

NetConf

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2.NETCONF and OF-Config for xDPd

2.1 NETCONF using libnetconf and netopeer

libnetconf [2] implements client and server functionality for the NETCONF protocol [3] in C. Therefore it provides NETCONF message parsing and their transport via SSH. In addition the library provides an implementation to store and work with the configuration data in a datastore. Libnetconf defines the transaction API (transAPI), which allows to define callbacks on configuration changes. To implement these callbacks the Inctool is provided. The module itself can be loaded from a NETCONF server implementing the transAPI.

The Netopeer project [4] implements a server using the transAPI for the modules. To manage transAPI modules of the netopeer-server the tool netopeer-manager is provided. SSH communication to the server is enabled by the netopeer-agent, that operates an SSH subsystem and passing incoming NETCONF messages to the netopeer-server. In addition there is netopeer-configurator to configure the server (e.g. certificates).

2.1.3 Installation Libnetconf

```
git clone https://code.google.com/p/libnetconf/
```

```
cd libnetconf && ./configure && make && make install
```

2.1.4 Installation Netopeer

```
git clone https://code.google.com/p/netopeer/
```

```
cd netopeer/server && ./configure --disable-dbus && make && make install
```

The enabled switch --disable-dbus is not mandatory. By disabling D-Bus with this switch the communication between the netopeer-agent and the netopeer-server is defaulting to UNIX sockets.

Modify the file /etc/ssh/sshd_config and add the following:

Port 830

Subsystem netconf /usr/local/bin/netopeer-agent

Start the NETCONF server:

```
sudo /usr/local/bin/netopeer-server
```

2.2 OF-Config for xDPd

OF-Config [5] for xDPd is implemented as a transAPI module. To generate a transAPI module for netopeer libnetconf provides the Inctool, which will generate a C stub for the module. The Inctool requires the yang model and a set of paths. The latter is a file of XPath expressions, which match the corresponding yin XML tree. XPath expressions that occur in the paths-file are transformed to the callbacks for the transAPI module. Besides the C stub a template Makefile and the necessary files for validation are created. The following call will create all the files:

```
Inctool --model of-config1.1.1.yang transapi --paths ./of-config1.1.1.paths
```

<https://groups.google.com/forum/m/#!msg/netopeer/ga7-DhxMtfo/y7lbpO65sRwJ>

<http://www.seguesoft.com/netconf-primer>