OF-CONFIG requires certain toolchain to be installed along with some libraries.

Requires Open-Vswitch 2.3.1 which is not compatible with Ubuntu 14. and later versions.

Nevertheless, trying to get it working with OVS 2.6.

Libnetconf needs to be installed as per the OF-CONFIG requirement.

Instructions are as below:

<https://github.com/CESNET/libnetconf/blob/0.10.x/INSTALL>

Please note, that master branch of our git repository is supposed to be 
an unstable branch. For stable code, please switch to the one of the version 
branches such as e.le.x. 
Prerequisites 
You will need to have installed the following software. Header 
files ( -dev or -devel packages) of the following libraries are 
also needed to compile Iibnetconf. 

Libxml2 and libxml2-dev are installed on Ubuntu.------>>>>>>> sudo apt-get install libxml2-dev ---->>>>> sudo apt-get install libpython-dev

<http://xmlsoft.org/downloads.html> -- >> libxml2

Pasted from <<https://askubuntu.com/questions/623999/software-istallation>>

Pasted from <<http://seguesoft.com/how-to-set-up-netopeer-server-to-use-with-netconfc>>

Similarly, installed libssh and libssh-dev packages.

Dbus- libdbus version 1.0.0 or greater

libdbus-1-3 was already available on my system, so installed the development package only.

i.e. libdbus-1-dev

Make sure that libssl-dev is also installed along with the openssl binaries.

My UBUNTU installation had libssl1.0.0 on the system.

Besides libval (libval-bin) is required along with libval-dev.

libval-bin: DNSSEC validation library (programs)

Installed as per the package information from Ubuntu.

NOTE: There exists a libval14 shared library also. Need to check if libnetconf compiles with what

I've installed.

<http://askubuntu.com/questions/625523/libtool-installed-but-not-on-path-after-installation>

had issues with libtool.. So, installed libtool-bin after I referred to some link given above.

Libssh2 had to be installed on top of libssh2-1 and libssh2-1--dev were installed.

Issue was still not resolved, so followed this link.

<https://anukulverma.wordpress.com/2016/03/26/configure-error-missing-libssh-0-6-4-libnetconf-installation/>

configure: error: Missing Iibssn 
(>=0.6.4) - Iibnetconf installation 
If system is not supporting libssh version >=0.6.4, we have to install it from source 
code 
Prerequisites : 
Install following packages : 
yum install libtool libtool-ltdl-devel libxm12-devel libxslt-devel libxslt python 
libcurl-devel 

Download and install libssh latest package: 
wget https ://red.libssh.org/attachments/download/195/1ibssh-0.7.3.tar.xz 
unxz libssh-0.7.3. tar.xz 
tar -xvf libssh-0.7.3. tar 
cd libssh-0.7.3/ 
mkdir build 
cd build/ 
cmake 
make 
make install 

This is what I had to run eventually to compile the libssh code (latest of course).

sudo apt-get install libltdl-dev libxml2-dev libxslt1-dev python-libxslt1 libcurl4-openssl-dev

// actually this also dint work as the links were not defined. So instead of

cmake ..

run this -

cmake .. \

-DCMAKE\_INSTALL\_PREFIX=/usr/local \

-DCMAKE\_BUILD\_TYPE=Release \

-DCMAKE\_SKIP\_INSTALL\_RPATH=0 \

-DCMAKE\_SKIP\_RPATH=0 \

-DCMAKE\_INSTALL\_RPATH\_USE\_LINK\_PATH=1 \

-DOPENSSL\_ROOT\_DIR=/usr/local/ssl \

-DOPENSSL\_INCLUDE\_DIR=/usr/local/ssl/include \

-DOPENSSL\_LIBRARIES=/usr/local/ssl/lib64/libssl.so

this links and everything works fine.

And rest everything was fine.

Now compiling the libnetconf.

Compilation was successful and I saw that the library was installed under /usr/local/lib

PYANG was installed as required following the same steps as in the document.

OF-CONFIG compilation starts here. -->> <https://github.com/openvswitch/of-config/blob/master/INSTALL.md>

==============================

For open V switch --->> sudo apt-get install openvswitch-switch

To run openvswitch --> /usr/local/share/openvswitch/scripts/ovs-ctl start

Pasted from <<https://github.com/openvswitch/of-config/blob/master/INSTALL.md>>

Path to OVS Source package was supplied to ./configure the OF-CONFIG.

But, the ./configure script failed for the first time saying sshd was not found.

Basically, I just installed the ssh server by running sudo apt-get install ssh and then ./configure worked for OF-CONFIG.

NOTE: lnctool was not generated as xsltproc was missing.

Using a different folder called monitoring-model to auto-generate the files. NOT REQUIRED.I FOLLOWED THIS APPROACH.

pyang -f yin /home/shrikanth/monitoring-model/**monitoring-model.yang --- - - - -->>**/home/a/Desktop/bitbuck/mon-automata-server/model

**----- >>>>>> model missingggggggg**

/usr/local/share/openvswitch/scripts/ovs-ctl start

Pasted from <<https://github.com/openvswitch/of-config/blob/master/INSTALL.md>>

Use the below command to auto generate files.

lnctool --model /home/shrikanth/monitoring-model/monitoring-model.yang transapi --paths /home/shrikanth/monitoring-model/paths

monitoring-model.yang \*.yin, \*\_gdefs-config.rng,\*-config.rng and \*-schematron.xsl files were generated by lnctool.

Copied the monitoring-model-transapi.c file into server directory. (notice that I appended transapi to the generated file)

Modified the makefile.am in server directory to contain this new filename as well.

So, all fine until now. I need to figure out as to how the capabilities are published to the client.

Just started the OVSDB and OVS as below:

sudo ovsdb-server --remote=punix:/usr/local/var/run/openvswitch/db.sock --remote=db:Open\_vSwitch,Open\_vSwitch,manager\_options --pidfile --detach

sudo ovs-vsctl --no-wait init

sudo ovs-vswitchd --pidfile --detach

sudo ovs-vswitchd --version

Now start the OF-CONFIG server with db option to connect to the OVSDB and see how it works.

This is to compile OF-CONFIG

./configure --disable-dbus --with-ovs-srcdir=/root/openvswitch-2.3.1 PKG\_CONFIG\_PATH=/usr/local/lib/pkgconfig/

From <<https://github.com/openvswitch/of-config/blob/master/INSTALL.md>>

Fixed all the issues in Server.c and could see that OF-CONFIG Server was successfully initialized.

cd

To start OF-CONFIG : ofc-server -f -v 3

Tried installing NETCONF-GUI, nothing really worked out.

So, installing netopeer client.

Ran into the issue mentioned in this link (80)

80 . 
Compiling cli 
If you get this error: 
checking for readline in -Ireadline... 
configure: error: Missing libreadline 
You might need to install ncurses (http://ftp.gnu.org/pub/gnu/ncurses/) 
and readline (http: // ftp.gnu.org/gnu/readline/). 
If you already have these installed, you might need the dev version of 
the libraries. 
sudo apt-get install Iibncurses5-dev 
sudo apt-get install libreadline-dev 
After each step you should do <sudo Idconfig> 
Finally: 
. "configure 
make 
make install 

Netopeer client is installed. --->>> <http://seguesoft.com/how-to-set-up-netopeer-server-to-use-with-netconfc>

But not sure how to use OF-CONFIG server and netconf' netopeer client.

Looking into this link <https://github.com/openvswitch/of-config/tree/master/netconf-tests>

$ netopeer-cli ------------**>>> libxml2 is missing** but it is installed checked …..

netconf> connect --login username address  
.... prompt for password if required by the remote host ...  
netconf> get-config running   
.... probably long output with data ...

Ideally the above commands should work. But, authentication is failing at the moment.

Ok, used connect localhost and I could login with my original username i.e. shrikanth

neconf> status command shows all the details of the server-client connection.

I could see monitoring-model URN appearing as a capability when this command is executed.

Next steps possible on netopeer client.

From <<https://github.com/openvswitch/of-config/tree/master/netconf-tests>>

We will be asked for configuration data (in XML) formed with respect to data model. Valid data is sent to OFC and configuration changes.There is a lot of examples of XML files for modification of configuration of OVS.

Testing:

Important observations:

Created a sample xml file sampletest\_state.xml and ran the command

Netconf > edit-config --config= path\_to\_sample\_test\_state.xml running (Got this command from one if the.sh files in the folder netconf.tests of OF-CONFIG repository).

My test xml file currently has <state-machine> element defined.

With this edit-config fails with some weird error. Error is present in gmail draft.

Then I removed this element and tested. edit-config was successful.

I need to check why it is failing.

OK, grouping was causing the issue. Read it from the RFC that grouping will not insert any node element by that name.

Now created

Installation of ZeroMQ:

To build Zero MQ just downloaded the POSIX tarball v4.1.5 and followed the procedure given in this link <http://zeromq.org/intro:get-the-software>

i.e. to run the following commands:

 ./autogen.sh && ./configure && make -j 4

make check && make install && sudo ldconfig⁠⁠⁠⁠

Note, there was already libzmq3 present on my system.. on top of the steps I followed earlier, I also installed the libzmq3-dev package using apt package manager. So, I am not sure which one of these will be picked up by the code.

Library linking failed at this point.. so, defining library links in configure.ac present with OF-CONFIG source code(top-level)

monitoring-model-transapi.c:(.text+0x6e): undefined reference to `zmq\_close'

monitoring-model-transapi.c:(.text+0x80): undefined reference to `zmq\_ctx\_destroy'

collect2: error: ld returned 1 exit status

make[2]: \* [ofc-server] Error 1

make[1]: \* [all-recursive] Error 1

make: \* [all] Error 2

ok to resolve the library linking, did not change anything in configure.ac, instead added to this line, required library name ofc\_server\_LDADD=@OVS\_LIBS@ -lzmq in makefile.am present inside server folder.

ok I uninstalled the libzmq3 on my system and tried the compilation again. Looks like it picked the libzmq on /usr/local/lib and corresponding include files.!! this partially solves my problem..I need to check as to how to include the header file "zhelpers.h"

Got this header file from <https://github.com/booksbyus/zguide/tree/master/examples> ------>>> **have a look**

Included that in the server makefile.am and everything seems to be fine as fas as compilation is concerned.

All set to code the libzmq part of the code!!

Installation on the switch:

Followed every step described in this link by me:

Trying installation from a USB stick.

Downloaded following stuff from ONL website

* + HYPERLINK "<https://opennetlinux.org/binaries/2016.09.04.17.26.3f30495d98d39031aefa98b062158c1eaff2a9e1/ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64.swi>"ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64.swi
  + HYPERLINK "<https://opennetlinux.org/binaries/2016.09.04.17.26.3f30495d98d39031aefa98b062158c1eaff2a9e1/ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64-SWI-INSTALLER>"ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64-SWI-INSTALLER
  + HYPERLINK "<https://opennetlinux.org/binaries/2016.09.04.17.26.3f30495d98d39031aefa98b062158c1eaff2a9e1/ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64-INSTALLED-INSTALLER>"ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64-INSTALLED-INSTALLER

As per the guidelines laid out by ONIE for installation through USB, renamed  "O HYPERLINK "<https://opennetlinux.org/binaries/2016.09.04.17.26.3f30495d98d39031aefa98b062158c1eaff2a9e1/ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64-INSTALLED-INSTALLER>"NL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64-INSTALLED-INSTALLER" to "onie-installer"

This is exactly what I did:

linux:~$ sudo mkdir /mnt/usb  
linux:~$ sudo mount /dev/sdb1 /mnt/usb  
linux:~$ sudo cp O HYPERLINK "<https://opennetlinux.org/binaries/2016.09.04.17.26.3f30495d98d39031aefa98b062158c1eaff2a9e1/ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64-INSTALLED-INSTALLER>"NL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64-INSTALLED-INSTALLER /mnt/usb/onie-installer  
linux:~$ sudo umount /mnt/usb

Additionally I also copied the other two files(below) in the same path i.e. /mnt/usb

* + HYPERLINK "<https://opennetlinux.org/binaries/2016.09.04.17.26.3f30495d98d39031aefa98b062158c1eaff2a9e1/ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64.swi>"ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64.swi
  + HYPERLINK "<https://opennetlinux.org/binaries/2016.09.04.17.26.3f30495d98d39031aefa98b062158c1eaff2a9e1/ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64-SWI-INSTALLER>"ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64-SWI-INSTALLER

Now, I see that the booting process has reached the loader phase.

Can someone tell me the way forward. I don't see any exhaustive document that describes the process? Below is the output from the Switch.

I basically get my head around the fundamentals of this process!! Appreciate any pointers.

EXT4-fs (sdc6): mounted filesystem with ordered data mode. Opts: (null)  
EXT4-fs (sdc3): mounted filesystem with ordered data mode. Opts: (null)  
EXT4-fs (sdc4): mounted filesystem with ordered data mode. Opts: (null)  
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  
\*  
\* Open Network Linux Loader  
\*  
\* Version: ONL-2.0.0  
\* Id: 2016-09-04.17:26-3f30495  
\*  
\* Platform: x86-64-accton-as5712-54x-r0  
\* ma1: cc:37:ab:62:f4:29  
\*  
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  
[ boot-config ]  
NETDEV=ma1  
NETAUTO=dhcp  
BOOTMODE=INSTALLED  
SWI=images::latest

Press Control-C now to enter the interactive loader shell.

[ Starting Autoboot ]  
[ Configuring Interfaces ]  
udhcpc (v1.20.2) started  
ADDRCONF(NETDEV\_UP): ma1: link is not ready  
Sending discover...  
igb: ma1 NIC Link is Up 100 Mbps Half Duplex, Flow Control: None  
ADDRCONF(NETDEV\_CHANGE): ma1: link becomes ready  
Sending discover...  
Sending discover...  
Sending discover...  
Sending discover...  
Sending discover...  
Sending discover...  
Sending discover...  
Sending discover...  
Sending discover...  
Sending discover...  
Sending discover...  
Sending discover...  
Sending discover...  
Sending discover...  
^C  
Welcome to the shell.  
Type 'help' for command help.

loader# help

From <[https://groups.google.com/forum/#!topic/openne0tworklinux/7c7r0zJ-Thc](https://groups.google.com/forum/" \l "!topic/openne0tworklinux/7c7r0zJ-Thc)>

Now found out that my usb is actually mounted as sdb1 using the command

fdisk -l

From <<http://askubuntu.com/questions/37767/how-to-access-a-usb-flash-drive-from-the-terminal-how-can-i-mount-a-flash-driv>>

Created a mount point under /mnt/onl/usb

Mounted /dev/sdb1 using below commands

Mount /dev/sdb1 /mnt/onl/usb ---->>>>>>>>>**>> have a look**

Now I could access the contents of my pendrive.

loader# cd /mnt/onl/usb/

loader# ls

ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64-SWI-INSTALLER

ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64.swi

lost+found

onie-installer

loader# cp ONL-2.0.0-ONL-OS-DEB8-2016-09-04.1726-3f30495-AMD64.swi /mnt/onl/imag

es/

loader#

Additional information on various partition of the switch:

Sdn

Question: How to disable the NETCONF.events file ?

From <<https://github.com/CESNET/libnetconf/issues/119>>

JackLlN-F commented on Oct 27, 2015 
Hi — 
found a large file on var/lib/libnetconf/streams/NETCONF.events 
How to disable the file ? The file will very large after long time!! 
After one day (24hr) 
-rw-rvv rw- 1 root root 2344219 Apr 21 22:37 NETCONF.events 
-rw-rvv rw- 1 root root 1048576 Apr 20 23:39 NETCONF.rules 
rkrejci commented on Nov 4, 2015 
Collaborator 
currently there is no way to disable it, but feel free to delete it. It stores history of events for Notifications 
replay. 
rkrejci closed this on Nov 4, 201 5 

For inproc message exchange between threads:

Here's how to build CZMQ from GitHub (building from packages is very similar, you don't clone a repo but unpack a tarball), including the libsodium (for security) and libzmq (ZeroMQ core) libraries:

Below instructions are saved from README.txt file.

Downloaded czmq 3.0.2 source code from this link <https://github.com/zeromq/czmq/releases>. (make check is hung indefinitely.)

git clone git://github.com/jedisct1/libsodium.git

cd libsodium

./autogen.sh

./configure && make check

sudo make install

sudo ldconfig

cd ..

git clone git://github.com/zeromq/libzmq.git

cd libzmq -------------------->>>>>>>>>>>>>>>>>>><http://zeromq.org/intro:get-the-software>

./autogen.sh

./configure && make check

sudo make install

sudo ldconfig

cd ..

git clone git://github.com/zeromq/czmq.git

cd czmq ---------->>>>>> >> <https://github.com/zeromq/czmq/releases>

./autogen.sh

./configure && make check

sudo make install

sudo ldconfig

cd ..

NOTE: did not have autogen.sh in czmq folder.

Since the selftest was hung for a longtime on CZMQ, started following the steps on github link.

[https://github.com/zeromq/czmq#toc2-76](https://github.com/zeromq/czmq" \l "toc2-76)

Cloned the latest version from Github on 20.12.2016

Here's tm to build CZMQ from GitHub (building from packages is very similar, you dont clone a repo but unpack a tarball), 
including the Ebzmq (ZeroMQ core) liWary (NOTE: skip dconfig on CSX): 
cd libznq 
_ 'autogen.sh 
- do not specify "--with-libsodium" 
-'configure --hith-libsodiull 
ake check 
sudo make install 
sudo Idconfio 
it pu prefer 
t': use I-ternil twee:nacl 
security implemenza:ion 
git clone gzt:iigizhub git 
cd czmq 
-lautogen.Sh _ 'conf lg..•re check 
sudo make install 
sudo Idconfio 

Screen clipping taken: 12/20/2016 9:36 PM

However, libsodium was installed as in earlier method.

NOTE: I did install libzmq using --with-libsodium option

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cd zeromq•4.l.5/ 
15 
sudo make uninstall 
./autogen.sh 
sudo ./autogen.sh 
sudo ./configure ••with•libsodiun 
sudo make check 
sudo nake install 
sudo Idconfig 
cd 

Screen clipping taken: 12/20/2016 10:06 PM

Below snapshot for CZMQ compilation:

4 git clone https://github.con/zeronq/cznq.git 
845 Is 
Libreoffice Impress 
848 sudo ./autogen.sh 
849 history 
858 clear 
851 sudo ./configure nake check 
852 sudo nake check 
853 history 
ihrikanthads:-/CZMQ/czmq$ 

Screen clipping taken: 12/20/2016 10:06 PM

After this, installation was successful and all the selftest test-cases were also successful.

Further to add VLOG support, decided to integrate the libopenvswitch. I had to change the makefiles for the same.

To Do Zlog library was additionally installed as per the website for logging purposes. ------->>>>>>**>>** <https://hardysimpson.github.io/zlog/UsersGuide-EN.html>

<http://www.wikihow.com/Set-up-an-FTP-Server-in-Ubuntu-Linux> --> FTP server installation.

Netconf

Libnetconf

Netopeer cli ---->>>

cd netopeer/cli

./configure

make && make install