
Configuring PPPoE

The Point-to-Point Protocol over Ethernet (PPPoE) connects multiple users over an Ethernet local area network to a remote site through common customer premises equipment. PPPoE is commonly used in a broadband aggregation, such as by digital subscriber line (DSL). PPPoE provides authentication with the CHAP or PAP protocol. In the Viptela overlay network, vEdge routers can run the PPPoE client. The PPPoE server component is not supported.

To configure PPPoE client on a vEdge router, you create a PPP logical interface and link it to a physical interface. The PPPoE connection comes up when the physical interface comes up. You can link a PPP interface to only one physical interface on a vEdge router, and you can link a physical interface to only one PPP interface. To enable more than one PPPoE interface on a vEdge router, configure multiple PPP interfaces.

You configure quality of service (QoS) and shaping rate on a PPPoE-enabled physical interface, rather than on the PPP interface.

PPPoE-enabled physical interfaces do not support:

- 802.1Q
- Subinterfaces
- NAT, PMTU, and tunnel interfaces. These are configured on the PPP interface and therefore not available on PPPoE-enabled interfaces.

The Viptela implementation of PPPoE does not support the Compression Control Protocol (CCP) options, as defined in RFC 1962.

Configure PPPoE from vManage Templates

To use vManage templates to configure PPPoE on vEdge routers, you create three feature templates and one device template:

- Create a VPN-Interface-PPP feature template to configure PPP parameters for the PPP virtual interface.
- Create a VPN-Interface-PPP-Ethernet feature template to configure a PPPoE-enabled interface.
- Optionally, create a VPN feature template to modify the default configuration of VPN 0.
- Create a device template that incorporates the VPN-Interface-PPP, VPN-Interface-PPP-Ethernet, and VPN feature templates.

To create a VPN-Interface-PPP feature template to configure PPP parameters for the PPP virtual interface:

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 vEdge Cloud or a router model.
5. In the right pane, select the VPN-Interface-PPP template.
6. In the template, configure the following parameters:

Parameter Field	Procedure
Template Name	Enter a name for the template. It can be up to 128 alphanumeric characters.
Description	Enter a description for the template. It can be up to 2048 alphanumeric characters.
Shutdown	Click No to enable the PPP virtual interface.
Interface Name	Enter the number of the PPP interface. It can be from 1 through 31.
Description (optional)	Enter a description for the PPP virtual interface.
Authentication Protocol	Select either CHAP or PAP to configure one authentication protocol, or select PAP and CHAP to configure both. For CHAP, enter the hostname and password provided by your ISP. For PAP, enter the username and password provided by your ISP. If you are configuring both PAP and CHAP, to use the same username and password for both, click Same Credentials for PAP and CHAP.
AC Name (optional)	Select the PPP tab, and in the AC Name field, enter the name of the the name of the access concentrator used by PPPoE to route connections to the Internet.
IP MTU	Click the Advanced tab, and In the IP MTU field, ensure that the IP MTU is at least 8 bytes less than the MTU on the physical interface. The maximum MTU for a PPP interface is 1492 bytes.. If the PPPoE server does not specify a maximum receive unit (MRU), the MTU value for the PPP interface is used as the MRU.
Save	Click Save to save the feature template.

To create a VPN-Interface-PPP-Ethernet feature template to enable the PPPoE client on the physical interfaces:

1. In the 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 vEdge Cloud or a router model.
5. In the right pane, select the VPN-Interface-PPP-Ethernet template.



6. In the template, configure the following parameters:

Parameter Field	Procedure
Template Name	Enter a name for the template. It can be up to 128 alphanumeric characters.
Description	Enter a description for the template. It can be up to 2048 alphanumeric characters.
Shutdown	Click No to enable the PPPoE-enabled interface.
Interface Name	Enter the name of the physical interface in VPN 0 to associate with the PPP interface.
Description (optional)	Enter a description for the PPPoE-enabled interface.
IP Configuration	Assign an IP address to the physical interface: <ul style="list-style-type: none">◦ To use DHCP, select Dynamic. The default administrative distance of routes learned from DHCP is 1.◦ To configure the IP address directly, enter the IPv4 address of the interface.
DHCP Helper (optional)	Enter up to four IP addresses for DHCP servers in the network.
Save	Click Save to save the feature template.

To create a VPN feature template to configure the PPPoE-enabled interface in VPN 0, the transport VPN:

1. In the 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 vEdge Cloud or a router model.
5. In the right pane, select the VPN template.
6. In the template, configure the following parameters:

Parameter Field	Procedure
Template Name	Enter a name for the template. It can be up to 128 alphanumeric characters.
Description	Enter a description for the template. It can be up to 2048 alphanumeric characters.
VPN Identifier	Enter VPN identifier 0.
Name	Enter a name for the VPN.



Parameter Field	Procedure
Other interface parameters	Configure the desired interface properties.
Save	Click Save to save the feature template.

To create a device template that incorporates the VPN-Interface-PPP, VPN-Interface-PPP-Ethernet, and VPN feature templates:

1. In the vManage NMS, select the Configuration ► Templates screen.
2. From the Templates title bar, select Device.
3. Click Create Template, and from the drop-down list select From Feature Template.
4. From the Device Model drop-down, select the type of device for which you are creating the device template. vManage NMS displays the feature templates for the device type you selected. Required templates are indicated with an asterisk (*).
5. Enter a name and description for the device template. These fields are mandatory. The template name cannot contain special characters.
6. In the Transport & Management VPN section, under VPN 0, from the drop-down list of available templates, select the desired feature template. The list of available templates are the ones that you have previously created.
7. In the Additional VPN 0 Templates section to the right of VPN 0, click the plus sign (+) next to VPN Interface PPP.
8. In the VPN-Interface-PPP and VPN-Interface-PPP-Ethernet fields, select the feature templates to use.
9. To configure multiple PPPoE-enabled interfaces in VPN 0, click the plus sign (+) next to Sub-Templates.
10. To include additional feature templates in the device template, in the remaining sections, select the feature templates in turn, and from the drop-down list of available templates, select the desired template. The list of available templates are the ones that you have previously created. Ensure that you select templates for all mandatory feature templates and for any desired optional feature templates.
11. Click Create to create the device template.

To attach a device template to a device:

1. In the vManage NMS, select the Configuration ► Templates screen.
2. From the Templates title bar, select Device.
3. Select a template.
4. Click the More Actions icon to the right of the row and click Attach Device.
5. In the Attach Device window, either search for a device or select a device from the Available Device(s) column to the left.



6. Click the arrow pointing right to move the device to the Selected Device(s) column on the right.
7. Click Attach.

Configure PPPoE from the CLI

To use the CLI to configure the PPPoE on vEdge routers:

1. Create a PPP interface. The interface number can be from 1 through 31.
`vEdge(config-vpn) # interface pppnumber`
2. Configure an authentication method for PPPoE and authentication credentials. You can configure both CHAP and PAP authentication on the same PPP interface. The software tries both methods and uses the first one that succeeds.
`vEdge(config-interface-ppp) # ppp authentication chap hostname name password password`
`vEdge(config-interface-ppp) # ppp authentication pap password password sent-username username`
3. Enable the PPP interface to be operationally up:
`vEdge(config-interface-ppp) # no shutdown`
4. Configure the MTU of the PPP interface. The maximum MTU for a PPP interface is 1492 bytes. If maximum receive unit (MRU) is not specified by the PPPoE server, the MTU value for the PPP interface is used as the MRU.
`vEdge(config-interface-ppp) # mtu bytes`
5. Configure a tunnel interface for the PPP interface:
`vEdge(config-interface-ppp) # tunnel-interface color color`
6. Optionally configure the name of the access concentrator used by PPPoE to route connections to the internet:
`vEdge(config-interface-ppp) # ac-name name`
7. Link a physical Gigabit Ethernet interface in VPN 0 to the PPP interface:
`vEdge(config-interface-ge) # pppoe-client ppp-interface pppnumber`
8. Enable the physical Gigabit Ethernet interface to be operationally up:
`viptela(config-vpn-interface-ge) # no shutdown`

Here is an example of a PPPoE configuration:

```
vEdge# show running-config vpn 0
vpn 0
  interface ge0/1
    pppoe-client ppp-interface ppp10
    no shutdown
  !
  interface ppp10
    ppp authentication chap
    hostname branch100@corp.bank.myisp.net
    password $4$0HHjdmsC6M8zj4BgLEFXKw==
  !
  tunnel-interface
    encapsulation ipsec
    color gold
    no allow-service all
    no allow-service bgp
    allow-service dhcp
    allow-service dns
    allow-service icmp
```



```

no allow-service ospf
no allow-service sshd
no allow-service ntp
no allow-service stun
!
mtu 1492
no shutdown
!
!

```

To view existing PPP interfaces, use the **show ppp interface** command. For example:

```
vEdge# show ppp interface
```

VPN	IFNAME	PPPOE INTERFACE	INTERFACE IP	GATEWAY IP	PRIMARY DNS	SECONDARY DNS	MTU
0	ppp10	ge0/1	11.1.1.1	115.0.1.100	8.8.8.8	8.8.4.4	1150

To view PPPoE session information, use the **show pppoe session** command. For example:

```
vEdge# show pppoe session
```

VPN	IFNAME	SESSION ID	SERVER MAC	LOCAL MAC	PPP INTERFACE	AC NAME	SERVICE NAME
0	ge0/1	1	00:0c:29:2e:20:1a	00:0c:29:be:27:f5	ppp1	branch100	-
0	ge0/3	1	00:0c:29:2e:20:24	00:0c:29:be:27:13	ppp2	branch100	-

Additional Information

[Configuring Cellular Interfaces](#)

[Configuring DHCP](#)

[Configuring Network Interfaces](#)

[Configuring VRRP](#)

[Configuring WLAN Interfaces](#)

