Allied Telesis

How To | Set Up PPPoE Between a Linux Client and an Allied Telesis Access Concentrator

Introduction

This document describes how to set up PPPoE between a Linux client and an Allied Telesis device.

What information you will find in this document

This document is divided into the following sections:

Which products and software versions does this information apply to?

- Products:
  Rapier, AT-8800, AT-8900, AT-9900, AT-9800 and SwitchBlade series switches
  AR400 and AR700 series routers

- Software versions: 2.7.1 and later

Configuring your Allied Telesis Device

Before starting, ensure that your PC has a version of rp-pppoe.

If rp-pppoe isn't on your PC, do one of the following;

- Download it from *http://www.roaringpenguin.com/penguin/open_source_rp-pppoe.php* , then compile and install it.

- Use the prepackaged installer, for example RPM or deb.

▶ Configure your Allied Telesis device as follows:

```
add user=linux_client pass=password
set user=linux_client telnet=no ipaddr=192.168.0.1
    netmask=255.255.255.255
#
# PPP templates configuration
#
create ppp template=1
set ppp template=1 bap=off authentication=chap
#
# PPP configuration
#
add ppp acservice=test template=1 vlan=1
ena ppp accessconcentrator
#
# IP configuration
#
enable ip
add ip int=vlan1 ip=192.168.0.254
```

Network diagram

eth 1   port 1

Linux PC (client)   Allied Telesis switch (Access Concentrator)
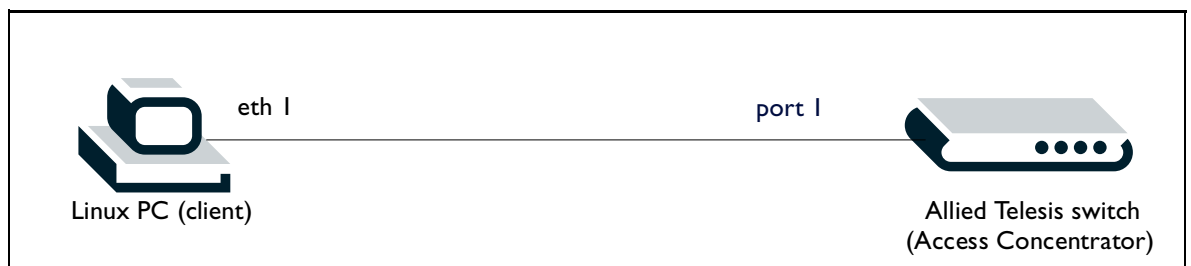
Configuring Your Linux Device

▶ Configure your Linux device as follows:

1. Set a host name. The host name must be a user on the Allied Telesis device. To set a default hostname on your linux device, use "hostname <newname>":

```
[root@linux_client michael]# hostname
linux_client
```

2. Check the ppp options file. The options file is not used when this particular pppd link is started. However, if it is used, it should look like this:

```
[root@linux_client michael]# cat /etc/ppp/options
lock
#debug
#novj
#require-pap
```

3. Check the CHAP secrets file. In this configuration there are a number of lines that are commented out but only the last line is used. The last line of your CHAP secrets file should look like this (as underlined in output below):

```
[root@linux_client michael]# cat /etc/ppp/chap-secrets
# Secrets for authentication using CHAP
# client          server  secret          IP addresses
#
#*               test    password        *
#tester          *       12345678        1.1.1.1
#*               *       eightbit        *
#eightbit        *       eightbit        1.1.1.2
#manager         pptpd   friend          *
linux_client     *       password        *
```

Starting the Link

▶ To configure your linux device, start the pppd (PPP daemon) process and tell it to start pppoe:

```
[root@linux_client michael]# pppd pty 'pppoe -I eth1'
Loading PPP modules for linux kernel 2.4:                    [  OK  ]
[root@linux_client michael]# ping 192.168.0.254
PING 192.168.0.254 (192.168.0.254) from 192.168.0.1 : 56(84) bytes of
    data.
64 bytes from 192.168.0.254: icmp_seq=0 ttl=64 time=357 usec
64 bytes from 192.168.0.254: icmp_seq=1 ttl=64 time=266 usec
64 bytes from 192.168.0.254: icmp_seq=2 ttl=64 time=256 usec


--- 192.168.0.254 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max/mdev = 0.256/0.293/0.357/0.045 ms
```

pppoe is actually another PPP daemon and we tell it to start pppoe discovery out eth1. The "pty" part makes pppd converse via a pseudo terminal, otherwise all the PPP output goes to the screen and hence the link will not come up.

Debugging and Verifying

Apart from PING, you can also check the following on your linux PC:

```
[root@linux_client michael]# ifconfig
ppp0 Link encap:Point-to-Point Protocol
      inet addr:192.168.0.1  P-t-P:192.168.0.254  Mask:255.255.255.255
      UP POINTOPOINT RUNNING NOARP MULTICAST  MTU:1492  Metric:1
      RX packets:7 errors:0 dropped:0 overruns:0 frame:0
      TX packets:8 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0


[root@linux_client michael]# ps ax | grep ppp
 4747 ?         S        0:00 /usr/sbin/pppd pty pppoe -I eth1
 4748 ?         S        0:00 pppoe -I eth1
 4769 pts/0     R        0:00 grep ppp


[root@linux_client michael]# pppstats
  IN    PACK VJCOMP   VJUNC   VJERR   |   OUT    PACK VJCOMP   VJUNC  NON-VJ
  310    7      0       0       0     |   322     8      0       0       8
```

On your Allied Telesis device, you can check the following:

```
ena ppp templ=1 debug=decode
ena ppp templ=1 debug=all
show ppp
show ppp pppoe
```

Other Hints

Here are some extra bits and pieces worthy of note.

The linux PPPoE Daemon

You can get PPPoE to display all the Access Concentrators who answer the PPPoE Active Discovery Initiation:

```
[root@linux_client michael]# pppoe -I eth1 -A

--------------------------------------------------

        Service-Name: test

Got a cookie: 00 00 33 2f

Access-Concentrator: -58245394

AC-Ethernet-Address: 00:00:cd:05:01:ff

--------------------------------------------------
```

If you get more than one PPPoE Active Discovery Offer, you can take that information and manually select which Access Concentrator you want to respond to. For example:

```
[root@linux_client michael]# pppd pty 'pppoe -I eth1 -C -58245394'
```

You can always see other PPPoE options by consulting the manual:

```
[root@linux_client michael]# man pppoe
```

Multiple calls

▶ To make multiple calls to the Access Concentrator:

1. Alter the configuration of the Allied Telesis device:

```
add user=tester1 password=password
set user=tester1 ipaddress=192.168.0.2 netmask=255.255.255.255
add user=tester2 password=password
set user=tester2 ipaddress=192.168.0.3 netmask=255.255.255.255
add user=tester3 password=password
set user=tester3 ipaddress=192.168.0.4 netmask=255.255.255.255
set ppp acservice=test maxsessions=3
```

2. Configure the linux device:

```
[root@linux_client michael]# ls -l /etc/ppp/peers/
total 12
-rw-r--r--  1 root root 21 Aug 10 08:48 tester1
-rw-r--r--  1 root root 21 Aug 10 08:51 tester2
-rw-r--r--  1 root root 21 Aug 10 08:51 tester3
[root@linux_client michael]# cat /etc/ppp/peers/tester1
name tester1
idle 30
[root@linux_client michael]# cat /etc/ppp/peers/tester2
name tester2
idle 30
[root@linux_client michael]# cat /etc/ppp/peers/tester3
name tester3
idle 30
```

The "idle 30" means that after 30 seconds, if no traffic goes over a ppp interface, that interface is brought down.

3. Initiate the connection:

```
[root@linux_client michael]# pppd pty 'pppoe -I eth1 -U' call tester1
```

If you want to initiate more than one connection, simply repeat the above command, but change the call name (as underlined).

More about idle times

In the previous section we set an idle timeout on PPP, on the Linux device This means that after 30 seconds of idle time PPP will send a Link Control Protocol (LCP) message with a Termination Request. The Allied Telesis device responds with a Termination Ack. PPPoE then takes over and both devices finish the connection with a PADT frame.

In Linux, you can set a PPPoE idle timeout. This means that PPPoE will go straight to sending a PADT and PPP itself will not get the opportunity to send an LCP Termination Request. Allied Telesis devices will ignore a PADT frame if it is not preempted by an LCP Termination Request, so nothing will happen on the Allied Telesis device when pppoe takes down the connection on the Linux device.

To set a PPPoE idle timeout (30 seconds in this example):

```
[root@linux_client michael]# pppd pty 'pppoe -I eth1 -U -T 30'
```

Compression

The Van Jacobson style TCP/IP header (VJ) compression is now standard on PPP links . It is supported in both Allied Telesis and Linux PPP.

To turn on VJ compression on the Allied Telesis device:

```
set ppp template=1 vjc=on
```

VJ compression should be on your linux device by default. However, check the PPP options file to ensure that the VJ compression has not been disabled.

```
[root@linux_client michael]# cat /etc/ppp/options
lock
noauth
noipdefault
usepeerdns
# Comment out or delete the following line if it exists
#novj
```

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Connecting The (IP) World

Allied Telesis