

SRS-RAN INSTALLATIONS

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INSTALLATION STEPS

```
sudo apt-get update -y
sudo apt-get upgrade -y
sudo apt-get -y install build-essential cmake libfftw3-dev
libmbdtps-dev libboost-program-options-dev libconfig++-dev
libsctp-dev libzmq3-dev
git clone https://github.com/srsRAN/srsRAN.git
cd srsRAN/
mkdir build
cd build/
cmake ../
make -j4
sudo make install
sudo ldconfig
```

CONFIGURATION

Configuration Directory

```
mkdir .config
mkdir .config/srsran
cp /home/omar/srsRAN/srsepc/epc.conf.example
~root/.config/srsran/epc.conf
cp /home/omar/srsRAN/srsepc/mbms.conf.example
~root/.config/srsran/mbms.conf
cp /home/omar/srsRAN/srsepc/user_db.csv.example
~root/.config/srsran/user_db.csv
cp /home/omar/srsRAN/srsue/ue.conf.example
~root/.config/srsran/ue.conf
cp /home/omar/srsRAN/srsenb/sib.conf.example
~root/.config/srsran/sib.conf
cp /home/omar/srsRAN/srsenb/rb.conf.example
~root/.config/srsran/rb.conf
cp /home/omar/srsRAN/srsenb/rr.conf.example
~root/.config/srsran/rr.conf
cp /home/omar/srsRAN/srsenb/sib.conf.mbsfn.example
~root/.config/srsran/sib.conf.mbsfn
cp /home/omar/srsRAN/srsenb/enb.conf.example
~root/.config/srsran/enb.conf
```

Configuration Changes

File : ue.conf

```
vagrant@oai-gnb-ue-sim:~$ diff ~/srsRAN/srsue/ue.conf.example ~/.config/srsran/ue.conf
```

```
45,46c45,46
```

```
< #device_name = zmq
< #device_args =
tx_port=tcp://*:2001,rx_port=tcp://localhost:2000,id=ue,base_srate
=23.04e6
---
```

```
> device_name = zmq
> device_args =
tx_port=tcp://*:2001,rx_port=tcp://localhost:2000,id=ue,base_srate=2
3.04e6
```

```
183,184c183,184
```

```
< #apn = internetinternet
< #apn_protocol = ipv4
---
```

```
> apn = internet
> apn_protocol = ipv4
199c199
```

```
< #netns =
```

```
---
```

```
> netns = ue1
```

```
vagrant@oai-gnb-ue-sim:~$
```

File rr.conf

```
vagrant@oai-gnb-ue-sim:~$ diff ~/srsRAN/srsenb/rr.conf.example ~/.config/srsran/rr.conf
```

```
58c58
```

```
<     tac = 0x0007;
```

```
---
```

```
>     tac = 0x0001;
```

```
117c117
```

```
< );
```

```
\ No newline at end of file
```

```
---
```

```
> );
```

```
vagrant@oai-gnb-ue-sim:~$
```

File rb.conf

```
vagrant@oai-gnb-ue-sim:~$ diff ~/srsRAN/srsenb/rb.conf.example
~/.config/srsran/rb.conf
43c43
<   qci = 7;
---
>   qci = 5;
vagrant@oai-gnb-ue-sim:~$
```

File enb.conf

```
vagrant@oai-gnb-ue-sim:~$ diff ~/srsRAN/srsenb/enb.conf.example
~/.config/srsran/enb.conf
25,27c25,27
< mme_addr = 127.0.1.100
< gtp_bind_addr = 127.0.1.1
< slc_bind_addr = 127.0.1.1
---
> mme_addr = 192.168.62.176
> gtp_bind_addr = 192.168.62.154
> slc_bind_addr = 192.168.62.154
83,84c83,84
< #device_name = zmq
< #device_args =
fail_on_disconnect=true,tx_port=tcp://*:2000,rx_port=tcp://localho
st:2001,id=enb,base_srate=23.04e6
---
> device_name = zmq
> device_args =
fail_on_disconnect=true,tx_port=tcp://*:2000,rx_port=tcp://localhost
:2001,id=enb,base_srate=23.04e6
vagrant@oai-gnb-ue-sim:~$
```

Additional Configuration

- `sudo apt install net-tools`
- `sudo ip netns add ue1`
- `sudo ip netns exec ue1 ifconfig lo up`

LAUNCHING THE PROCESS

srsenb

vagrant@oai-gnb-ue-sim:~\$ srsenb

Active RF plugins: libsrslan_rf_zmq.so

Inactive RF plugins:

--- Software Radio Systems LTE eNodeB ---

Couldn't open , trying /home/vagrant/.config/srslan/enb.conf
Reading configuration file /home/vagrant/.config/srslan/enb.conf...
Couldn't open sib.conf, trying /home/vagrant/.config/srslan/sib.conf
Couldn't open rr.conf, trying /home/vagrant/.config/srslan/rr.conf
Couldn't open rb.conf, trying /home/vagrant/.config/srslan/rb.conf
Failed to `mlockall`: {}
Built in Release mode using commit ce8a3cae1 on branch master.

Warning: Failed to create thread with real-time priority. Creating it with normal priority: Success
Opening 1 channels in RF device=zmq with
args=fail_on_disconnect=true,tx_port=tcp://*:2000,rx_port=tcp://localhost:2001,id=enb,base_rate=23.04e6
Supported RF device list: zmq file
CHx base_rate=23.04e6
CHx id=enb
Current sample rate is 1.92 MHz with a base rate of 23.04 MHz (x12 decimation)
CH0 rx_port=tcp://localhost:2001
CH0 tx_port=tcp://*:2000
CH0 fail_on_disconnect=true
Warning: Failed to create thread with real-time priority. Creating it with normal priority: Invalid argument
Warning: Failed to create thread with real-time priority. Creating it with normal priority: Invalid argument
Warning: Failed to create thread with real-time priority. Creating it with normal priority: Invalid argument
Warning: Failed to create thread with real-time priority. Creating it with normal priority: Invalid argument
Warning: Failed to create thread with real-time priority. Creating it with normal priority: Invalid argument

==== eNodeB started ===

Type <t> to view trace

Current sample rate is 11.52 MHz with a base rate of 23.04 MHz (x2 decimation)

Current sample rate is 11.52 MHz with a base rate of 23.04 MHz (x2 decimation)

Setting frequency: DL=2680.0 Mhz, UL=2560.0 MHz for cc_idx=0 nrof_prb=50

srsue

vagrant@oai-gnb-ue-sim:~\$ sudo srsue /home/vagrant/.config/srslan/ue.conf

Active RF plugins: libsrslan_rf_zmq.so

Inactive RF plugins:

Reading configuration file /home/vagrant/.config/srslan/ue.conf...

Built in Release mode using commit ce8a3cae1 on branch master.

```
Opening 1 channels in RF device=zmq with
args=tx_port=tcp://*:2001,rx_port=tcp://localhost:2000,id=ue,base_srate=23.04
e6
Supported RF device list: zmq file
CHx base_srate=23.04e6
CHx id=ue
Current sample rate is 1.92 MHz with a base rate of 23.04 MHz (x12
decimation)
CH0 rx_port=tcp://localhost:2000
CH0 tx_port=tcp://*:2001
Waiting PHY to initialize ... done!
Attaching UE...
Current sample rate is 1.92 MHz with a base rate of 23.04 MHz (x12
decimation)
Current sample rate is 1.92 MHz with a base rate of 23.04 MHz (x12
decimation)
.
Found Cell: Mode=FDD, PCI=1, PRB=50, Ports=1, CP=Normal, CFO=-0.2 KHz
Current sample rate is 11.52 MHz with a base rate of 23.04 MHz (x2
decimation)
Current sample rate is 11.52 MHz with a base rate of 23.04 MHz (x2
decimation)
Found PLMN: Id=00101, TAC=1
Random Access Transmission: seq=45, tti=341, ra-rnti=0x2
RRC Connected
Random Access Complete. c-rnti=0x46, ta=0
Network attach successful. IP: 192.168.128.19
E
```

VALIDATION STEP

```
❏ vagrant@oai-gnb-ue-sim:~$ sudo ip netns exec ue1 /bin/bash
```

```
root@oai-gnb-ue-sim:/home/vagrant# ifconfig
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

tun_srsue: flags=4305<UP,POINTOPOINT,RUNNING,NOARP,MULTICAST> mtu 1500
    inet 192.168.128.19 netmask 255.255.255.0 destination
192.168.128.19
    unspec 00-00-00-00-00-00-00-00-00-00-00-00-00-00-00 txqueuelen
500 (UNSPEC)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
```

```
TX packets 0  bytes 0 (0.0 B)
TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

- ❓ root@oai-gnb-ue-sim:/home/vagrant# ip route add 8.8.8.8/32 dev tun_srsue
- ❓ In case if it says host unreachable add the routes
- ❓