70 - ISDN und xDSL

Basic commands to control ISDN (Hisax) dynamically:

`/etc/init.d/i4l start|stop` Starts the Hisax (i4l) daemon
`/usr/sbin/isdnctrl dial ippp0`
`/usr/sbin/isdnctrl hangup ippp0`
`/usr/sbin/isdnctrl dialmode ippp0 auto | manual l off`
`/usr/sbin/isdnctrl huptime ippp0 value_in_sec`

Basic concept of xDSL

- xDSL is driven by **ppp** --> **pppoe** ---> **eth**x ----> **DSL modem**
- **ppp** is the same as used for a serial modem connection
- The **pppoe** part can be a `pppoed` daemon or the kernel space modules:

```
pppoe      6736   1  (autoclean)
pppox      1088   1  (autoclean) [pppoe]
```

pppoed Daemon:

- The pppoed is normally the `rp-pppoe.rpm` from Roaring Penguin
- SuSE has a start/stop script called `/etc/init.d/adsl` and `rcadsl`
- The configuration file is in `/etc/ppp/pppoe.conf`
- The package content is as follows:

```
/etc/ppp/firewall-masq
/etc/ppp/firewall-standalone
/etc/ppp/plugins/README
/etc/ppp/pppoe-server-options
/etc/ppp/pppoe.conf
/etc/rc.d/init.d/adsl
/usr/doc/rp-pppoe-3.5
/usr/doc/rp-pppoe-3.5/CHANGES
/usr/doc/rp-pppoe-3.5/HOW-TO-CONNECT
/usr/doc/rp-pppoe-3.5/KERNEL-MODE-PPPOE
/usr/doc/rp-pppoe-3.5/LICENSE
/usr/doc/rp-pppoe-3.5/README
/usr/doc/rp-pppoe-3.5/SERVPOET
/usr/man/man5/pppoe.conf.5.gz
/usr/man/man8/adsl-connect.8.gz
/usr/man/man8/adsl-setup.8.gz
/usr/man/man8/adsl-start.8.gz
/usr/man/man8/adsl-status.8.gz
/usr/man/man8/adsl-stop.8.gz
/usr/man/man8/pppoe-relay.8.gz
/usr/man/man8/pppoe-server.8.gz
/usr/man/man8/pppoe-sniff.8.gz
/usr/man/man8/pppoe.8.gz
/usr/sbin/adsl-connect
/usr/sbin/adsl-setup
/usr/sbin/adsl-start
/usr/sbin/adsl-status
/usr/sbin/adsl-stop
/usr/sbin/pppoe
/usr/sbin/pppoe-relay
/usr/sbin/pppoe-server
/usr/sbin/pppoe-sniff
```

Kernel pppoe module:

In SuSE the kernel **pppoe** and **pppox** modules are controlled by the Daemon /usr/sbin/smpppd.

smpppd is a daemon that controls a single dialup connection to the internet. It does so by starting and controling wvdial, pppd or ipppd. The configuration of the dialup connections is done by YaST2, but there are some additional options available in the file /etc/smpppd.conf.

FILES involved

/etc/smpppd.conf	File which basic configurations.
/etc/rc.dialout	File which list the providers.
/etc/wvdial.conf	Configuration file for modem connections.
/etc/pppoed.conf	Configuration file for adsl connections.
/var/run/smpppd/control	Socket to communicate with local clients like cinternet and kinternet.

This daemon is controlled by a client called /usr/sbin/cinternet
The cinternet client allows to start an internet connection either:

Modem	via vwdial
ISDN	via isdnctrl
xDSL	**via pppd**

cinternet is a simple text-based client for the smpppd.

cinternet OPTIONS

The following options are recognized by cinternet.

--start	Start the dialup connection to the internet.
--stop	Stop the dialup connection to the internet.
--status	Dump the status of smpppd.
--providers	List all configured providers of smpppd. The currently active provider is prefixed by a 1, all others by a 0. The provider names are utf-8 encoded.
--select-name *name*	Select a configured provider by name. The name must exactly match one of the provider list.
--select-number *number*	Select a configured provider by number. The number begins at one.
--log	Displays the log of the smpppd.
--verbose	Be more verbose.

eg. **cinternet --start** Starts the default connection (1)

pppd daemon

The pppd Daemon is called by the smpppd via cinternet client.
eg.
```
/usr/sbin/pppd logfd 8 call pppoe eth1 idle 0 nodetach    user
00067478
```
pppd reads the /etc/ppp/peers/pppoe options file and the /etc/ppp/chap-secrets or /etc/ppp/chap-secrets depending on the options file entried and tries to extablish a connection.
When the connection is extablished it calls the /etc/ppp/ip-up script with the following parameters:

```
ip-up <INTERFACE> <DEVICE> <SPEED> <LOCALIP> <REMOTEIP>
```

ip-up Modifies /etc/resolv.conf and Default route if needed and calls the /etc/ppp/ip-up.local script if it exists.

When the connection is terminated the pppd calls the script /etc/ppp/ip-down (symlink to ip-up), to prepare connection terminations.
ip-down calls /etc/ppp/ip-down.local if it exists.
Then pppd Daemon terminates itself.