

Point-to-Point Protocol

Connecting to your ISP via modem, and other tales

Point-to-Point => Bilateral

```
[root@EMACH1 /root]# ifconfig ppp0  
  
ppp0      Link encap:Point-to-Point Protocol  
          inet addr:206.170.218.155  P-t-P:209.233.193.30  
          UP POINTOPOINT RUNNING NOARP MULTICAST  MTU:1524  Metric:1  
          RX packets:7 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:7 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:10
```

PPP over a serial wire

“To use some serial line as a PPP link, you first establish the connection over your modem as usual, and subsequently *convert the line to PPP* mode. In this mode, all incoming data is passed to the PPP driver [pppd], which checks the incoming HDLC frames for validity...and unwraps and dispatches them.”

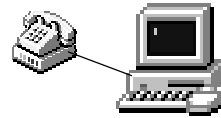
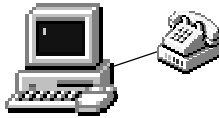
The Linux Network Administrator's Guide
Olaf Kirsch

“Convert the [serial] line to PPP”

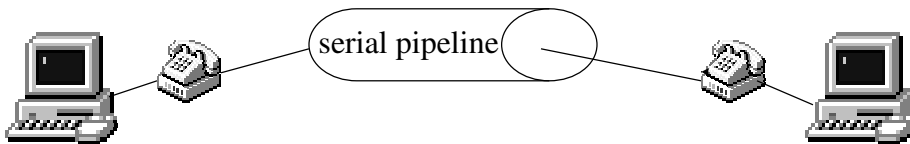
- Who does that?
 - pppd
- How? - establish pipe then pour
 - runs at *both ends* of a “pipe”
 - launch signature stream into pipe
 - handshake in the middle

Establish pipe then pour

1) No link (pre-dial)

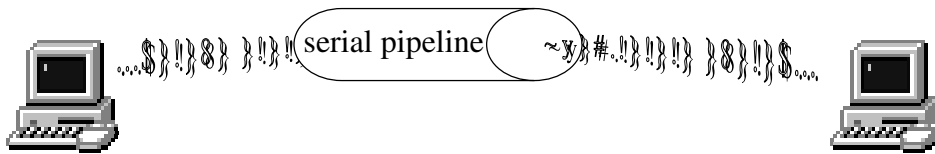


2) Serial link (post-dial)



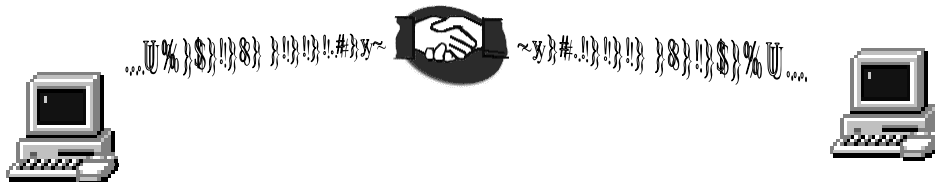
Establish pipe then pour

3) Run pppd (twice...) to "pour"



PPP HowTo - "Testing your modem for dial out"

4) PPP link over serial link



PPP HowTo - "Setting up the PPP connection manually"

Meeting in the Middle

- Opposing ppp streams must travel thru *same device*
- If ISP, reliably launches/pours stream at you upon answer
- You must launch a counter-stream back at him

Connecting by hand

- PPP HowTo - “Setting up the PPP connection manually”
- Good for
 - Tutorial value
 - Groundwork to ensure successful automation

Automating connection setup

- Establishing the pipe - chat
- Pouring ppp stream into it – pppd
- pppd specifies chat in its ‘connect’ option
- HowTo embodies this in
 - /etc/ppp/ppp-on
 - invokes ppp-on-dialer
 - /etc/ppp/ppp-on-dialer
 - exec’s chat

PPP components

- In-kernel driver
 - HDLC frames
 - packet carrier
- Daemon ‘pppd’ in user space
 - LCP, negotiator of connection terms

pppd files

- /usr/sbin/pppd
- /etc/ppp/options

/var/log/messages

Successful connection:

```
Jan 22 05:08:09 localhost pppd[1118]: Serial connection established.
Jan 22 05:08:09 localhost pppd[1118]: Using interface ppp0
Jan 22 05:08:09 localhost pppd[1118]: Connect: ppp0 <--> /dev/ttyS0
Jan 22 05:08:10 localhost kernel: PPP BSD Compression module registered
Jan 22 05:08:10 localhost kernel: PPP Deflate Compression module registered
Jan 22 05:08:10 localhost pppd[1118]: local IP address 206.170.217.235
Jan 22 05:08:10 localhost pppd[1118]: remote IP address 209.233.193.22
```