Laborbericht - NVS - 5CHIF	
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Ziel: Erfüllung der Aufgabenstellung	

4.4 Configure and Verify eBGP

Testen

Um zu testen, ob der ISP den Router richtig konfiguriert hat wird er*ISP-Entry2* von *OtherCo1* angepingt.

```
OtherCo1>en
OtherCo1#ping 1.1.1.9

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 1.1.1.9, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/8 ms

OtherCo1#
```

Es wird getestet ob ein Gerät in ACME*172.16.10.2* anpingen kann. Dies sollte noch nicht funktionieren.

```
Pinging 172.16.10.2 with 32 bytes of data:

Reply from 192.168.0.1: Destination host unreachable.
Reply from 192.168.0.1: Destination host unreachable.
Request timed out.
Reply from 192.168.0.1: Destination host unreachable.
```

Konfiguriern

Konfiguration bei ACME1

```
router bgp 65001
neighbor 1.1.1.1 remote-as 65003
network 192.168.0.0 mask 255.255.255.0
```

```
ACME1(config)#router bgp 65001
ACME1(config-router)#neighbor 1.1.1.1 remote-as 65003
ACME1(config-router)#network 192.168.0.0 mask 255.255.255.0%BGP-5-ADJCHANGE:
neighbor 1.1.1.1 Up

ACME1(config-router)#
```

Konfiguration bei OtherCo1

```
router bgp 65002
neighbor 1.1.1.9 remote-as 65003
network 172.16.10.0 mask 255.255.255.0
```

Kontrolle

```
ACME1#show ip bgp summary
BGP router identifier 192.168.0.1, local AS number 65001
BGP table version is 6, main routing table version 6
5 network entries using 660 bytes of memory
5 path entries using 260 bytes of memory
4/3 BGP path/bestpath attribute entries using 644 bytes of memory
2 BGP AS-PATH entries using 48 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
Bitfield cache entries: current 1 (at peak 1) using 32 bytes of memory
BGP using 1644 total bytes of memory
BGP activity 5/0 prefixes, 5/0 paths, scan interval 60 secs

Neighbor        V    AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
1.1.1.1         4 65003      13       8        6    0    0 00:06:33        4

ACME1#
```


```
ACME1#show ip bgp summary
BGP router identifier 192.168.0.1, local AS number 65001
BGP table version is 6, main routing table version 6
5 network entries using 660 bytes of memory
5 path entries using 260 bytes of memory
4/3 BGP path/bestpath attribute entries using 644 bytes of memory
2 BGP AS-PATH entries using 48 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
Bitfield cache entries: current 1 (at peak 1) using 32 bytes of memory
BGP using 1644 total bytes of memory
BGP activity 5/0 prefixes, 5/0 paths, scan interval 60 secs

Neighbor        V    AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
1.1.1.1         4 65003      13       8        6    0    0 00:06:33        4

ACME1#
```


```
ACME1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     1.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C       1.1.1.0/30 is directly connected, Serial0/0/0
L       1.1.1.2/32 is directly connected, Serial0/0/0
B       1.1.1.4/30 [20/0] via 1.1.1.1, 01:21:42
B       1.1.1.8/30 [20/0] via 1.1.1.1, 01:21:42
     172.16.0.0/24 is subnetted, 1 subnets
B       172.16.10.0/24 [20/26114560] via 1.1.1.1, 01:21:42
     192.168.0.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.0.0/24 is directly connected, GigabitEthernet0/0
L       192.168.0.1/32 is directly connected, GigabitEthernet0/0

ACME1#
```

```
ACME1#ping 172.16.10.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.10.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 3/5/14 ms

ACME1#
```

4.5 Troubleshooting IPv6 ACLs

Troubleshoot HTTP Access

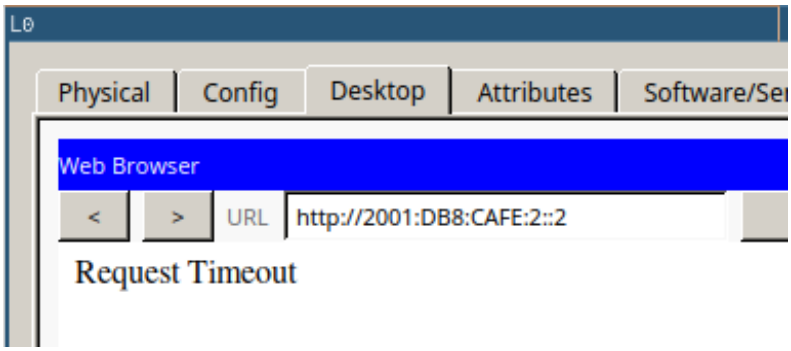
HTTP Tests bei L0, L1 und L2

Es wird versucht mit den Geräten L0, L1 und L2 eine HTTP Verbindung zu Server1 und Server2 herzustellen:

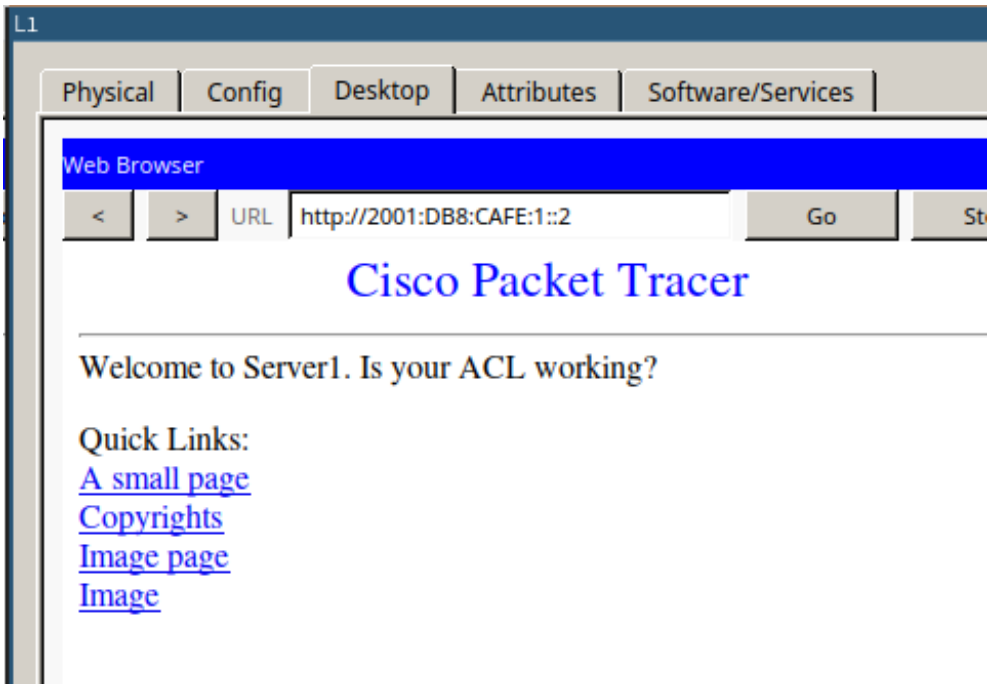
Erwartetes Ergebnis

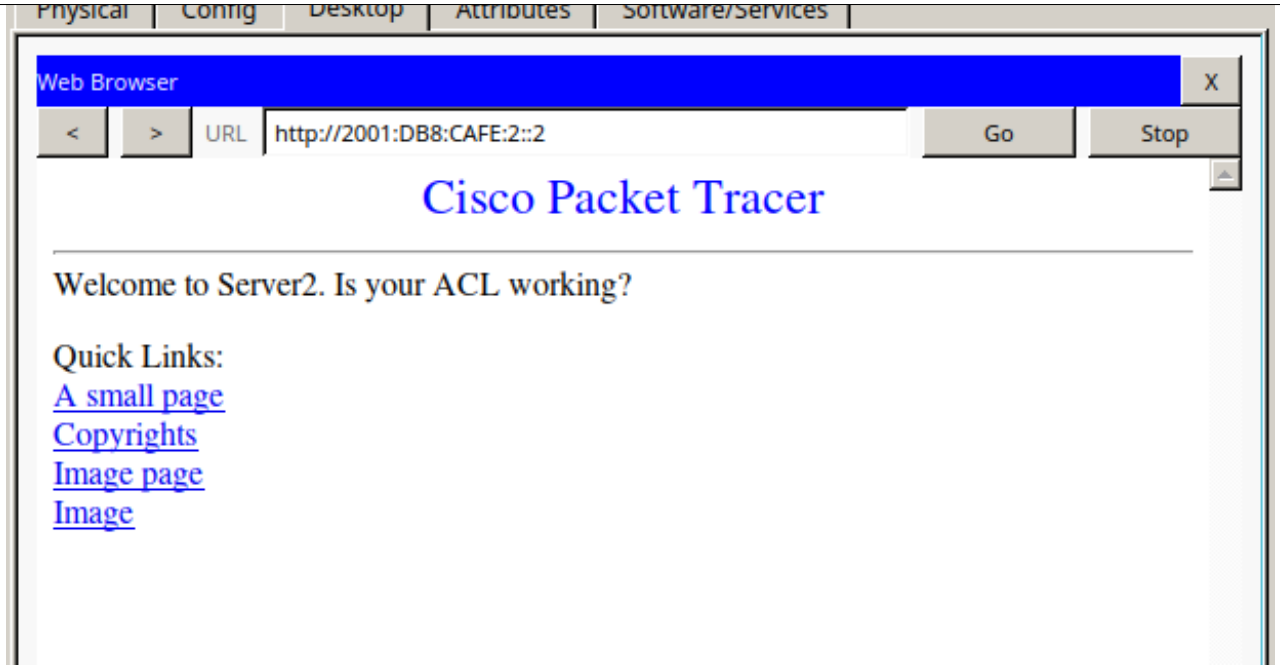
L0 sollte sich mit keinem Server verbinden. L1 und L2 mit beiden.

Ergebnis bei L0:

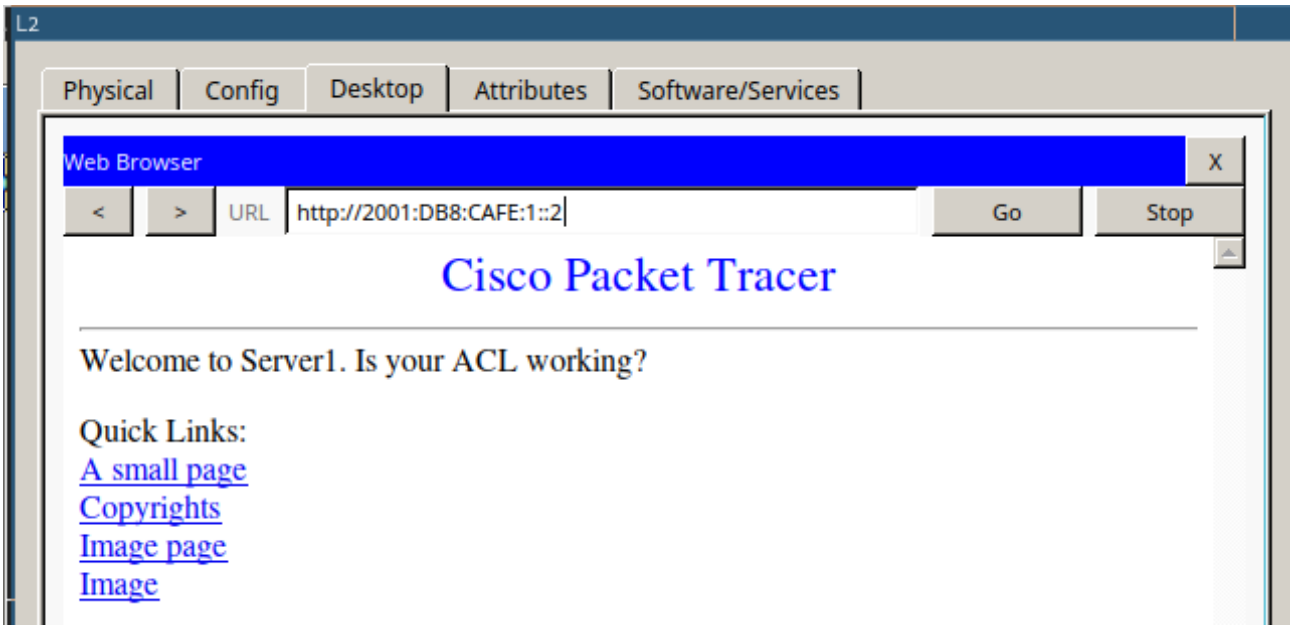


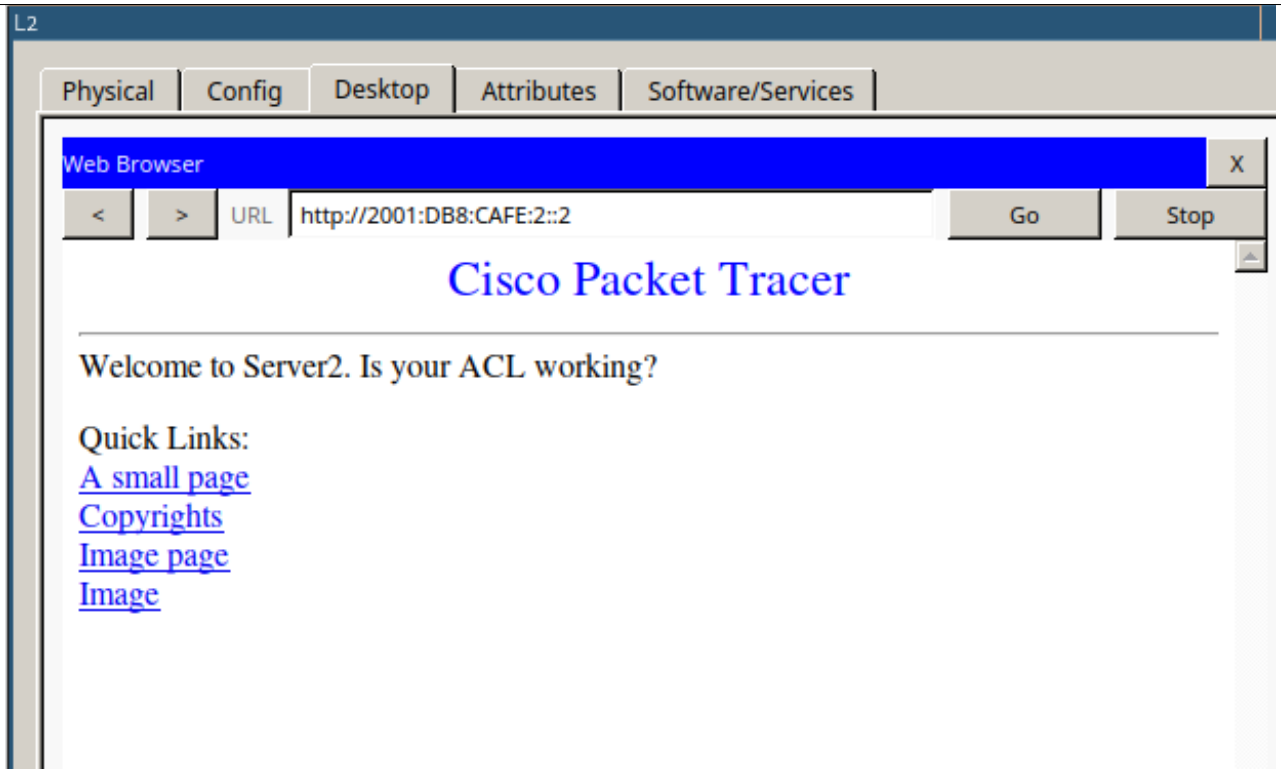
Ergebnis bei L1:





Ergebnis bei L2:





Die durchgeführten Tests sind ident mit dem erwarteten Ergebnis.

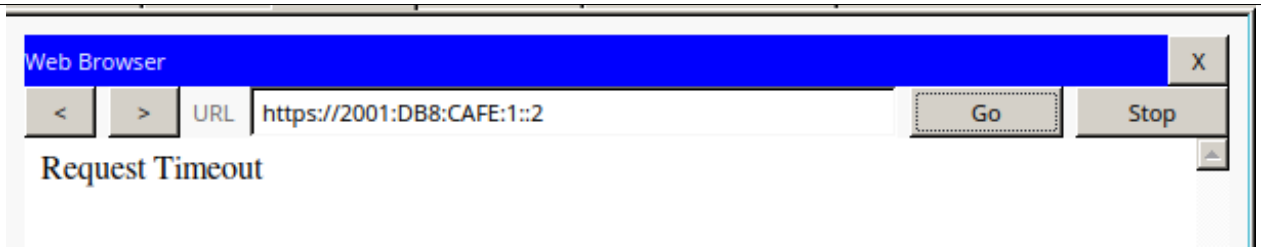
####ICMP Test bei L0 Es wird getestet, ob L0 Server1 und Server2 anpingen kann. Das zu erwartende Ergebnis ist Ja.

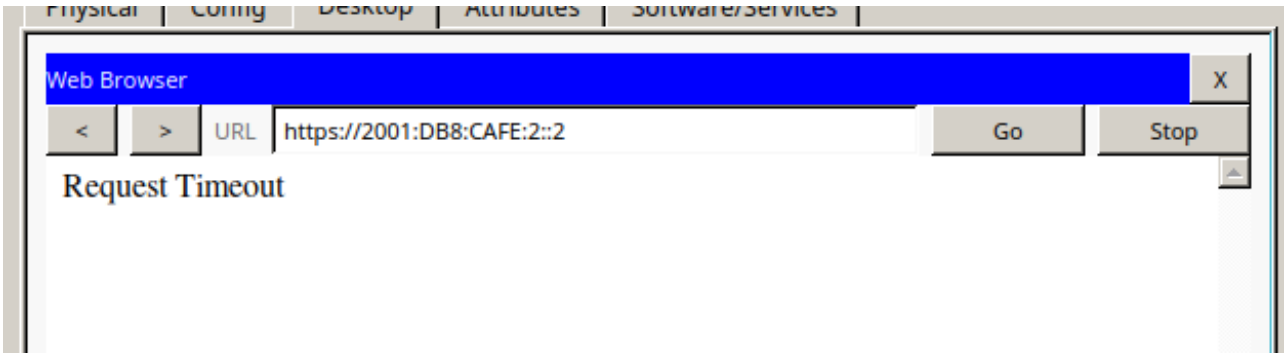
```
Packet Tracer PC Command Line 1.0
C:\>ping 2001:DB8:CAFE:1::2

Pinging 2001:DB8:CAFE:1::2 with 32 bytes of data:

Reply from 2001:DB8:CAFE::1: Destination host unreachable.
Reply from 2001:DB8:CAFE::1: Destination host unreachable.
Reply from 2001:DB8:CAFE::1: Destination host unreachable.
Reply from 2001:DB8:CAFE::1: Destination host unreachable.

Ping statistics for 2001:DB8:CAFE:1::2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>2001:DB8:CAFE:2::2
Invalid Command.

C:\>ping 2001:DB8:CAFE:2::2

Pinging 2001:DB8:CAFE:2::2 with 32 bytes of data:

Reply from 2001:DB8:CAFE::1: Destination host unreachable.
Reply from 2001:DB8:CAFE::1: Destination host unreachable.
Reply from 2001:DB8:CAFE::1: Destination host unreachable.
Reply from 2001:DB8:CAFE::1: Destination host unreachable.

Ping statistics for 2001:DB8:CAFE:2::2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

Der Ping hat nicht funktioniert.

HTTPS Test bei PC0

Es wird getestet ob PC0 auf die https Diesnte auf Server1 und Server2 zugreifen kann. Das Erwartete Ergebnis ist, es funktioniert.





ACL Konfiguration von R1

```
!
ipv6 access-list G2-ACCESS
 permit ipv6 any any
 deny tcp 2001:DB8:CAFE:2::/64 any eq 22
ipv6 access-list G0-ACCESS
 deny tcp 2001:DB8:CAFE::/64 any eq www
ipv6 access-list G1-ACCESS
 deny tcp 2001:DB8:CAFE:1::/64 any eq 22
 deny tcp 2001:DB8:CAFE:1::/64 host 2001:DB8:CAFE:2::2 eq ftp
 permit ipv6 any any
!
```

Es fehlt das permit ipv6 any any kommando. Ansonsten wird sämtlicher Traffic von der ACL konfiguration blockiert.

Fehlerbehebung

```
ipv6 access-list G0-ACCESS
permit ipv6 any any
```

```
R1(config)#ipv6 access-list exte
R1(config)#ipv6 access-list G0-ACCESS
R1(config-ipv6-acl)#permit ipv6 any any
R1(config-ipv6-acl)#exit
```

Troubleshoot FTP Access

Testen

L1 sollte keine Verbindung zum FTP Server herstellen können, die restlichen Geräte schon

L0

```
C:\>ftp 2001:db8:cafe:2::2
Trying to connect...2001:db8:cafe:2::2
Connected to 2001:db8:cafe:2::2
220- Welcome to PT Ftp server
Username:
```

L1

```
% Connection refused by remote host
C:\>ftp 2001:db8:cafe:2::2
Trying to connect...2001:db8:cafe:2::2
Connected to 2001:db8:cafe:2::2
220- Welcome to PT Ftp server
Username:
```

L2

```
Trying to connect...2001:db8:cafe:2::2
Connected to 2001:db8:cafe:2::2
220- Welcome to PT Ftp server
Username:
```

L1 kann unerwarteter weiße eine FTP verbindung herstellen

Fehlerbehebung

Die ACL G1-ACCESS ist am Interface fälschlicher weiße als outbound und nicht inbound konfiguriert.

```
int g0/1
no ipv6 traffic-filter G1-ACCESS out
ipv6 traffic-filter G1-ACCESS in
```

```
R1(config-ipv6-acl)#int g0/1
R1(config-if)#no ip
R1(config-if)#no ip tra
R1(config-if)#no ip tra?
% Unrecognized command
R1(config-if)#no ?
  arp                Set arp type (arpa, probe, snap) or timeout
  bandwidth          Set bandwidth informational parameter
  cdp                CDP interface subcommands
  channel-group      Add this interface to an Etherchannel group
  crypto             Encryption/Decryption commands
  custom-queue-list  Assign a custom queue list to an interface
  delay              Specify interface throughput delay
  description        Interface specific description
  duplex             Configure duplex operation.
  fair-queue         Enable Fair Queuing on an Interface
  hold-queue         Set hold queue depth
  ip                 Interface Internet Protocol config commands
  ipv6               IPv6 interface subcommands
  lldp               LLDP interface subcommands
  mac-address        Manually set interface MAC address
  mtu                Set the interface Maximum Transmission Unit (MTU)
  pppoe              pppoe interface subcommands
  priority-group     Assign a priority group to an interface
  service-policy     Configure QoS Service Policy
  shutdown           Shutdown the selected interface
  speed              Configure speed operation.
  standby            HSRP interface configuration commands
  tx-ring-limit      Configure PA level transmit ring limit
R1(config-if)#no ipv
R1(config-if)#no ipv6 traff
R1(config-if)#no ipv6 traffic-filter out
R1(config-if)#no ipv6 traffic-filter ?
  WORD  Access-list name
  in    inbound packets
  out   outbound packets
R1(config-if)#no ipv6 traffic-filter G1 Acc
R1(config-if)#no ipv6 traffic-filter G1-ACCESS out
R1(config-if)#ipv6 traffic-filter G1-ACCESS in
R1(config-if)#
```

Testen

```
C:\>ftp 2001:db8:cafe:2::2
Trying to connect...2001:db8:cafe:2::2

%Error opening ftp://2001:db8:cafe:2::2/ (Timed out)
```

L1 kann nun keine FTP verbindung mehr zum Server herstellen.

Troubelshoot SSH Access

Schon bei der Inspektion der ACl Konfiguration, ist aufgefallen, dass daspermit ipv6 any any kommando an erster stelle steht und damit sämtlicher Traffic durch dieses ACl durchgelassen wird.

Fehlerbehebung

```
ipv6 access-list G2-ACCESS
no permit ipv6 any any
permit ipv6 any any
```

```
R1(config)#ipv6 access-list G2-ACCESS
R1(config-ipv6-acl)#no permit ipv6 any any
R1(config-ipv6-acl)#permit ipv6 any any
R1(config-ipv6-acl)#exit
```

Testen

PC0

```
Invalid Command.

C:\>ssh -l user01 2001:DB8:CAFE::2

% Connection refused by remote host
C:\>
```

L0

```
C:\>ssh -l user01 2001:DB8:CAFE::2

% Connection refused by remote host
```

L1

```
C:\>ssh -l user01 2001:DB8:CAFE::2

% Connection refused by remote host
```

L2

```
C:\>ssh -l user01 2001:DB8:CAFE::2

% Connection timed out; remote host not responding
C:\>
```

Nachdem SSH auf dem Router richtig kongiguriert wird, können die Geräte sich erwatungsweiße mit dem Router verbinden.

http://nvs.schreib.at/NVS/5CHIF_20161219_Schreib/