gNB搭建

基础文件下载

```
sudo apt-get update
```

```
sudo git clone
https://gitlab.eurecom.fr/oai/openairinterface5g.gi
t
```

切换到develop分支

```
cd ~/openairinterface5g
```

```
sudo git checkout develop
```

```
source oaienv
```

```
cd cmake_targets
```

第一、安装依赖：仅限于电脑之前从未安装过OAI，如果安装过就不需要了。可以采用build_oai -h 查看相关参数的说明（这一步需要较长时间）

```
sudo ./build_oai -I
```

第二、编译:使用USRP这里一定需要加-w USRP

```
sudo ./build_oai  -w USRP --gNB --nrUE
```

显示如下：

```
sdr@sdr-eNB1:~/openairinterface5g/cmake_targets$ su
do ./build_oai -x -w USRP --gNB
[sudo] sdr 的密码：
Will generate the software oscilloscope features
。。。。
BUILD SHOULD BE SUCCESSFUL
```

- 4修改配置文件：修改 ~/openairinterface5g/targets/PROJECTS/GENERIC-LTE-EPC/CONF/ 下n310配置文件gnb.band78.tm1.106PRB.usrpn300.conf的内容。电脑通过网线连接了网络，IP地址为192.168.0.9

```
sudo vim
~/openairinterface5g/targets/PROJECTS/GENERIC-LTE-E
PC/CONF/gnb.band78.tm1.106PRB.usrpn300.conf
```

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```
 // MME parameters:


   mme_ip_address     = ( { ipv4       =
"192.168.12.26";
                          ipv6       =
"192:168:30::17";
                          active     = "yes";
                          preference = "ipv4";
                        }
                      );
```

```
    NETWORK_INTERFACES :
    {

        GNB_INTERFACE_NAME_FOR_S1_MME           =
"eth0";
        GNB_IPV4_ADDRESS_FOR_S1_MME             =
"192.168.0.9/24";
        GNB_INTERFACE_NAME_FOR_S1U              =
"eth0";
        GNB_IPV4_ADDRESS_FOR_S1U                =
"192.168.0.9/24";
        GNB_PORT_FOR_S1U                    = 2152; #
Spec 2152
...
...
RUs = (
    {
       local_rf      = "yes"
        nb_tx         = 1
        nb_rx         = 1
        att_tx        = 0
        att_rx        = 0;
        bands         = [7];
        max_pdschReferenceSignalPower = -27;
        max_rxgain                  = 114;
        eNB_instances  = [0];
        sdr_addrs =
"addr=192.168.20.2,mgmt_addr=192.168.10.2,second_ad
dr=192.168.20.2";
```

```
        clock_src = "external";
   }
);
```

运行

```
sudo -E ./nr-softmodem --noS1 -O
~/openairinterface5g/targets/PROJECTS/GENERIC-LTE-E
PC/CONF/gnb.band78.tm1.106PRB.usrpn300.conf -d
```

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```
sdr@sdr-eNB1:~/openairinterface5g/cmake_targets/ran
_build/build$ sudo ./nr-softmodem -O
~/openairinterface5g/targets/PROJECTS/GENERIC-LTE-E
PC/CONF/gnb.band78.tm1.106PRB.usrpn300.conf
[CONFIG] get parameters from libconfig
/home/sdr/openairinterface5g/targets/PROJECTS/GENER
IC-LTE-EPC/CONF/gnb.band78.tm1.106PRB.usrpn300.conf
```

注意到上面出现了 GNU C++ version 7.4.0; Boost_106501; UHD_3.14.1.1-release,可能是编译的时候安装了这个版本，所以尝试把这个UHD_3.14.1.1-release删除掉，然后更改build_helper文件，注释掉相关部分。

```
check_install_usrp_uhd_driver(){
#   if [[ "$OS_DISTRO" == "ubuntu" ]]; then
#       #first we remove old installation
#       $SUDO apt-get remove -y uhd || true
#      $SUDO apt-get remove libuhd-dev libuhd003
```

```
uhd-host -y || true
#       v=$(lsb_release -cs)
#     # The new USRP repository
#       # Raphael Defosseux: Adding a loop on adding
PPA because in CI the gpg key retrieve may
#      # timeout due to proxy / network latencies in
Eurecom on VM
#       echo_info "\nAdding PPA repository
ettusresearch/uhd\n"
#       x=0
#       while [ $x -le 5 ]
#       do
#          if $SUDO add-apt-repository
ppa:ettusresearch/uhd -y
#         then
#            echo_info "add-apt-repository
successful\n"
#            break
#         else
#            echo_info "add-apt-repository failed,
retrying...\n"
#            sleep 30
#         fi
#          x=$((x + 1))
#      done
      $SUDO apt-get update
#    $SUDO apt-get -y install  python python-tk
libboost-all-dev libusb-1.0-0-dev
 #      $SUDO apt-get -y install libuhd-dev libuhd003
```

```
uhd-host
  #  elif [[ "$OS_BASEDISTRO" == "fedora" ]]; then
   #    $SUDO $INSTALLER -y install python boost
libusb-devel libusbx-devel boost-devel python-mako
python-docutils cmake
    #   $SUDO -H pip install requests
     #  if [[ "$OS_DISTRO" == "rhel" ]] ||
[[ "$OS_DISTRO" == "centos" ]]; then
      #     # until EPEL repo hasn't bumped UHD driver
to >=3.10 in EPEL, build driver from source
#          $SUDO $INSTALLER -y remove uhd uhd-devel
uhd-firmware
 #         install_usrp_uhd_driver_from_source
  #     else
   #        $SUDO $INSTALLER -y install uhd uhd-devel
uhd-firmware
    #   fi
    # fi
}

install_usrp_uhd_driver() {
 $SUDO apt-get update
#   if [[ "$OS_DISTRO" == "ubuntu" ]]; then
      # We move uhd-host apart because it depends on
linux kernel version
       # On newer kernels, it fails to install
#       $SUDO apt-get -y install uhd-host
#   fi
    # quick workaround for RHE7.6
```

```
 #   local distribution=$(get_distribution_release)
 #   if [ -z $1 ]; then
 #     if [[ "$OS_DISTRO" == "rhel" ]]; then
  #       $SUDO /usr/local/bin/uhd_images_downloader
   #   else
    #      $SUDO uhd_images_downloader
     # fi
  #  else
#     if [[ "$OS_DISTRO" == "rhel" ]]; then
 #       $SUDO /usr/local/bin/uhd_images_downloader
-i $1
  #    else
   #      $SUDO uhd_images_downloader -i $1
    #  fi
   # fi
}
```

重新编译

```
sdr@sdr-eNB1:~/openairinterface5g/cmake_targets$./b
uild_oai -c -C -I -w USRP --gNB
```

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运行

```
sdr@sdr-eNB1:~/openairinterface5g/cmake_targets/ran
_build/build$ sudo ./nr-softmodem -O
~/openairinterface5g/targets/PROJECTS/GENERIC-LTE-E
PC/CONF/gnb.band78.tm1.106PRB.usrpn300.conf --noS1
```