip address address/subnet | ip-dhcp-client [dhcp-distance number])
pppoe-client ppp-interface pppnumber
[no] shutdown
```

Apply Access Lists

To configure a shaping rate to a PPPoE-enabled interface and to apply a QoS map, a rewrite rule, access lists, and policers to the interface, select the ACL tab:



| Parameter Name | Description |
|-----------------|--|
| Shaping rate | Configure the aggregate traffic transmission rate on the interface to be less than line rate, in kilobits per second (kbps). |
| QoS map | Specify the name of the QoS map to apply to packets being transmitted out the interface. |
| Rewrite rule | Click On, and specify the name of the rewrite rule to apply on the interface. |
| Ingress ACL | Click On, and specify the name of the access list to apply to packets being received on the interface. |
| Egress ACL | Click On, and specify the name of the access list to apply to packets being transmitted on the interface. |
| Ingress policer | Click On, and specify the name of the policer to apply to packets being received on the interface. |
| Egress policer | Click On, and specify the name of the policer to apply to packets being transmitted on the interface. |

CLI equivalent:

```

vpn 0
interface pppnumber
  access-list acl-list (in | out)
  policer policer-name (in |out)
  qos-map name
  rewrite-rule name
  shaping-rate name

```

Configure Other Interface Properties

To configure other interface properties, select the Advanced tab:

| Parameter Name | Description |
|----------------|--|
| Duplex | Choose full or half to specify whether the interface runs in full-duplex or half-duplex mode. <i>Default:</i> full |
| 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. <i>Range:</i> 576 through 1804 <i>Default:</i> 1500 bytes |
| PMTU discovery | Click On to enable path MTU discovery on the interface. PMTU determines the largest MTU size that the interface supports so that packet fragmentation does not occur. |
| Flow control | Select a setting for bidirectional flow control, which is a mechanism for temporarily stopping the transmission of data on the interface. <i>Values:</i> autonet, both, egress, ingress, none |



| Parameter Name | Description |
|--------------------|--|
| | <i>Default:</i> autoneg |
| TCP MSS | Specify the maximum segment size (MSS) of TCP SYN packets passing through the vEdge router. By default, the MSS is dynamically adjusted based on the interface or tunnel MTU such that TCP SYN packets are never fragmented. <i>Range:</i> 552 to 1460 bytes <i>Default:</i> None |
| Speed | Specify the speed of the interface, for use when the remote end of the connection does not support autonegotiation. <i>Values:</i> 10, 100, or 1000 Mbps <i>Default:</i> Autonegotiate (10/100/1000 Mbps) |
| Static ingress QoS | Specify a queue number to use for incoming traffic. <i>Range:</i> 0 through 7 |
| ARP timeout | Specify how long it takes for a dynamically learned ARP entry to time out. <i>Range:</i> 0 through 2678400 seconds (744 hours) <i>Default:</i> 1200 seconds (20 minutes) |
| Autonegotiate | Click Off to turn off autonegotiation. By default, an interface runs in autonegotiation mode. |
| TLOC Extension | Enter the name of a physical interface on the same router that connects to the WAN transport. This configuration then binds this service-side interface to the WAN transport. A second vEdge router at the same site that itself has no direct connection to the WAN (generally because the site has only a single WAN connection) and that connects to this service-side interface is then provided with a connection to the WAN. |

CLI equivalent:

```

vpn 0
interface pppnumber
  arp-timeout seconds
  [no] autonegotiate
  duplex (full | half)
  flow-control control
  mac-address mac-address
  mtu bytes
  pmtu
  speed speed
  static-ingress-qos number
  tcp-mss-adjust bytes
  tloc-extension interface-name

```

Complete CLI Configuration Commands for PPPoE-Enabled Interfaces

The following shows all the commands available for PPPoE-enabled interfaces. This is a subset of the commands available for general interfaces. Configure NAT, PMTU, and tunnel interfaces on the PPP virtual interface rather than on the PPPoE-enabled interface.



```

vpn vpn-id
interface interface-name
  access-list acl-list
  arp
  ip ip-address mac mac-address
  arp-timeout seconds
  autonegotiate
  clear-dont-fragment
  description text
  duplex (full | half)
  flow-control (bidirectional | egress | ingress)
  (ip address address/subnet | ip dhcp-client [dhcp-distance number])
  keepalive seconds retries
  mac-address mac-address
  mtu bytes
  policer policer-name
  pppoe-client
  ppp-interface name
  qos-map name
  rewrite-rule name
  shaping-rate name
  shutdown
  speed speed
  static-ingress-qos number
  tcp-mss-adjust bytes
  tloc-extension interface-name

```

Release Information

Introduced in vManage NMS Release 15.3.

