

DSL:ASR920에서 PPPoE(Point Protocol over Ethernet) 구성 가이드를 가리킵니다.

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소개

이 문서에서는 클라이언트 역할을 하는 Cisco ASR 920 Aggregation Service Router에서 PPPoE(Point to Point Protocol over Ethernet)를 구성하는 절차에 대해 설명합니다.

사전 요구 사항

요구 사항

엔드 투 엔드 레이어 1 연결에 대해 알고 있는 것이 좋습니다.

사용되는 구성 요소

이 문서의 정보는 Cisco ASR 920 하드웨어를 기반으로 합니다.

이 문서의 정보는 특정 랩 환경의 디바이스에서 생성되었으며, 이 문서에서 사용된 모든 디바이스는 지워진(기본) 컨피그레이션으로 시작되었습니다.

참고:네트워크가 작동 중인 경우 모든 명령의 잠재적인 영향을 이해해야 합니다.

구성

참고:이 [섹션](#)에 사용된 명령에 대한 자세한 내용을 보려면 [Command Lookup Tool](#)([등록된 고객만 해당](#))을 사용합니다.

라우터의 컨피그레이션은 처음부터 뒤로 설정(클라이언트 및 서버)입니다.

클라이언트 구성

ASR 920 플랫폼에만 적용됩니다.

```
interface GigabitEthernet0/0/1
  no ip address
  no ip redirects
  no ip proxy-arp
  ip tcp adjust-mss 1452
  speed 1000
  no negotiation auto
  cdp enable
  ip virtual-reassembly
  service instance 10 ethernet
  encapsulation untagged etype pppoe-all
  bridge-domain 10
!
interface Dialer1
  ip address negotiated
  encapsulation ppp
  dialer pool 1
  dialer-group 1
  ppp authentication pap chap callin
  ppp chap hostname cisco
  ppp chap password 0 cisco123
  ppp pap sent-username cisco password 0 cisco123
end
!
interface BDI10
  no ip address
  pppoe enable group global
  pppoe-client dial-pool-number 1
!
ip route 0.0.0.0 0.0.0.0 Dialer1
```

서버 구성

이는 클라이언트 측에서 사용되는 플랫폼에 관계없이 모든 시나리오에서 동일하게 유지됩니다.

```
username cisco password 0 cisco123
!
bba-group pppoe global
  virtual-template 1
!
interface GigabitEthernet0/0
  ip address 192.168.1.1 255.255.255.0
  ip rip advertise 4
  load-interval 30
  duplex auto
  speed auto
  pppoe enable group global
```

```
!  
interface Virtual-Template1  
  mtu 1492  
  ip unnumbered GigabitEthernet0/0  
  peer default ip address pool PPPoE_Pool  
  ppp authentication pap chap  
!  
ip local pool PPPoE_Pool 10.1.1.1 10.1.1.100
```

다음을 확인합니다.

이 섹션을 사용하여 컨피그레이션이 제대로 작동하는지 확인합니다.

이러한 디버그는 클라이언트와 서버 모두에서 사용할 수 있습니다.

- 디버그 PPP 협상
- 디버그 PPP 인증
- 디버그 PPP 오류
- 디버그 다이얼러

클라이언트 로그:

```
*Jul 14 20:23:09.486: ppp13 PPP: Phase is ESTABLISHING  
*Jul 14 20:23:09.486: Vi2 PPP: Using dialer call direction  
*Jul 14 20:23:09.486: Vi2 PPP: Treating connection as a callout  
*Jul 14 20:23:09.486: Vi2 PPP: Session handle[6300000D] Session id[13]  
*Jul 14 20:23:09.486: Vi2 LCP: Event[OPEN] State[Initial to Starting]  
*Jul 14 20:23:09.486: Vi2 PPP: No remote authentication for call-out  
*Jul 14 20:23:09.486: Vi2 LCP: O CONFREQ [Starting] id 1 len 10  
*Jul 14 20:23:09.486: Vi2 LCP:   MagicNumber 0xB07C8578 (0x0506B07C8578)  
*Jul 14 20:23:09.486: Vi2 LCP: Event[UP] State[Starting to REQsent]  
*Jul 14 20:23:09.488: Vi2 LCP: I CONFREQ [REQsent] id 1 len 18  
*Jul 14 20:23:09.488: Vi2 LCP:   MRU 1492 (0x010405D4)  
*Jul 14 20:23:09.488: Vi2 LCP:   AuthProto PAP (0x0304C023)  
*Jul 14 20:23:09.488: Vi2 LCP:   MagicNumber 0xED0582E9 (0x0506ED0582E9)  
*Jul 14 20:23:09.488: Vi2 LCP: O CONFNAK [REQsent] id 1 len 8  
*Jul 14 20:23:09.488: Vi2 LCP:   MRU 1500 (0x010405DC)  
*Jul 14 20:23:09.489: Vi2 LCP: Event[Receive ConfReq-] State[REQsent to REQsent]  
*Jul 14 20:23:09.489: Vi2 LCP: I CONFACK [REQsent] id 1 len 10  
*Jul 14 20:23:09.489: Vi2 LCP:   MagicNumber 0xB07C8578 (0x0506B07C8578)  
*Jul 14 20:23:09.489: Vi2 LCP: Event[Receive ConfAck] State[REQsent to ACKrcvd]  
*Jul 14 20:23:09.490: Vi2 LCP: I CONFREQ [ACKrcvd] id 2 len 18  
*Jul 14 20:23:09.490: Vi2 LCP:   MRU 1500 (0x010405DC)  
*Jul 14 20:23:09.490: Vi2 LCP:   AuthProto PAP (0x0304C023)  
*Jul 14 20:23:09.490: Vi2 LCP:   MagicNumber 0xED0582E9 (0x0506ED0582E9)  
*Jul 14 20:23:09.490: Vi2 LCP: O CONFACK [ACKrcvd] id 2 len 18  
*Jul 14 20:23:09.490: Vi2 LCP:   MRU 1500 (0x010405DC)  
*Jul 14 20:23:09.490: Vi2 LCP:   AuthProto PAP (0x0304C023)  
*Jul 14 20:23:09.490: Vi2 LCP:   MagicNumber 0xED0582E9 (0x0506ED0582E9)  
*Jul 14 20:23:09.490: Vi2 LCP: Event[Receive ConfReq+] State[ACKrcvd to Open]  
*Jul 14 20:23:09.499: Vi2 PPP: No authorization without authentication  
*Jul 14 20:23:09.499: Vi2 PPP: Phase is AUTHENTICATING, by the peer  
*Jul 14 20:23:09.499: Vi2 PAP: Using hostname from interface PAP  
*Jul 14 20:23:09.499: Vi2 PAP: Using password from interface PAP  
*Jul 14 20:23:09.499: Vi2 PAP: O AUTH-REQ id 1 len 19 from "cisco"  
*Jul 14 20:23:09.499: Vi2 LCP: State is Open  
*Jul 14 20:23:09.530: Vi2 PAP: I AUTH-ACK id 1 len 5  
*Jul 14 20:23:09.530: Vi2 PPP: Phase is FORWARDING, Attempting Forward  
*Jul 14 20:23:09.530: Vi2 PPP: Queue IPCP code[1] id[1]  
*Jul 14 20:23:09.532: Vi2 PPP: Phase is ESTABLISHING, Finish LCP
```

```

*Jul 14 20:23:09.532: Vi2 PPP: Phase is UP
*Jul 14 20:23:09.532: Vi2 IPCP: Protocol configured, start CP. state[Initial]
*Jul 14 20:23:09.532: Vi2 IPCP: Event[OPEN] State[Initial to Starting]
*Jul 14 20:23:09.532: Vi2 IPCP: O CONFREQ [Starting] id 1 len 10
*Jul 14 20:23:09.532: Vi2 IPCP:   Address 0.0.0.0 (0x030600000000)
*Jul 14 20:23:09.532: Vi2 IPCP: Event[UP] State[Starting to REQsent]
*Jul 14 20:23:09.532: Vi2 PPP: Process pending ncp packets
*Jul 14 20:23:09.532: Vi2 IPCP: Redirect packet to Vi2
*Jul 14 20:23:09.532: Vi2 IPCP: I CONFREQ [REQsent] id 1 len 10
*Jul 14 20:23:09.532: Vi2 IPCP:   Address 192.168.1.1 (0x0306C0A80101)
*Jul 14 20:23:09.533: Vi2 IPCP: O CONFACK [REQsent] id 1 len 10
*Jul 14 20:23:09.533: Vi2 IPCP:   Address 192.168.1.1 (0x0306C0A80101)
*Jul 14 20:23:09.533: Vi2 IPCP: Event[Receive ConfReq+] State[REQsent to ACKsent]
*Jul 14 20:23:09.535: Vi2 IPCP: I CONFNAK [ACKsent] id 1 len 10
*Jul 14 20:23:09.535: Vi2 IPCP:   Address 10.1.1.1 (0x03060A010101)
*Jul 14 20:23:09.535: Vi2 IPCP: O CONFREQ [ACKsent] id 2 len 10
*Jul 14 20:23:09.535: Vi2 IPCP:   Address 10.1.1.1 (0x03060A010101)
*Jul 14 20:23:09.536: Vi2 IPCP: Event[Receive ConfNak/Rej] State[ACKsent to ACKsent]
*Jul 14 20:23:09.537: Vi2 IPCP: I CONFACK [ACKsent] id 2 len 10
*Jul 14 20:23:09.537: Vi2 IPCP:   Address 10.1.1.1 (0x03060A010101)
*Jul 14 20:23:09.537: Vi2 IPCP: Event[Receive ConfAck] State[ACKsent to Open]
*Jul 14 20:23:09.562: Vi2 IPCP: State is Open
*Jul 14 20:23:09.562: Di1 IPCP: Install negotiated IP interface address 10.1.1.1
*Jul 14 20:23:09.565: PPPoE : ipfib_encapstr prepared
*Jul 14 20:23:09.566: Di1 Added to neighbor route AVL tree: topoid 0, address 192.168.1.1
*Jul 14 20:23:09.566: Di1 IPCP: Install route to 192.168.1.1
*Jul 14 20:23:09.567: Vi2 DDR: dialer protocol up
*Jul 14 20:23:09.567: PPPoE : ipfib_encapstr prepared
*Jul 14 20:23:09.567: Di1 DDR: dialer protocol up
*Jul 14 20:23:10.235: %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access2, changed
state to up

```

```

Client#sh pppoe session
1 client session

```

| Uniq ID | PPPoE | RemMAC | Port | VT | VA | State |
|---------|-------|----------------------------------|------|-----|-----------|-------|
| | SID | LocMAC | | | VA-st | Type |
| N/A | 1 | a0ec.f9d8.9dd0 64f6.9d6e.dd3f | BD10 | Di1 | Vi2 UP | UP |

서버 로그:

```

* Jul 15 04:41:18.727: ppp1 PPP: Phase is ESTABLISHING
*Jul 15 04:41:18.727: ppp1 PPP: Using vpn set call direction
*Jul 15 04:41:18.727: ppp1 PPP: Treating connection as a callin
*Jul 15 04:41:18.727: ppp1 PPP: Session handle[BF000001] Session id[1]
*Jul 15 04:41:18.727: ppp1 LCP: Event[OPEN] State[Initial to Starting]
*Jul 15 04:41:18.727: ppp1 PPP LCP: Enter passive mode, state[Stopped]
*Jul 15 04:41:18.735: ppp1 LCP: I CONFREQ [Stopped] id 1 len 10
*Jul 15 04:41:18.735: ppp1 LCP:   MagicNumber 0xB07C8578 (0x0506B07C8578)
*Jul 15 04:41:18.735: ppp1 LCP: O CONFREQ [Stopped] id 1 len 18
*Jul 15 04:41:18.735: ppp1 LCP:   MRU 1492 (0x010405D4)
*Jul 15 04:41:18.735: ppp1 LCP:   AuthProto PAP (0x0304C023)
*Jul 15 04:41:18.735: ppp1 LCP:   MagicNumber 0xED0582E9 (0x0506ED0582E9)
*Jul 15 04:41:18.735: ppp1 LCP: O CONFACK [Stopped] id 1 len 10
*Jul 15 04:41:18.735: ppp1 LCP:   MagicNumber 0xB07C8578 (0x0506B07C8578)
*Jul 15 04:41:18.735: ppp1 LCP: Event[Receive ConfReq+] State[Stopped to ACKsent]
*Jul 15 04:41:18.735: ppp1 LCP: I CONFNAK [ACKsent] id 1 len 8
*Jul 15 04:41:18.735: ppp1 LCP:   MRU 1500 (0x010405DC)
*Jul 15 04:41:18.735: ppp1 LCP: O CONFREQ [ACKsent] id 2 len 18
*Jul 15 04:41:18.735: ppp1 LCP:   MRU 1500 (0x010405DC)

```

```

*Jul 15 04:41:18.735: ppp1 LCP: AuthProto PAP (0x0304C023)
*Jul 15 04:41:18.735: ppp1 LCP: MagicNumber 0xED0582E9 (0x0506ED0582E9)
*Jul 15 04:41:18.735: ppp1 LCP: Event[Receive ConfNak/Rej] State[ACKsent to ACKsent]
*Jul 15 04:41:18.739: ppp1 LCP: I CONFACK [ACKsent] id 2 len 18
*Jul 15 04:41:18.739: ppp1 LCP: MRU 1500 (0x010405DC)
*Jul 15 04:41:18.739: ppp1 LCP: AuthProto PAP (0x0304C023)
*Jul 15 04:41:18.739: ppp1 LCP: MagicNumber 0xED0582E9 (0x0506ED0582E9)
*Jul 15 04:41:18.739: ppp1 LCP: Event[Receive ConfAck] State[ACKsent to Open]
*Jul 15 04:41:18.747: ppp1 PPP: Queue PAP code[1] id[1]
*Jul 15 04:41:18.763: ppp1 PPP: Phase is AUTHENTICATING, by this end
*Jul 15 04:41:18.763: ppp1 PAP: Redirect packet to ppp1
*Jul 15 04:41:18.763: ppp1 PAP: I AUTH-REQ id 1 len 19 from "cisco"
*Jul 15 04:41:18.763: ppp1 PAP: Authenticating peer cisco
*Jul 15 04:41:18.763: ppp1 PPP: Phase is FORWARDING, Attempting Forward
*Jul 15 04:41:18.763: ppp1 LCP: State is Open
*Jul 15 04:41:18.763: ppp1 PPP: Phase is AUTHENTICATING, Unauthenticated User
*Jul 15 04:41:18.763: ppp1 PPP: Sent PAP LOGIN Request
*Jul 15 04:41:18.763: ppp1 PPP: Received LOGIN Response PASS
*Jul 15 04:41:18.763: ppp1 IPCP: Authorizing CP
*Jul 15 04:41:18.763: ppp1 IPCP: CP stalled on event[Authorize CP]
*Jul 15 04:41:18.763: ppp1 IPCP: CP unstall
*Jul 15 04:41:18.763: ppp1 PPP: Phase is FORWARDING, Attempting Forward
*Jul 15 04:41:18.775: Vi1.1 PPP: Phase is AUTHENTICATING, Authenticated User
*Jul 15 04:41:18.775: Vi1.1 PAP: O AUTH-ACK id 1 len 5
*Jul 15 04:41:18.775: Vi1.1 PPP: Phase is UP
*Jul 15 04:41:18.775: Vi1.1 IPCP: Protocol configured, start CP. state[Initial]
*Jul 15 04:41:18.775: Vi1.1 IPCP: Event[OPEN] State[Initial to Starting]
*Jul 15 04:41:18.775: Vi1.1 IPCP: O CONFREQ [Starting] id 1 len 10
*Jul 15 04:41:18.775: Vi1.1 IPCP: Address 192.168.1.1 (0x0306C0A80101)
*Jul 15 04:41:18.779: Vi1.1 IPCP: Event[UP] State[Starting to REQsent]
*Jul 15 04:41:18.779: Vi1.1 IPCP: I CONFREQ [REQsent] id 1 len 10
*Jul 15 04:41:18.779: Vi1.1 IPCP: Address 0.0.0.0 (0x030600000000)
*Jul 15 04:41:18.783: Vi1.1 IPCP AUTHOR: Start. Her address 0.0.0.0, we want 0.0.0.0
*Jul 15 04:41:18.783: Vi1.1 IPCP AUTHOR: Done. Her address 0.0.0.0, we want 0.0.0.0
*Jul 15 04:41:18.783: Vi1.1 IPCP: Pool returned 10.1.1.1
*Jul 15 04:41:18.783: Vi1.1 IPCP: O CONFNAK [REQsent] id 1 len 10
*Jul 15 04:41:18.783: Vi1.1 IPCP: Address 10.1.1.1 (0x03060A010101)
*Jul 15 04:41:18.783: Vi1.1 IPCP: Event[Receive ConfReq-] State[REQsent to REQsent]
*Jul 15 04:41:18.783: Vi1.1 IPCP: I CONFACK [REQsent] id 1 len 10
*Jul 15 04:41:18.783: Vi1.1 IPCP: Address 192.168.1.1 (0x0306C0A80101)
*Jul 15 04:41:18.783: Vi1.1 IPCP: Event[Receive ConfAck] State[REQsent to ACKrcvd]
*Jul 15 04:41:18.783: Vi1.1 IPCP: I CONFREQ [ACKrcvd] id 2 len 10
*Jul 15 04:41:18.783: Vi1.1 IPCP: Address 10.1.1.1 (0x03060A010101)
*Jul 15 04:41:18.783: Vi1.1 IPCP: O CONFACK [ACKrcvd] id 2 len 10
*Jul 15 04:41:18.783: Vi1.1 IPCP: Address 10.1.1.1 (0x03060A010101)
*Jul 15 04:41:18.783: Vi1.1 IPCP: Event[Receive ConfReq+] State[ACKrcvd to Open]
*Jul 15 04:41:18.795: Vi1.1 IPCP: State is Open
*Jul 15 04:41:18.795: Vi1.1 Added to neighbor route AVL tree: topoid 0, address 10.1.1.1
*Jul 15 04:41:18.795: Vi1.1 IPCP: Install route to 10.1.1.1

```

```

Server#show pppoe session
  1 session in LOCALLY_TERMINATED (PTA) State
  1 session total

```

| Uniq ID | PPPoE | RemMAC | Port | VT | VA | State |
|---------|-------|----------------|-------|----|-------|-------|
| | SID | LocMAC | | | VA-st | Type |
| 1 | 1 | 64f6.9d6e.dd3f | Gi0/0 | 1 | Vi1.1 | PTA |
| | | a0ec.f9d8.9dd0 | | | UP | |

문제 해결

이 섹션에서는 컨피그레이션 문제를 해결하는 데 사용할 수 있는 정보를 제공합니다.

표준 PPP [문제 해결 단계를 따릅니다.](#)

참고:BDI 인터페이스가 구성되지 않았고 PPPoE 클라이언트 컨피그레이션이 기가비트 이더넷 인터페이스에 적용된 경우 PPPoE 세션이 설정되지 않고 이 오류 메시지가 표시됩니다.

```
padi timer expired  
Sending PADI: Interface = GigabitEthernet0/0/1
```

관련 정보

- [PPPoE 클라이언트 구성](#)
- [PPP over Ethernet 클라이언트](#)
- [기술 지원 및 문서 - Cisco Systems](#)