How Configure Cisco Router as PPPoE Server and Client

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MAY 2016

BBA-Group and Dialer Profiles with PPPoE

The below is the basic topology that we will working with .

PPPoE Server on R1

- First we will configure R1 as PPPoE server and we will change it's name to R1-Server

R1(config)#hostname R1-Server

- Next we will create a **PPPoE group**, and associate a **virtual template** within it.

R1-Server(config)#bba-group pppoe ALTAMEER
*May 2 10:00:13.307: %LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up
*May 2 10:00:13.315: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access1, changed state to up
R1-Server(config-bba-group)#virtual-template 1

PPPoE Server on R1

- Because we know that we'll be using PPP, lets set up a local user name and password for the client (**named R2**).

R1-Server(config)#username R2 password R2

- Next, we will set up a **loopback interface** in preparation for using **ip unnumbered** within it, on **virtual-template 1** (coming up). This interface and IP address associated within it will be act as PPPoE server IP address

R1-Server(config)#interface loopback 0
*May 2 10:05:29.991: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up
R1-Server(config-if)#ip address 10.1.101.1 255.255.255.0

PPPoE Server on R1

- Also we will create IP Pool named ALTAMEER to handout IP addresses to the clients.
- Now we will create Virtual template and it's IP address will be Loopback interface.
- The authentication method will be PPP and CHAP.

R1-Server(config)#ip local pool ALTAMEER 10.1.101.10 10.1.101.254

R1-Server(config)#interface virtual-template 1
R1-Server(config-if)#ip unnumbered loopback 0
R1-Server(config-if)#peer default ip address pool ALTAMEER
R1-Server(config-if)#ppp authentication chap callin

PPPoE Server on R1

- So far, so good. The only problem is that the **bba-group** we created doesn't have any physical interfaces to use.
- Interface **fa0/0** in this case will be used as PPPoE server interface.

R1-Server(config)#interface fastEthernet 0/0
R1-Server(config-if)#pppoe enable group ALTAMEER
R1-Server(config-if)#no shutdown
*May 2 10:17:58.203: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*May 2 10:17:59.203: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

- That's all the required for configuring PPPoE server on R1

PPPoE Client on R2

- Change name of R2 to R2-Client

R2(config)#hostname R2-Client

- First we need to create virtual interface name dialer interface will act as PPPoE-Client interface.

R2-Client(config)#interface dialer 1
R2-Client(config-if)#dialer pool 1
R2-Client(config-if)#dialer-group 1
R2-Client(config-if)#encapsulation ppp
R2-Client(config-if)#ip address negotiated
R2-Client(config-if)#mtu 1492
R2-Client(config-if)#ppp chap password R2

PPPoE Client on R2

- Now we will associate dialer interface created before with R2-Client physical interface fa0/0

R2-Client(config)#interface fastEthernet 0/0
R2-Client(config-if)#pppoe enable
*May 2 10:26:53.183: %LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up
*May 2 10:26:53.191: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access1, changed state to up
R2-Client(config-if)#pppoe-client dial-pool-number 1 dial-on-demand
R2-Client(config-if)#no shutdown
*May 2 10:27:12.651: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
*May 2 10:27:13.651: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

PPPoE Client on R2
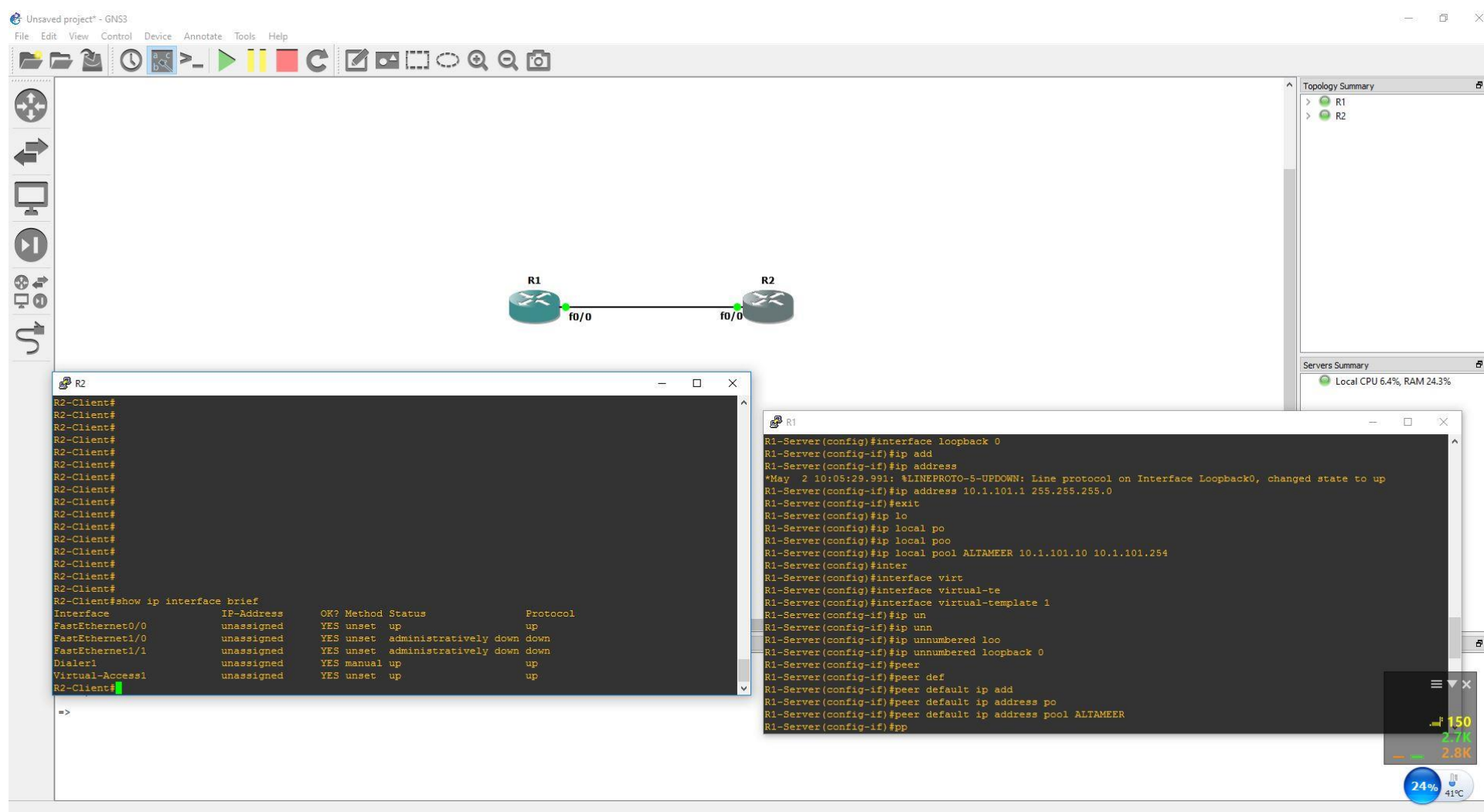
- Create default route to route all traffic through PPPoE connection.

R2-Client(config)#ip route 0.0.0.0 0.0.0.0 dialer 1

- That's all configuration required for PPPoE-Client

- Work is accomplished and tested virtually by using GNS3

behind the scenes

- Work is accomplished and tested by using real equipment :
- 2 Cisco Routers model 2851
- PPPoE connection between two routers is working as usual.
- PPPoE connection between server and windows operating system is working fine and as usual.

behind the scenes