PPPoE协议通过在以太网提供点到点的连接，建立PPP会话，使得以太网中的主机可以连接到远端的宽带接入服务器上。

PPPoE的报文

PPPoE使用以太网帧格式进行封装

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DMAC | SMAC | Type | PPPoE | FCS |

Type 协议字段类型 0x8863标识承载PPPoE的发现阶段报文 0x8864标识承载PPPoE的会话阶段报文

PPPoE的部分

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Ver | Type | Code | Session ID | Length | PayLoad |

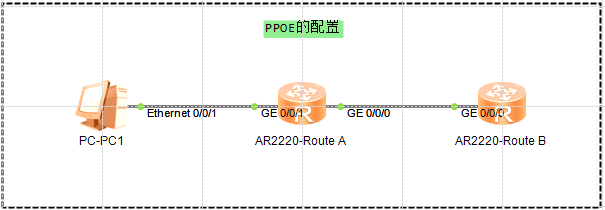
1. VER PPPoE的版本号 值为0x01
2. Type 类型 值为0x01
3. Code PPPoE报文类型
4. PPPoE会话ID
5. Length PPPoE报文的Payload长度，不包括以太网头部和PPPoE头部的长度

* PADI（PPPoE Active Discovery Initiation）：用户主句发起的PPPoE服务器探测报文，目的MAC为广播地址
* PADO（PPPoE Active Discovery Offer）：PPPoE服务器收到PADI报文后的回应报文，目的 MAC地址为客户端主机的MAC地址
* PADR（PPPoE Active Discovery Request）：用户主机收到PPPoE服务器回应的PADO报文，单播发起的请求报文，目的地址为用户选定的PPPoE服务器的MAC地址
* PADS（PPPoE Active Discovery Session Configuration）：PPPoE服务器分配唯一的会话进程ID，并通过PADS报文发送给主机
* PADT（PPPoE Active Discovery Terminate）：用户或服务器需要终止会话时，发送PADT报文

PPPoE会话建立过程

* 发现阶段 获取对方的以太网地址，以及确定唯一的PPPoE会话
* 会话阶段 PPP阶段协商阶段和PPP报文传输阶段
* 会话终结阶段 会话建立后，发送报文结束PPPoE会话

PPPoE的配置



## PPPoE客户端的配置

配置拨号接口

[Route A-dialer-rule]dialer

[Route A-dialer-rule]dialer-rule 1 ip permit

[Route A]interface Dialer 1

[Route A-Dialer1]dialer user enterprise

[Route A-Dialer1]dialer-group 1

[Route A-Dialer1]dialer bundle 1

[Route A-Dialer1]ppp chap user enterprise@huawei

[Route A-Dialer1]ppp chap password cipher Huawei

[Route A-Dialer1]ip address ppp-negotiate

将Dialer Bundle和接口绑定

[Route A]interface GigabitEthernet 0/0/0

[Route A-GigabitEthernet0/0/0]pppoe-client dial-bundle-number 1 on-demand

配置缺省静态路由

[Route A]ip route-static 0.0.0.0 0 Dialer 1

配置验证

<Route A>display interface Dialer 1

Dialer1 current state : UP

Line protocol current state : UP (spoofing)

Description:HUAWEI, AR Series, Dialer1 Interface

Route Port,The Maximum Transmit Unit is 1500, Hold timer is 10(sec)

Internet protocol processing : disabled

Link layer protocol is PPP

LCP initial

Physical is Dialer

Current system time: 2017-10-23 15:09:28-08:00

Last 300 seconds input rate 0 bits/sec, 0 packets/sec

Last 300 seconds output rate 0 bits/sec, 0 packets/sec

Realtime 0 seconds input rate 0 bits/sec, 0 packets/sec

Realtime 0 seconds output rate 0 bits/sec, 0 packets/sec

Input: 0 bytes

Output:0 bytes

Input bandwidth utilization : 0%

Output bandwidth utilization : 0%

<Route A>display pppoe-client session summary

PPPoE Client Session:

ID Bundle Dialer Intf Client-MAC Server-MAC State

0 1 1 GE0/0/0 00e0fce90f30 000000000000 IDLE

## PPPoE服务端的配置

地址池配置

Route B]ip pool pool1

[Route B-ip-pool-pool1]network 192.168.1.0 mask 24

[Route B-ip-pool-pool1]gateway-list 192.168.1.254

[Route B]interface Virtual-Template 1

[Route B-Virtual-Template1]ppp authentication-mode chap

[Route B-Virtual-Template1]ip address 192.168.1.254 24

[Route B-Virtual-Template1]remote address pool pool1

端口绑定虚拟模板

[Route B]interface GigabitEthernet 0/0/0

[Route B-GigabitEthernet0/0/0]pppoe-server bind virtual-template 1

验证账号创建

[Route B-aaa]local-user huawei password cipher Huawei

[Route B-aaa]local-user huawei service-type ppp

[Route B-aaa]local-user cisco password cipher cisco

[Route B-aaa]local-user cisco service-type ppp