

Konfigurieren von PPPoE über BDI auf Routern der Serie ASR1k

Inhalt

[Einführung](#)

[Voraussetzungen](#)

[Anforderungen](#)

[Verwendete Komponenten](#)

[Konfigurieren](#)

[Netzwerkdiagramm](#)

[Überprüfen](#)

[Fehlerbehebung](#)

[Zugehörige Informationen](#)

Einführung

In diesem Dokument wird beschrieben, wie der Point-to-Point Protocol over Ethernet (PPPoE)-Server mit der Bridge Domain Interface (BDI) und dem VLAN-Bereich konfiguriert wird.

Voraussetzungen

Anforderungen

Cisco empfiehlt, über Kenntnisse in folgenden Bereichen zu verfügen:

- End-to-End-Layer-1-Anbindung ist in Ordnung
- Grundlagen von PPP und PPPoE sind gut bekannt

Verwendete Komponenten

Die Informationen in diesem Dokument basieren auf den folgenden Software- und Hardwareversionen:

- HOST-1 - CISCO887G
- HOST-2 - CISCO887
- SWITCH - WS-C3560-24TS-S
- PPPoE-SERVER - ASR1001-X

Die Informationen in diesem Dokument wurden von den Geräten in einer bestimmten Laborumgebung erstellt. Alle in diesem Dokument verwendeten Geräte haben mit einer leeren (Standard-)Konfiguration begonnen. Wenn Ihr Netzwerk in Betrieb ist, stellen Sie sicher, dass Sie die potenziellen Auswirkungen eines Befehls verstehen.

Konfigurieren

Hinweis: Verwenden Sie das [Command Lookup Tool](#) (nur [registrierte](#) Kunden), um weitere Informationen zu den in diesem Abschnitt verwendeten Befehlen zu erhalten.

HOST-1

```
!  
interface FastEthernet0  
  switchport access vlan 100  
  no ip address  
end  
  
!  
  
interface Vlan100  
  no ip address  
  pppoe enable group global  
  pppoe-client dial-pool-number 1  
end  
  
!  
  
interface Dialer1  
  ip address negotiated  
  encapsulation ppp  
  dialer pool 1  
  ppp chap hostname dsl  
  ppp chap password 0 dsl  
end
```

HOST-2

```
!  
  
interface FastEthernet0  
  switchport access vlan 200  
  no ip address  
end  
  
!  
  
!  
interface Vlan200  
  no ip address  
  pppoe enable group global  
  pppoe-client dial-pool-number 1  
end  
  
!  
  
!  
interface Dialer1  
  ip address negotiated  
  encapsulation ppp  
  dialer pool 1  
  ppp chap hostname dsl  
  ppp chap password 0 dsl  
end
```

!

SWITCH

SWITCH#sh cdp neighbors

Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
S - Switch, H - Host, I - IGMP, r - Repeater, P - Phone,
D - Remote, C - CVTA, M - Two-port Mac Relay

Device ID	Local Intrfce	Holdtme	Capability	Platform	Port ID
SERVER	Gig 0/1	130	R I	ASR1001-X	Gig 0/0/0
HOST-1	Fas 0/2	141	R B S I	887G	Fas 0
HOST-2	Fas 0/1	167	R B S I	887	Fas 0

!

```
interface FastEthernet0/2
  switchport access vlan 100
end
```

!

```
interface FastEthernet0/1
  switchport access vlan 200
end
```

!

```
interface GigabitEthernet0/1
  switchport trunk encapsulation dot1q
  switchport trunk allowed vlan 100,200
  switchport mode trunk
end
```

!

PPPoE-SERVER

!

```
username dsl password 0 dsl
```

!

```
bba-group pppoe global
  virtual-template 1
```

!

```
interface GigabitEthernet0/0/0
  no ip address
  negotiation auto
  cdp enable
  service instance 100 ethernet
  encapsulation dot1q 100 etype pppoe-all
  rewrite ingress tag pop 1 symmetric
  bridge-domain 100
```

!

```
service instance 200 ethernet
  encapsulation dot1q 200 etype pppoe-all
  rewrite ingress tag pop 1 symmetric
  bridge-domain 200
```

```

!
!
interface Virtual-Template1
 ip unnumbered Loopback0
 peer default ip address pool POOL
 ppp authentication chap
!
interface BDI100
 no ip address
 pppoe enable group global
!
interface BDI200
 no ip address
 pppoe enable group global
!
interface Loopback0
 ip address 192.168.10.1 255.255.255.255
end

!
ip local pool POOL 192.168.1.1 192.168.1.100

```

Alternativ können Sie "vlan-range" konfigurieren wie folgt:

```

!
interface GigabitEthernet0/0/0
 no ip address
 negotiation auto
 service instance 100 ethernet
 encapsulation default
 bridge-domain 1
!
end

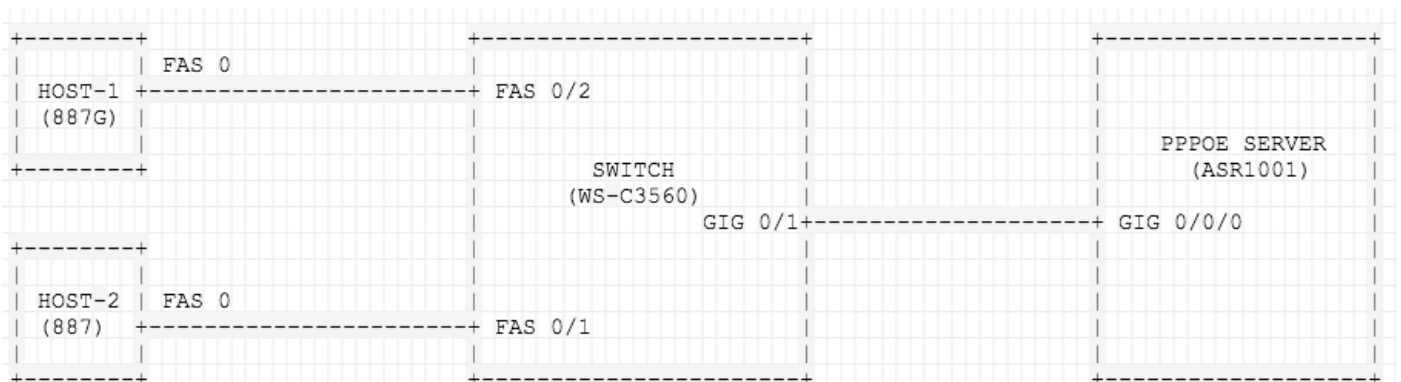
```

```

!
interface BDI1
 no ip address
 vlan-range dot1q 1 4094
 pppoe enable group global
!
end

```

Netzwerkdiagramm



Überprüfen

In diesem Abschnitt überprüfen Sie, ob Ihre Konfiguration ordnungsgemäß funktioniert.

Auf HOST-1

```
[HOST-1#show pppoe session
1 client session
```

Uniq ID	PPPoE SID	RemMAC LocMAC	Port	VT	VA VA-st Vi2	State Type
N/A	5	00a2.eee6.663f c471.fe93.d112	Vl100	Di1	UP	UP

```
HOST-1#show ip interface brief | exclude un
```

Interface	IP-Address	OK?	Method	Status	Protocol
Dialer1	192.168.1.4	YES	IPCP	up	up

```
HOST-1#show caller ip
```

Line	User	IP Address	Local Number	Remote Number	<->
Vi2	SERVER	192.168.10.1	-	<unknown phone	in

```
HOST-1#ping 192.168.10.1
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 192.168.10.1, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4 ms

```
HOST-1#show ppp interface virtual-Access 2
```

```
PPP Serial Context Info
```

```
-----
Interface       : Vi2
PPP Serial Handle: 0x1F000003
PPP Handle      : 0xB2000003
SSS Handle      : 0x80000004
AAA ID          : 24
Access IE       : 0xA7000003
SHDB Handle     : 0x0
State           : Up
Last State      : Binding
Last Event      : LocalTerm
```

```
PPP Session Info
```

```
-----
Interface       : Vi2
PPP ID          : 0xB2000003
Phase           : UP
Stage           : Local Termination
Peer Name       : SERVER
Peer Address    : 192.168.10.1
Control Protocols: LCP[Open] IPCP[Open] CDPCP[Stopped]
Session ID      : 3
AAA Unique ID   : 24
```

SSS Manager ID : 0x8000004
SIP ID : 0x1F000003
PPP_IN_USE : 0x11

Vi2 LCP: [Open]
Our Negotiated Options
Vi2 LCP: MagicNumber 0x7735647E (0x05067735647E)
Peer's Negotiated Options
Vi2 LCP: MRU 1500 (0x010405DC)
Vi2 LCP: AuthProto CHAP (0x0305C22305)
Vi2 LCP: MagicNumber 0xA7A011AC (0x0506A7A011AC)

Vi2 IPCP: [Open]
Our Negotiated Options
Vi2 IPCP: Address 192.168.1.5 (0x0306C0A80105)
Peer's Negotiated Options
Vi2 IPCP: Address 192.168.10.1 (0x0306C0A80A01)

Auf HOST-2

HOST-2#show pppoe session
1 client session

Uniq ID	PPPoE SID	RemMAC LocMAC	Port	VT	VA VA-st	State Type
N/A	6	00a2.eee6.663f e8b7.4886.b8ea	Vl200	Di1	Vi2 UP	UP

HOST-2#show ip interface brief | exclude un

Interface	IP-Address	OK?	Method	Status	Protocol
Dialer1	192.168.1.6	YES	IPCP	up	up

HOST-2#show caller ip

Line	User	IP Address	Local Number	Remote Number	<->
Vi2	SERVER	192.168.10.1	-	<unknown phone	in

HOST-2#ping 192.168.10.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.10.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/4 ms

HOST-2#show ppp interface virtual-Access 2
PPP Serial Context Info

Interface : Vi2
PPP Serial Handle: 0x7B00000A
PPP Handle : 0xA000000A
SSS Handle : 0x4C00000B
AAA ID : 68
Access IE : 0x1D00000A
SHDB Handle : 0x0
State : Up
Last State : Binding
Last Event : LocalTerm

PPP Session Info

Interface : Vi2
PPP ID : 0xA000000A
Phase : UP
Stage : Local Termination
Peer Name : SERVER
Peer Address : 192.168.10.1
Control Protocols: LCP[Open] IPCP[Open] CDPCP[Stopped]
Session ID : 10
AAA Unique ID : 68
SSS Manager ID : 0x4C00000B
SIP ID : 0x7B00000A
PPP_IN_USE : 0x11

Vi2 LCP: [Open]
Our Negotiated Options
Vi2 LCP: MagicNumber 0x421AC8AB (0x0506421AC8AB)
Peer's Negotiated Options
Vi2 LCP: MRU 1500 (0x010405DC)
Vi2 LCP: AuthProto CHAP (0x0305C22305)
Vi2 LCP: MagicNumber 0xA7A0942C (0x0506A7A0942C)

Vi2 IPCP: [Open]
Our Negotiated Options
Vi2 IPCP: Address 192.168.1.6 (0x0306C0A80106)
Peer's Negotiated Options
Vi2 IPCP: Address 192.168.10.1 (0x0306C0A80A01)

SWITCH

SWITCH#show vlan brief

VLAN Name	Status	Ports
1 default	active	Fa0/4, Fa0/5, Fa0/6, Fa0/7 Fa0/8, Fa0/9, Fa0/10, Fa0/11 Fa0/12, Fa0/13, Fa0/14, Fa0/15 Fa0/16, Fa0/17, Fa0/18, Fa0/19 Fa0/20, Fa0/21, Fa0/22, Fa0/23 Fa0/24, Gi0/2
11 VLAN0011	active	
12 VLAN0012	active	
13 VLAN0013	active	
100 VLAN0100	active	Fa0/2
200 VLAN0200	active	Fa0/1

SWITCH#Show interface trunk

Port	Mode	Encapsulation	Status	Native vlan
Gi0/1	on	802.1q	trunking	1
Port	Vlans allowed on trunk			
Gi0/1	100,200			
Port	Vlans allowed and active in management domain			
Gi0/1	100,200			
Port	Vlans in spanning tree forwarding state and not pruned			
Gi0/1	100,200			

Auf PPPoE-SERVER

```
SERVER#show pppoe session
      2 sessions in LOCALLY_TERMINATED (PTA) State
      2 sessions total
```

Uniq ID	PPPoE SID	RemMAC LocMAC	Port	VT	VA VA-st	State Type
5	5	c471.fe93.d112 00a2.eee6.663f	BD100	1	Vi2.2 UP	PTA
6	6	e8b7.4886.b8ea 00a2.eee6.663f	BD200	1	Vi2.1 UP	PTA

```
SERVER#show caller ip
```

Line	User	IP Address	Local Number	Remote Number	<->
Vi2.1	dsl	192.168.1.6	-	-	in
Vi2.2	dsl	192.168.1.5	-	-	in

```
SERVER#show ip local pool POOL
```

Pool	Begin	End	Free	In use
POOL	192.168.1.1	192.168.1.100	98	2

```
Available addresses:
```

```
192.168.1.7
192.168.1.8
192.168.1.9
```

```
.....
```

```
.....
```

Wenn Sie 'vlan-range' verwenden, beachten Sie die Änderung in 'Port':

```
SERVER#show pppoe session
      2 sessions in LOCALLY_TERMINATED (PTA) State
      2 sessions total
```

Uniq ID	PPPoE SID	RemMAC LocMAC	Port	VT	VA VA-st	State Type
7	7	c471.fe93.d112 00a2.eee6.663f	BD1 VLAN: 100	1	Vi2.1 UP	PTA
8	8	e8b7.4886.b8ea 00a2.eee6.663f	BD1 VLAN: 200	1	Vi2.2 UP	PTA

```
SERVER#show caller ip
```

Line	User	IP Address	Local Number	Remote Number	<->
Vi2.1	dsl	192.168.1.7	-	-	in
Vi2.2	dsl	192.168.1.8	-	-	in

Fehlerbehebung

Dieser Abschnitt enthält Informationen, die Sie zur Fehlerbehebung bei Ihrer Konfiguration verwenden können.

Diese Debug-Tools sind hilfreich, um Probleme mit PPP/PPPoE zu beheben.

- Debugging-PPP-Ereignisse

- Fehlersuche
- Debug-ppp-Aushandlung

Zugehörige Informationen

- [PPPoE über BDI auf CISCO CSR 1000V](#)
- [Fehler bei Erweiterung - PPPoE-Terminierung bei BDI und VLAN-Bereich bei ASR1k](#)
- [Technischer Support und Dokumentation - Cisco Systems](#)