硬件连接及测试终端使用

BIG DATA & NETWORK ENGINEERING

李杰
jie.14.li@Nokia.com

NOKIA

Technical Details

连接方式

移动共GSM连接开通方式

硬件要求

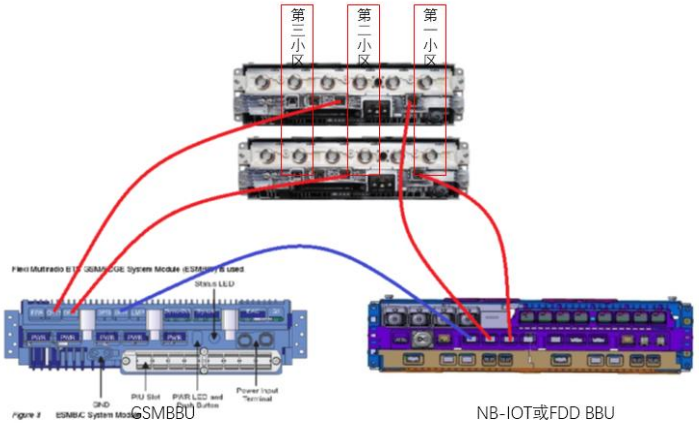
NB+MCPA：FSMF+ESMB/C+2*FXDB

NB+FSMF：FSMF+ FSMF+2*FXDB

GSM类型	GSM 版本	NB版本	BSC版本
MCPA	EX16 1.0	NB Stand-alone E5(0421) + knife 0523(或更新)	RG30MP2.2.0
FSMF	GF16 1.0		

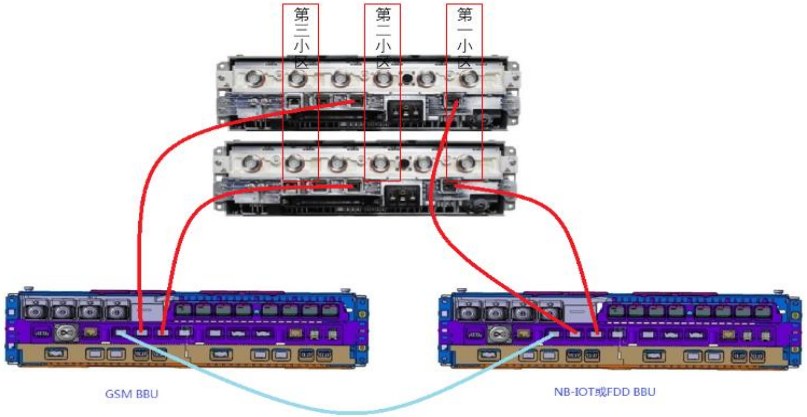
移动共GSM连接开通方式

FSMF+ESMB/C +2*FXDB 2T2R



- FSMF上RF/EXT1接RRU1的opt1；
- FSMF上RF/EXT2接RRU2的opt1；
- ESMB/C上的opt1接RRU1的opt2；
- ESMB/C上的opt2接RRU2的opt2；
- FSMF的RF6/EIF2与ESMB/C上的otp4口互连

FSMF+FSMF+2*FXDB 2T2R

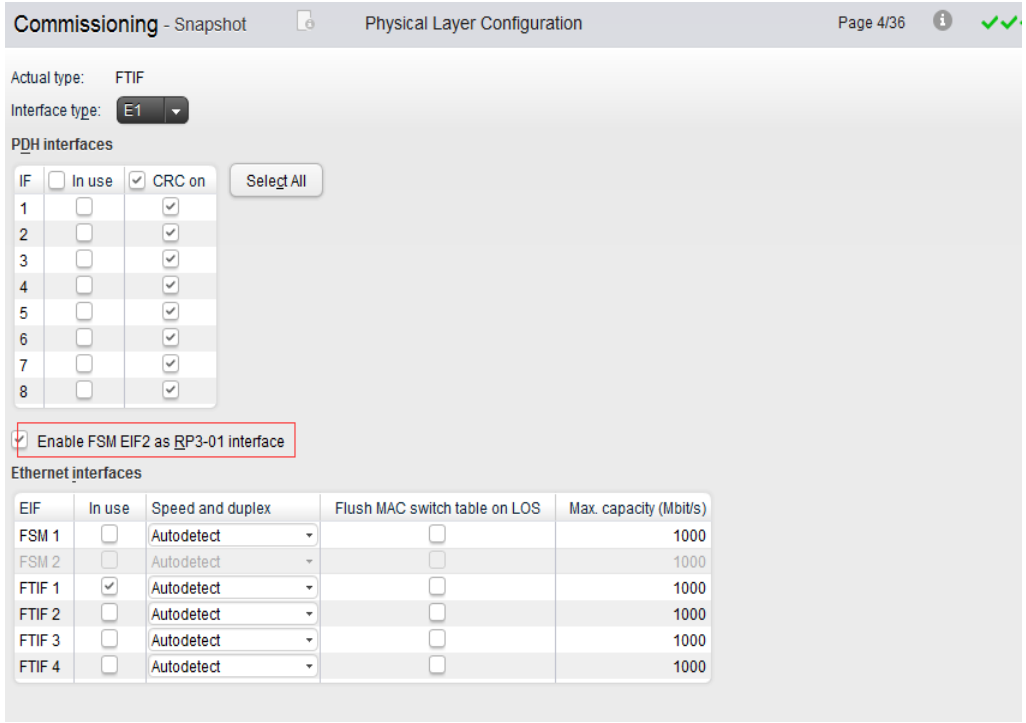


- NB-IOT的FSMF上RF/EXT1接RRU1的opt1；
- NB-IOT的FSMF上RF/EXT2接RRU2的opt1；
- GSM FSMF上的RF/EXT1接RRU1的opt2；
- GSM FSMF上的RF/EXT2接RRU2的opt2；
- 两个FSMF的RF6/EIF2口互连

移动共GSM连接开通方式

1.在NB的BBU上配置NB小区，SA模式

选择物理传输端口，注，开启RFS功能时一定要勾选Enable FSM EIF2 as RP3-01 interface，其余开通内容与SA一致

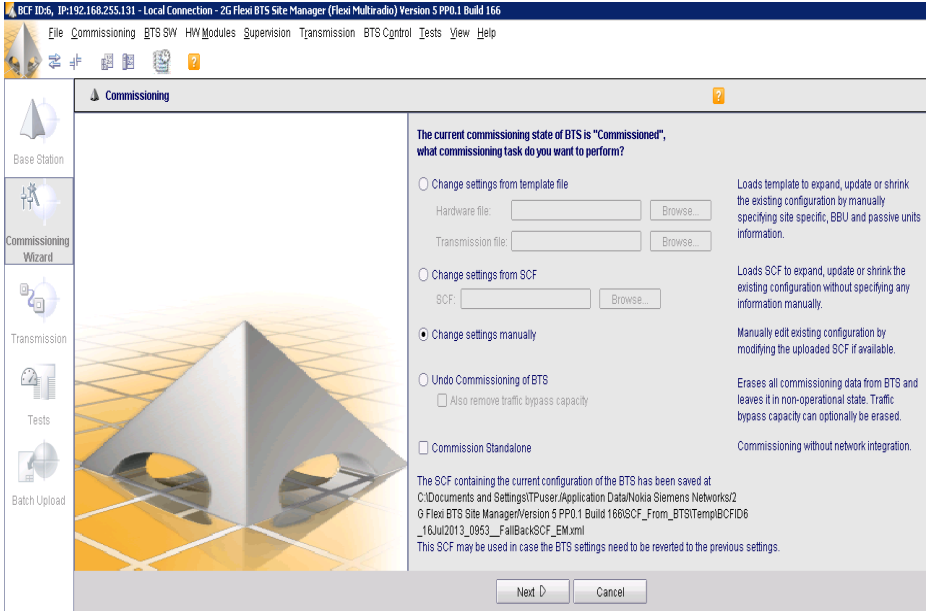


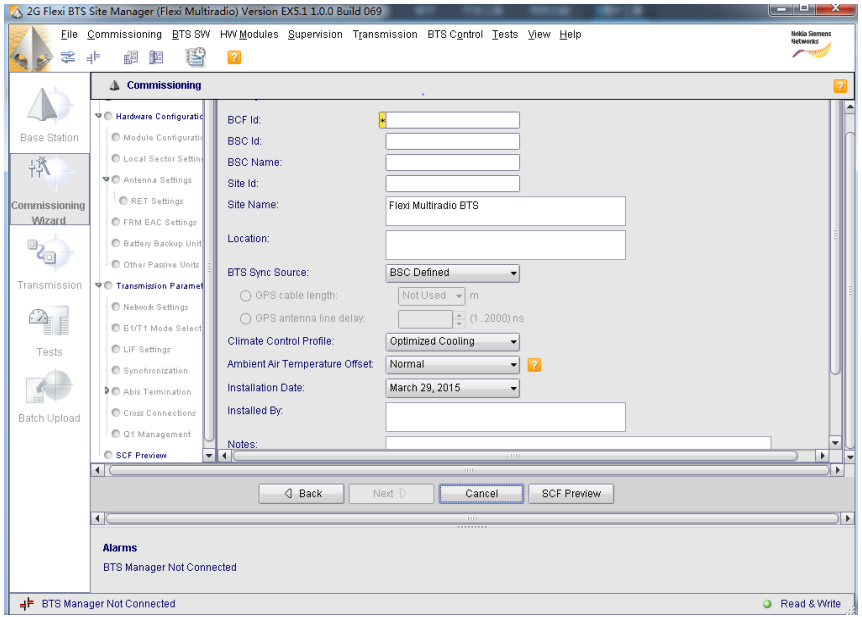
移动共GSM连接开通方式

2.配置GSM小区

完成LTE侧开通后，保持现有连接，即只连接LTE BBU到RRU，其他全部保持保持断开2G调测完成后，GSM BBU重启时再连接GSM BBU和LTE BBU的同步线、GSM BBU和RRU的光纤，起来后解锁GSM基站

3.使用GSM sitemanager连接MCPA,填写BCF和BSC信息

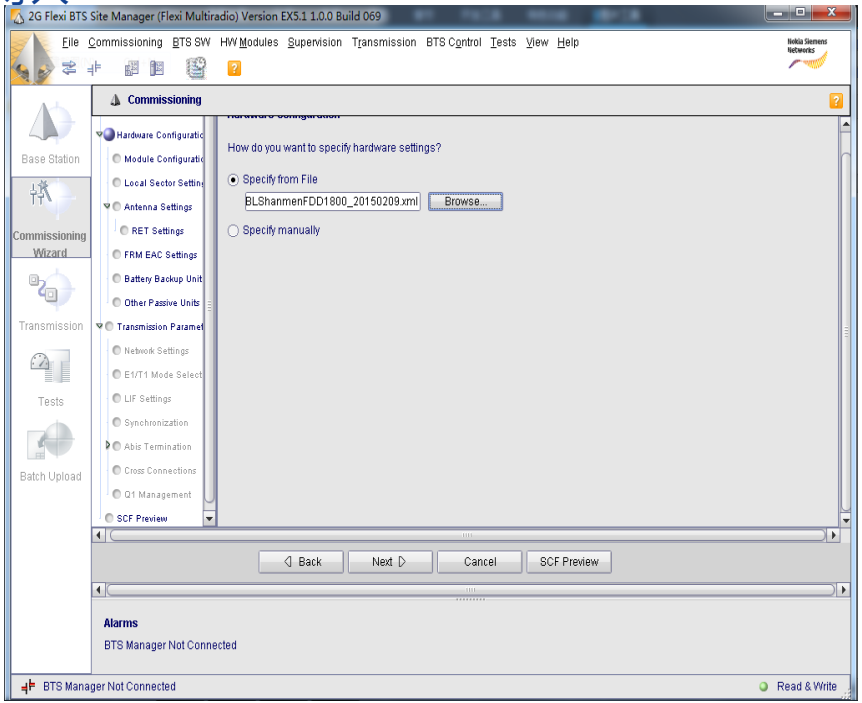




移动共GSM连接开通方式

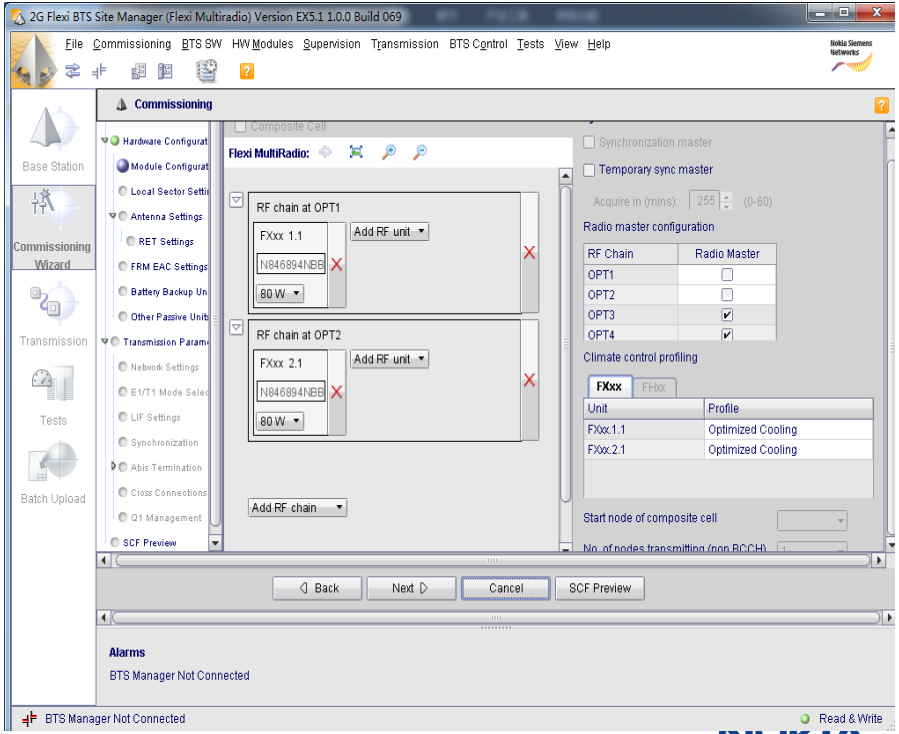
4.导入之前配置好的NB配置

注意需要将之前配置好的NB数据配置中NB小区修改为FDD小区1.4MHz后再导出，然后在GSM BBU上再导入



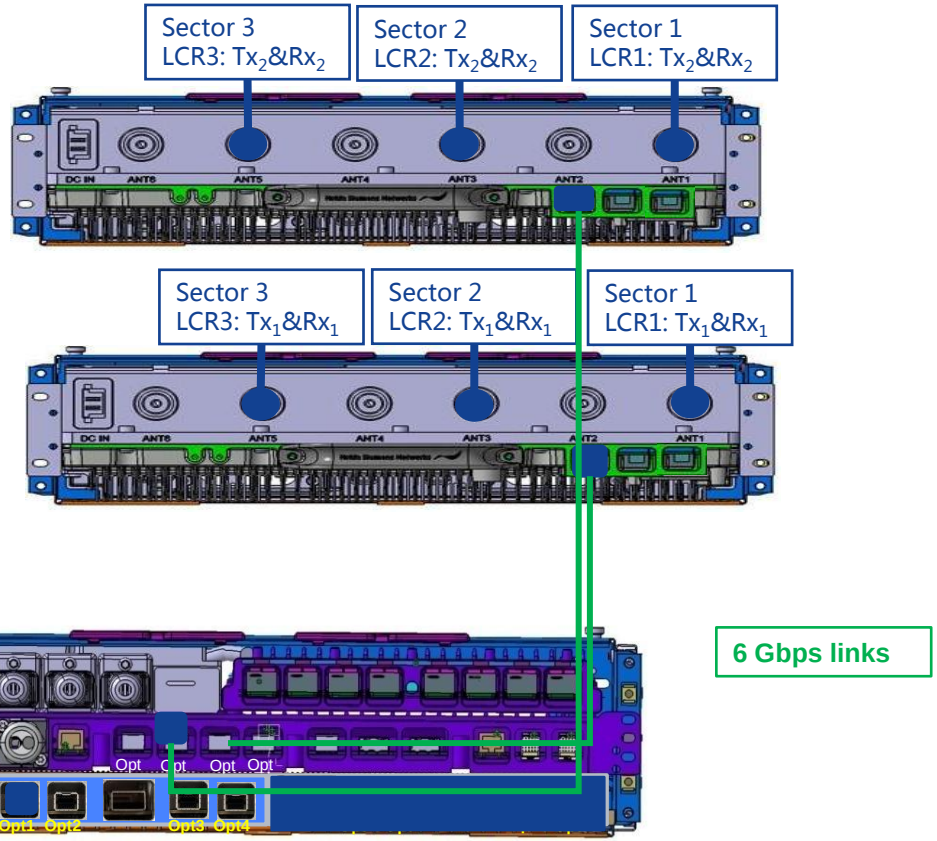
5.配置GSM侧RRU信息

配置RRU和天线，选择连接端口和功率（注意RRU版本和每PA最大功率



单独开通方式

Configuration can be configured also to FSMF or 2nd FBBC if available.



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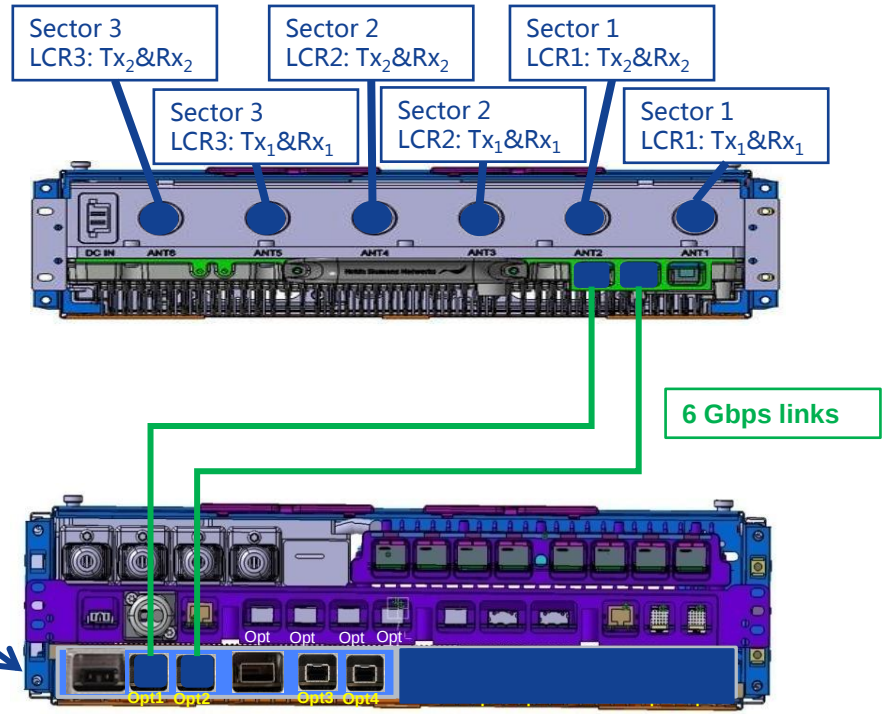
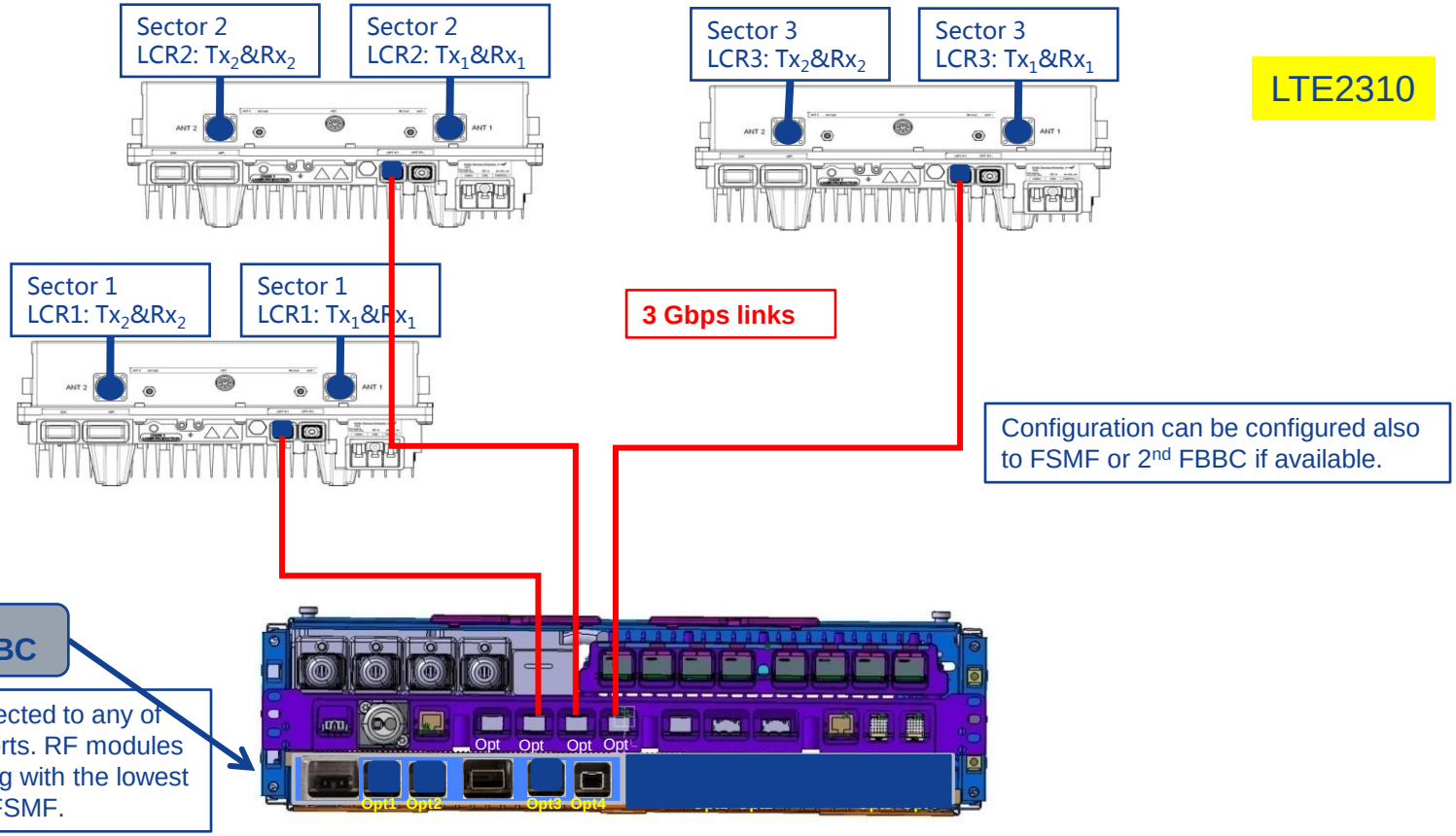


RF modules can be connected to any of FBBC or FSMF optical ports. RF modules shall be connected starting with the lowest port number of FBBC or FSMF.

单独开通方式



测试终端使用

Intel M2使用方法

Intel UE的注意事项：

a)连接和拔除USB连线时需要关闭电源开关；

b)天线最好用胶带固定，尽量保持笔直；

c) PC的USB线连接PC USB的一个端口即可；

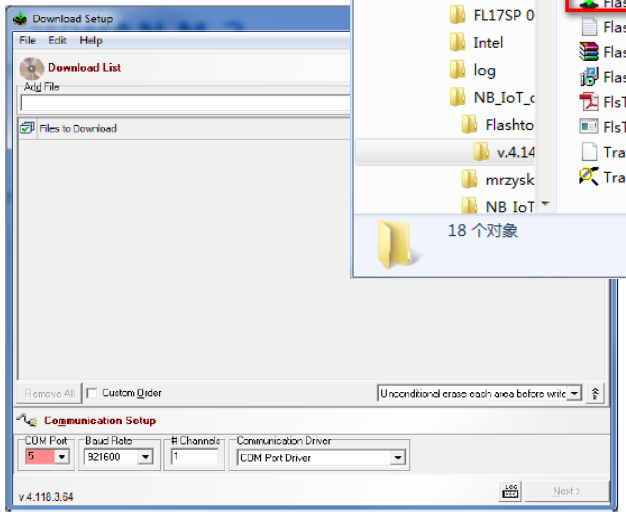
Intel M2使用方法

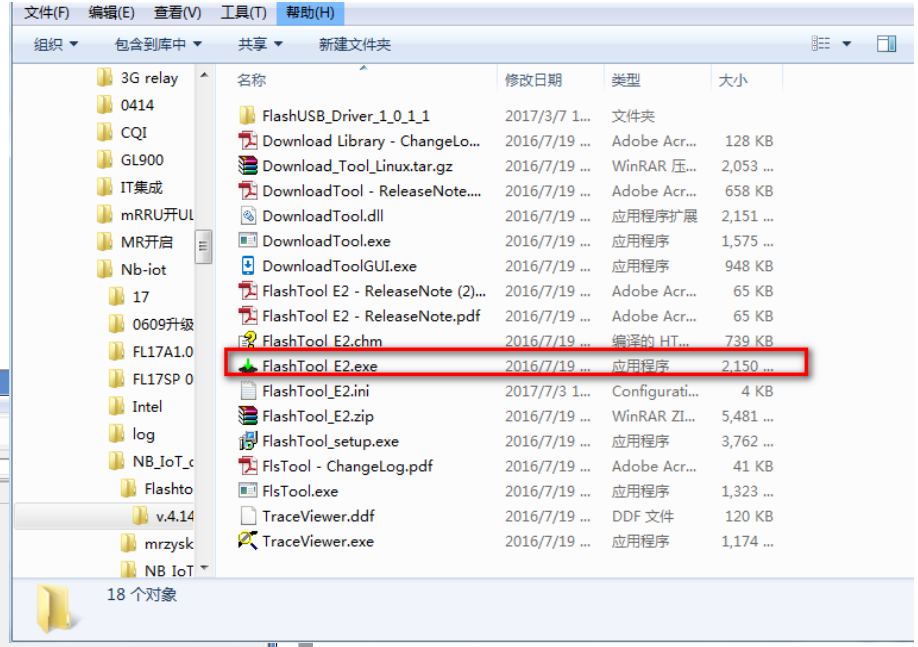
Intel版本更新工具FlashTool的使用

WWAN M.2

Flash Programming via USB

- IMC provides a Flash utility, **FlashTool**, to program the Flash memory on the WWAN M.2 module.
- For downloading via USB, FlashTool utilizes the **USB Boot Loader** driver.
- Copy the FlashTool utility into a Windows PC directory.
  - Run FlashTool by double-clicking on FlashTool_E2.exe.
- FlashTool will start





Intel M2使用方法

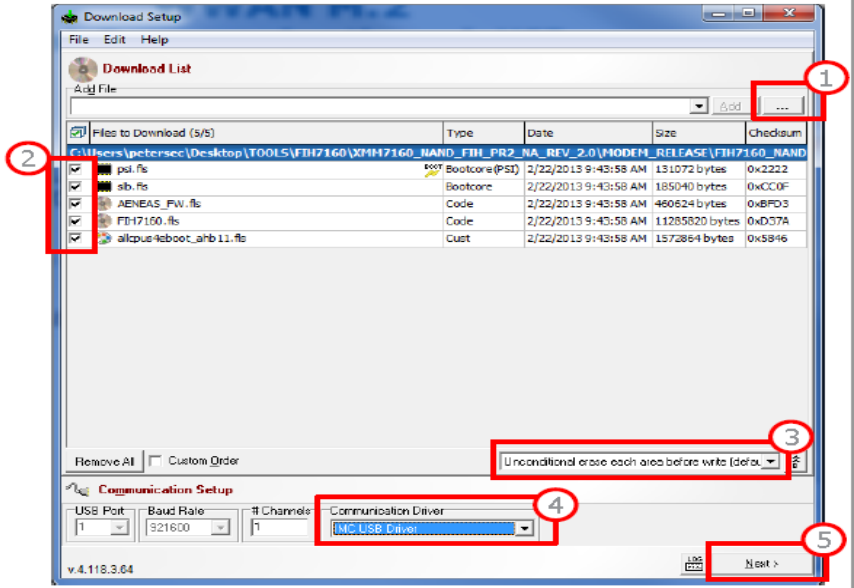
WWAN M.2

请注意Intel软件版本的文件格式为.fls

Flash Programming via USB

1. Select Browse for file button, navigate and choose the modem binary file (FIH7160_NAND.fls).
2. The files contained within the binary file (.fls) will appear in the main window (*). Make sure they are all selected.
3. Set the Programming method to, Unconditional erase each area before write (default). Selecting option to erase whole flash will remove NVM data and require re-calibration of the hardware.
4. Set the Communication Driver to IMC USB Driver
5. Select Next.

* If files appear in the main window after selecting the FLS file, they can be removed by selecting the Remove All button.



Intel M2使用方法

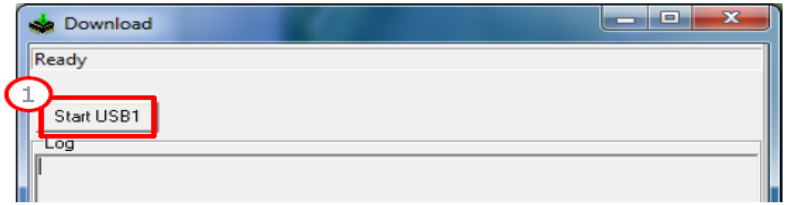
注意不是主板power，一定要按CARD RESET，或者使用card power 开关键，将板子重启

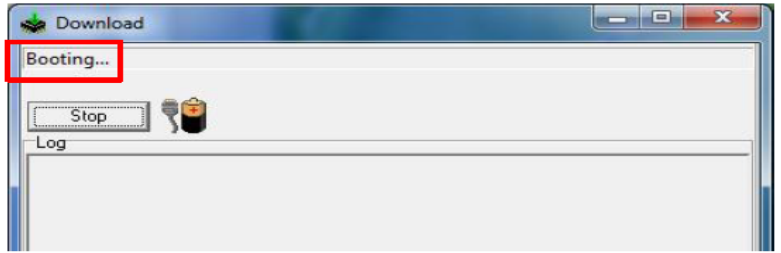
WWAN M.2

Flash Programming via USB

A new window will Open

1. Select Start USB1 button. The same button will change to Stop and the status will change to Booting.
2. When the Booting message appears, press the CARD RESET button on the Carrier Board.





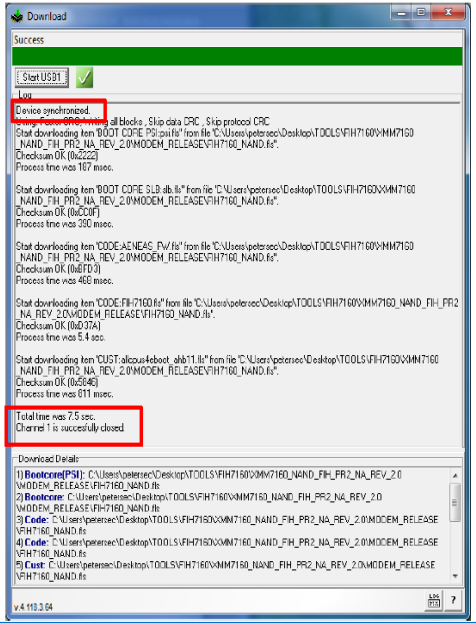
Intel M2使用方法

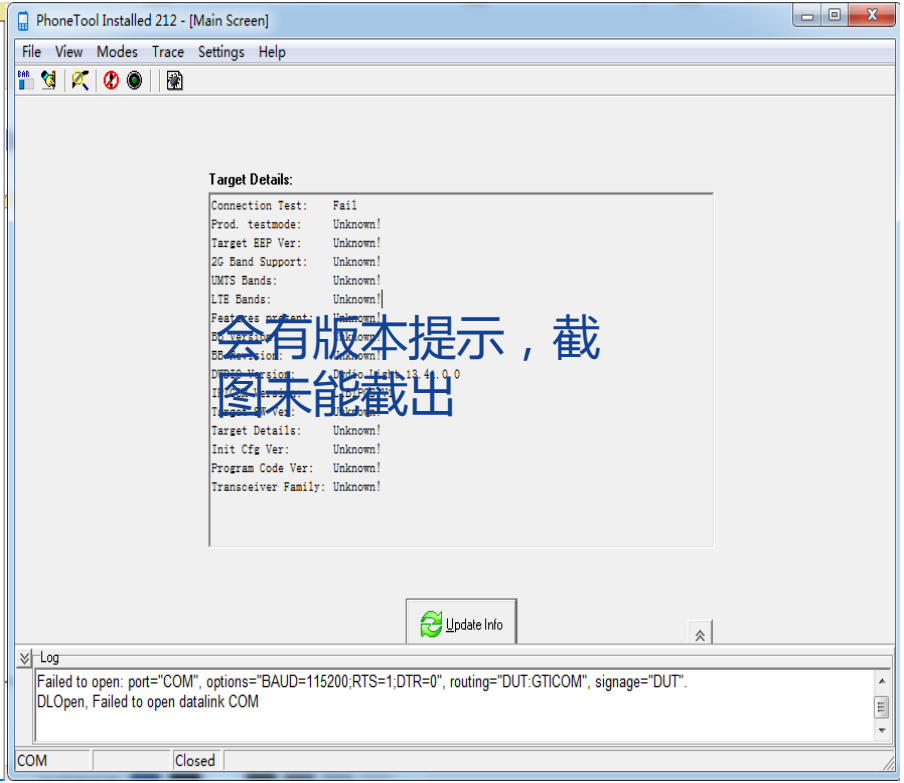
提示SUCCESS表示成功，使用Phonetool查看版本是否正确

WWAN M.2

Flash Programming via USB

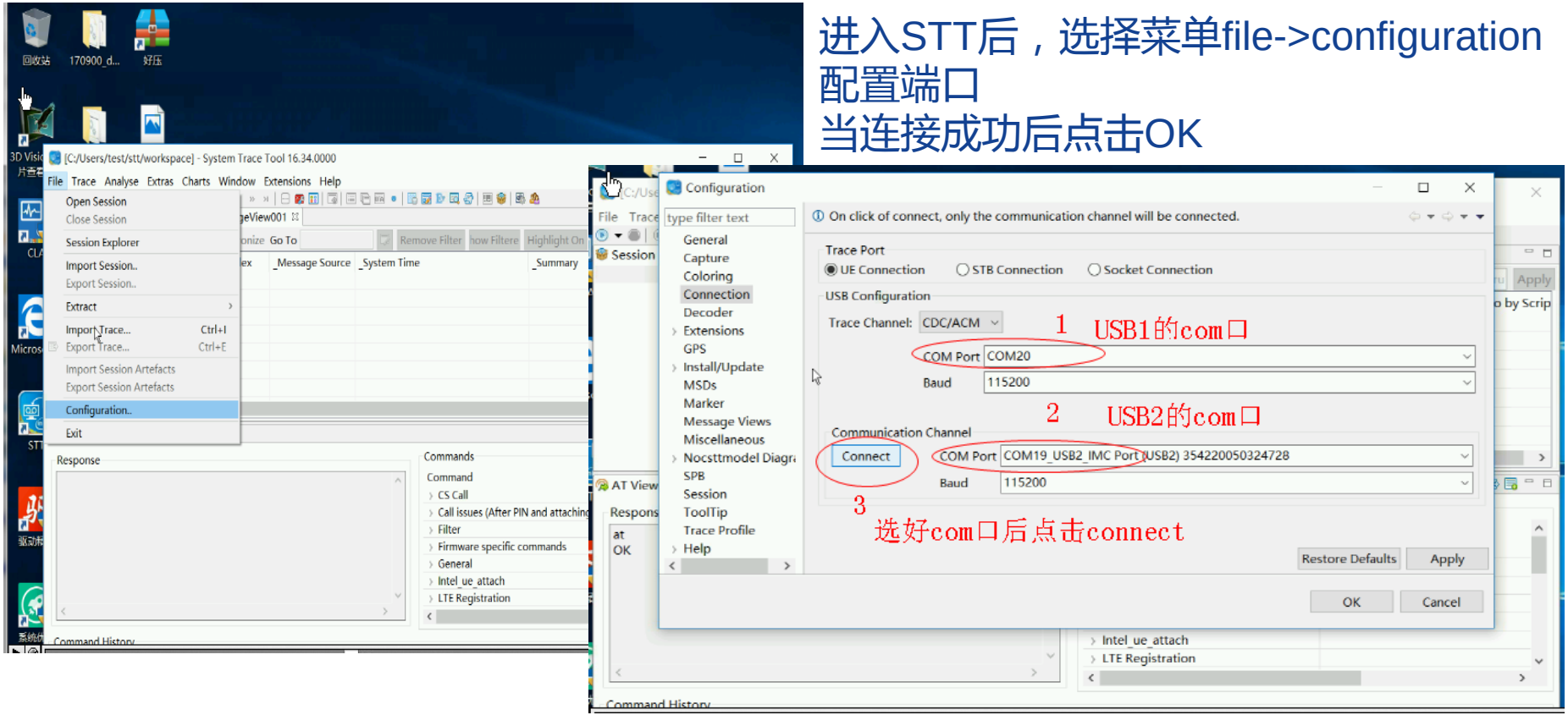
1. The main screen will indicate the WWAN M.,.2 module is synchronized with FlashTool and begin downloading the FLS files.
2. Wait for verification.





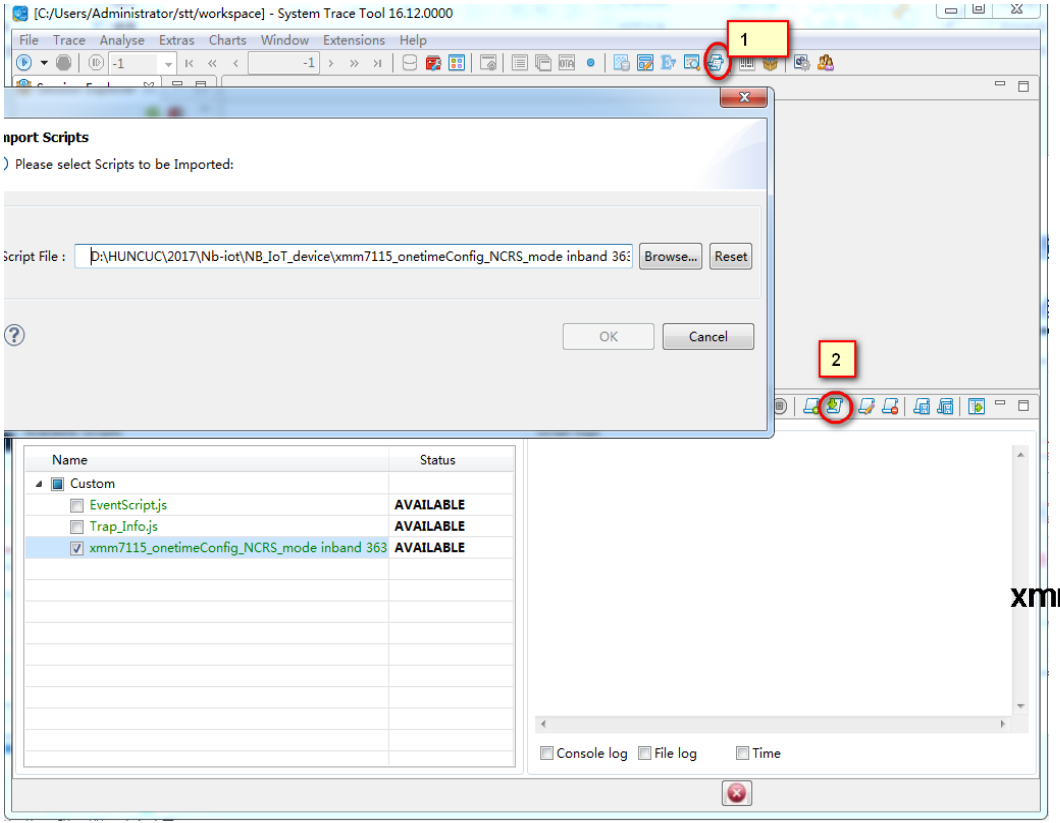
含有版本提示，截图未能截出

Intel M2使用方法



进入STT后，选择菜单file->configuration
配置端口
当连接成功后点击OK

Intel M2使用方法



1、点击script按钮

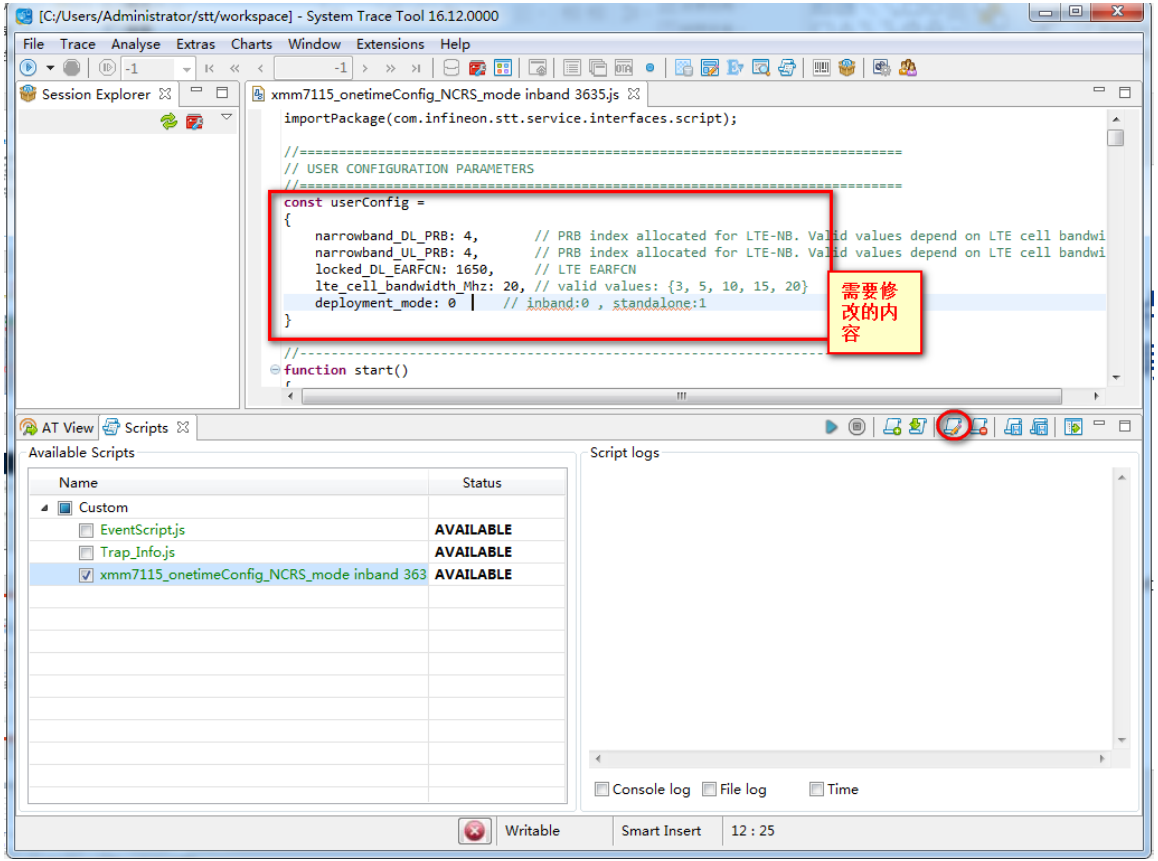
2、导入脚本

xmm7115_onetimeConfig_NCRS_mode inband 3635.js

Intel M2使用方法

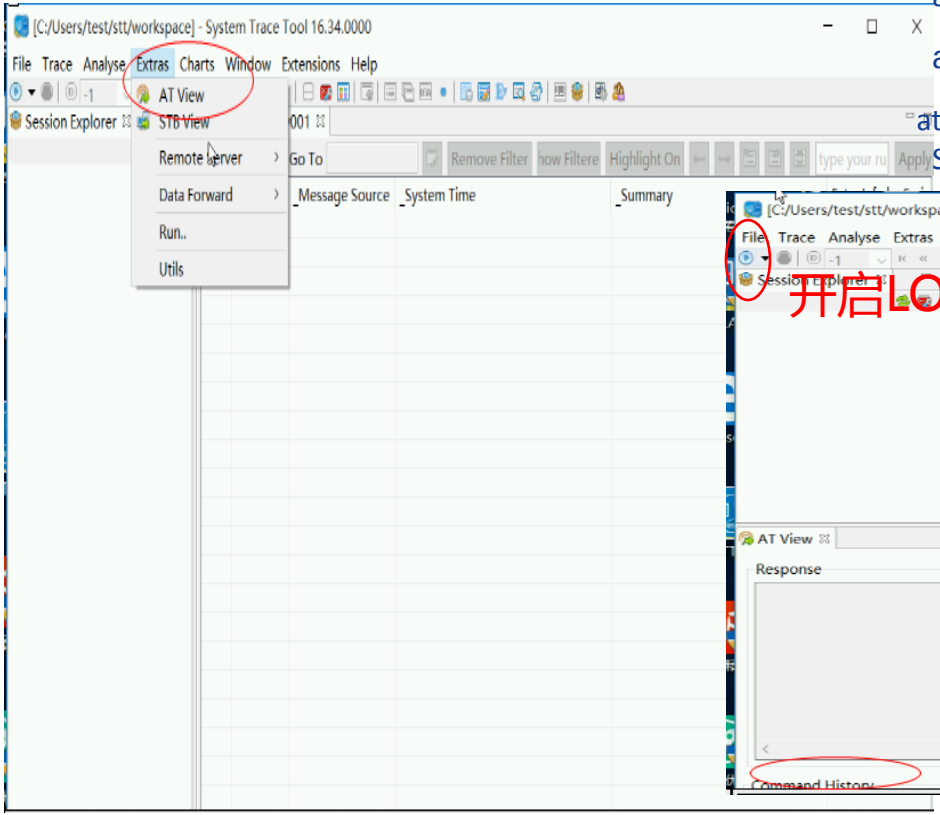
点击右下角的edit按钮，根据实际开通情况修改脚本相应内容：

- 1.修改实际上下行使用的PRB
- 2.修改HOST小区LTE下行频点
- 3.修改HOST小区LTE带宽
- 4.Inband模式选择1，standalone模式选择0



Intel M2使用方法

选择菜单Extras->AT view



在command history下面依次输入如下命令：

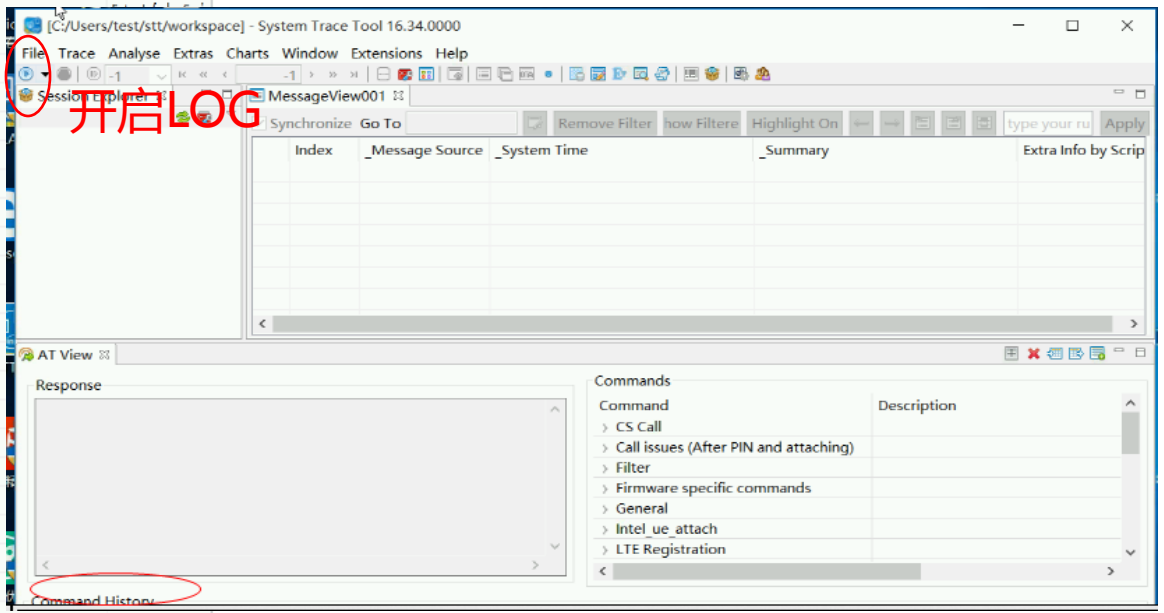
at

at+cmee=2

at+cgdcont=1,”IP”,”cmnet” //设置APN

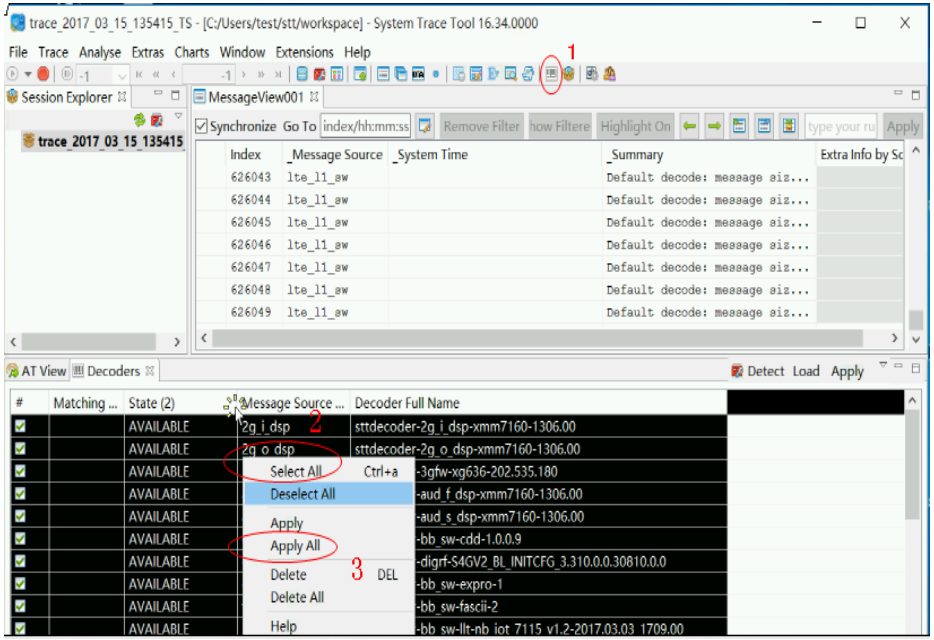
at@sic:freq_lock(0,3,108,1,3617,0xFFFF))//修改band及prb频点

at+cops=0 //这条命令是控制UE进行attach，建议这条命令前开启STT log的记录

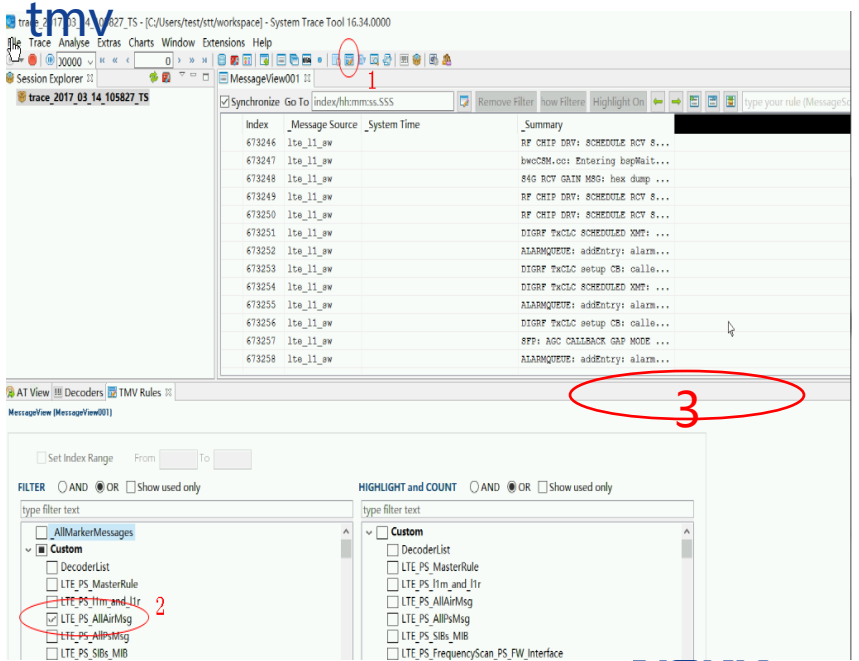


Intel M2使用方法

点击倒数第四个decoder按钮，选择decode文件。将LOG解析然后鼠标右击select all，apply all

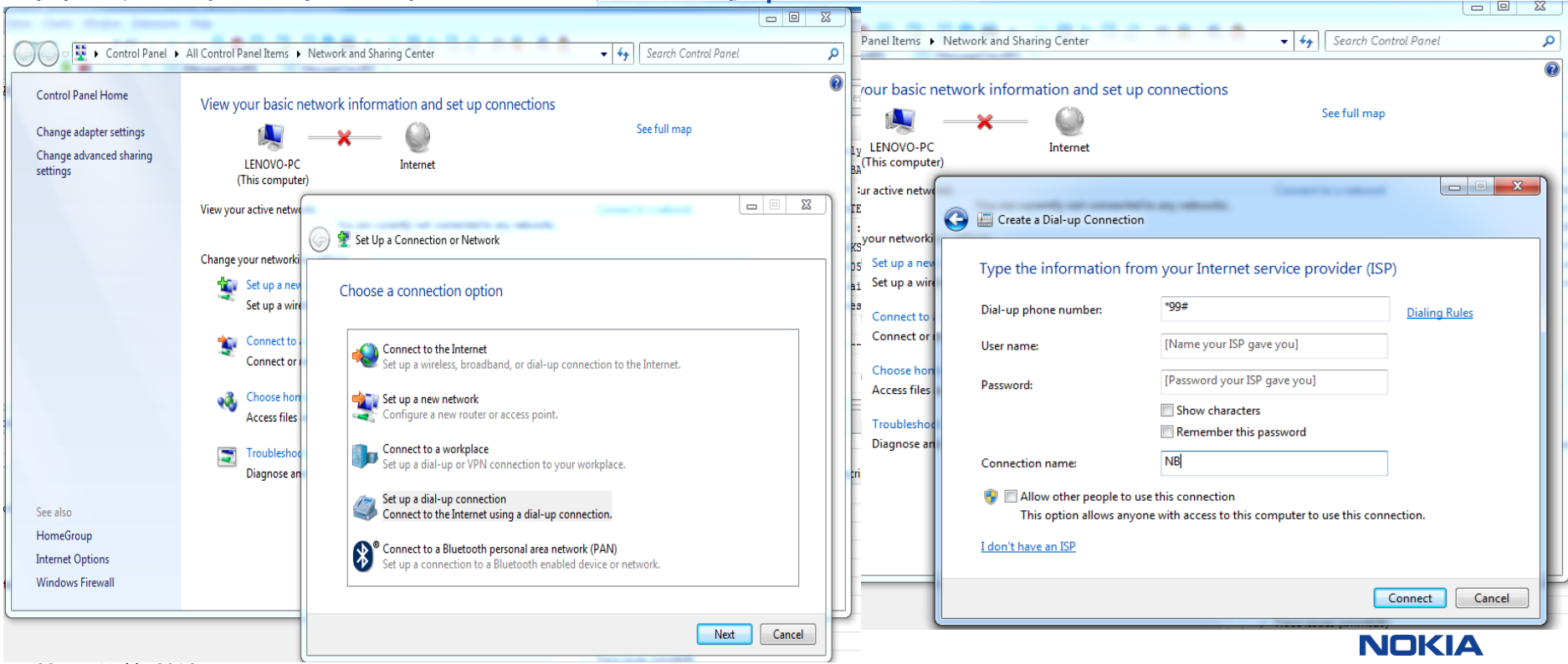


点击OPEN TMV Rules，进行LOG的过滤，选LTE_PS_AIRMSG进行空口信令的筛选，然后点击apply in new tmv



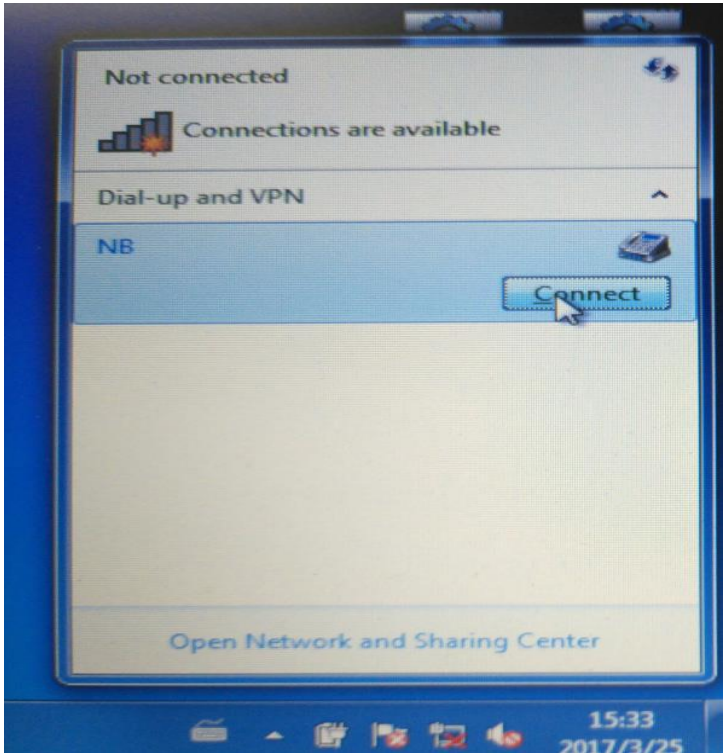
Intel M2使用方法

Attach成功后在网络新建一个拨号连接， Dial-up phone number is : *99#，name自己设置，点击连接，查看电脑是否获取ip地址。



Intel M2使用方法

第二次使用的时候，可以直接从网络连接脚标处执行 。



高通9206使用

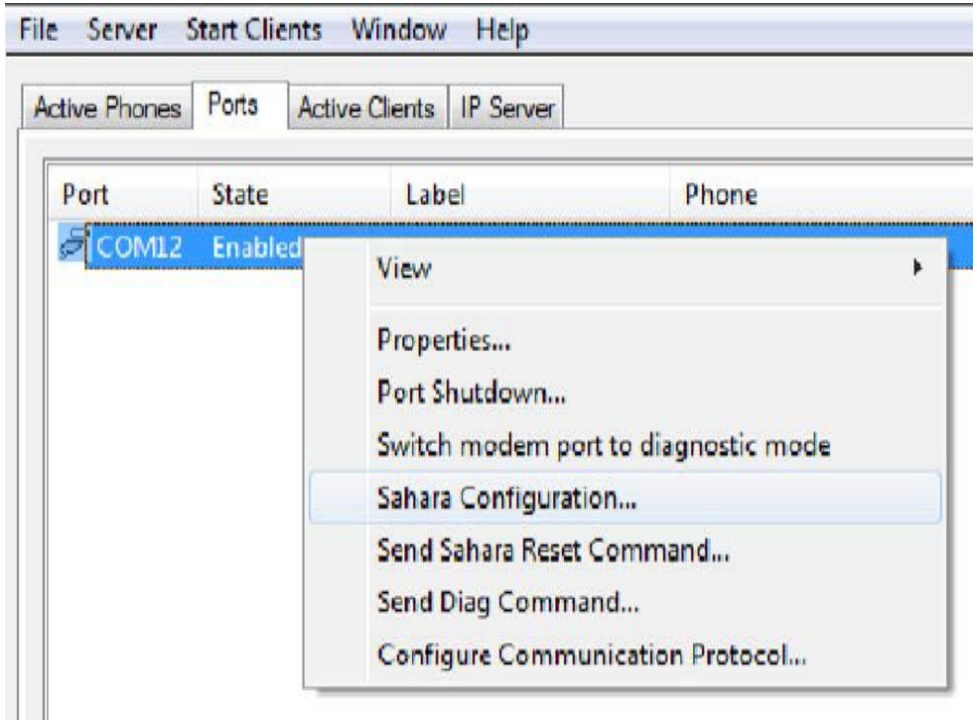
Sharenet上存放高通软件的位置

QCAT：https://sharenet-ims.int.net.nokia.com/Open/546666702
QC USB Driver: https://sharenet-ims.int.net.nokia.com/Open/546666701
QPST: https://sharenet-ims.int.net.nokia.com/Open/546666710
QXDM: https://sharenet-ims.int.net.nokia.com/Open/546666709

连接MDM9206终端，可以安装USB驱动QUD.WIN.1.1 Installer-1.00.39.2。这个版本是经过验证可以识别到MDM9206

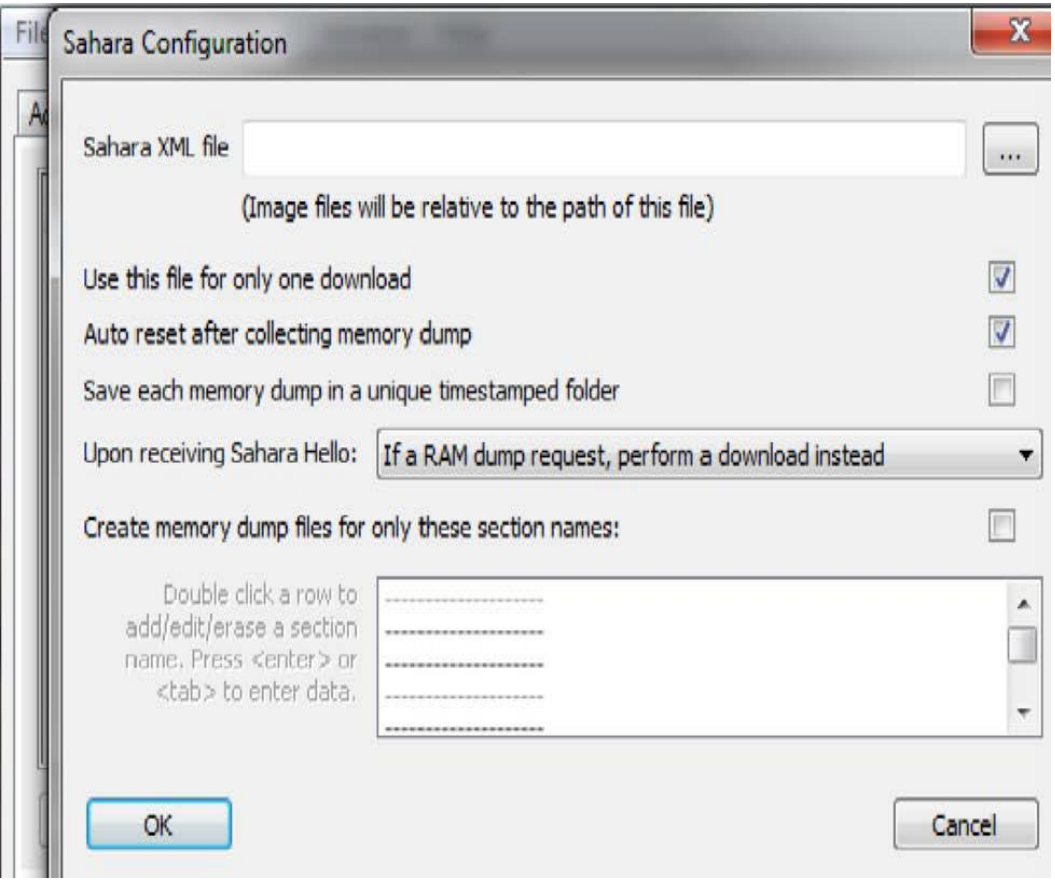
MDM9206缺省是启用了卡槽1。SIM卡卡槽支持的是中卡。卡槽1是靠近背板电池位置的卡槽。

高通9206使用
刷机流程



1. Open QPST.
2.. 鼠标右击手机的端口，点击Sahara Configuration... from the pop-up menu

高通9206使用

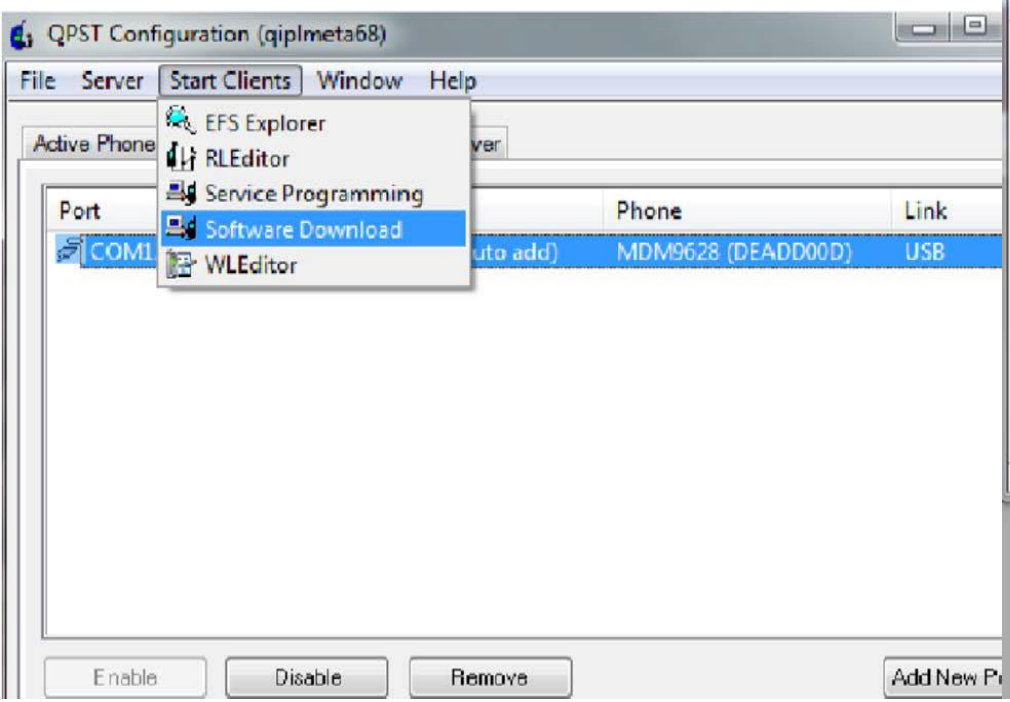


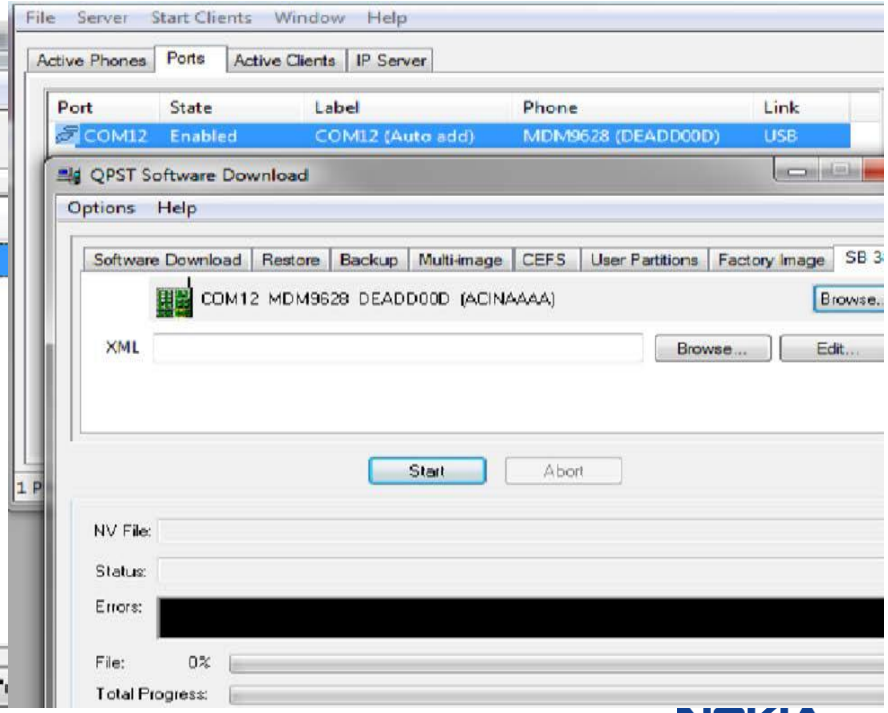
3.在Sahara Configuration Dialog 窗口中，选择for the Upon receiving Sahara Hello：“If a RAM dump request, perform download instead”.
4.点击OK

高通9206使用

5.在主界面选择Start Clients>software download 按钮

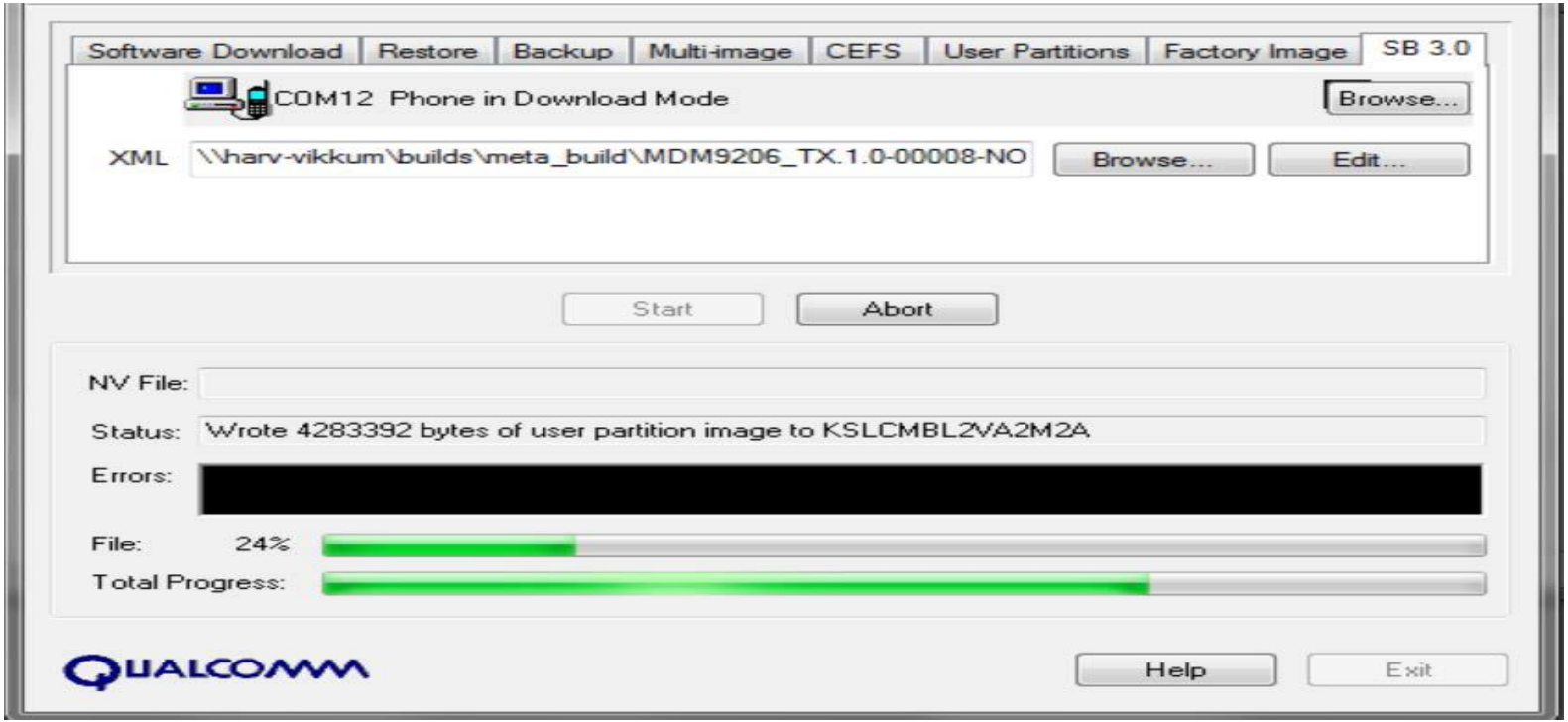
6.选择SB3.0



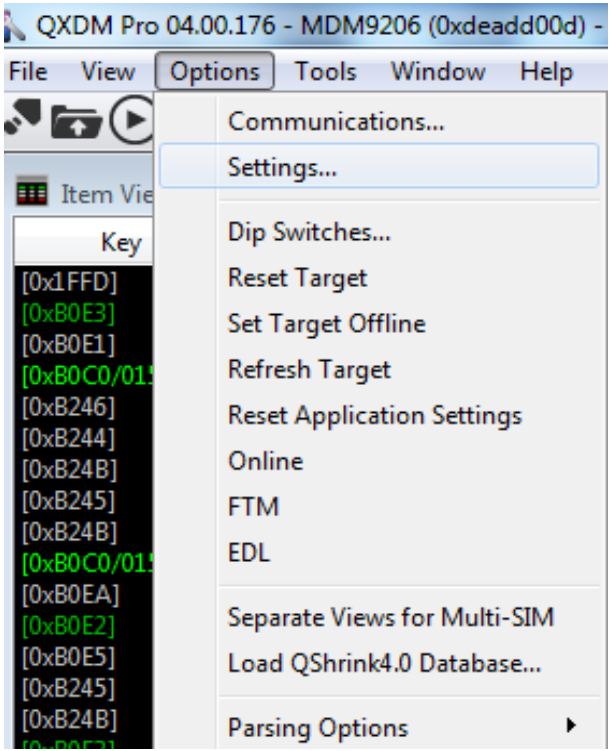


高通9206使用

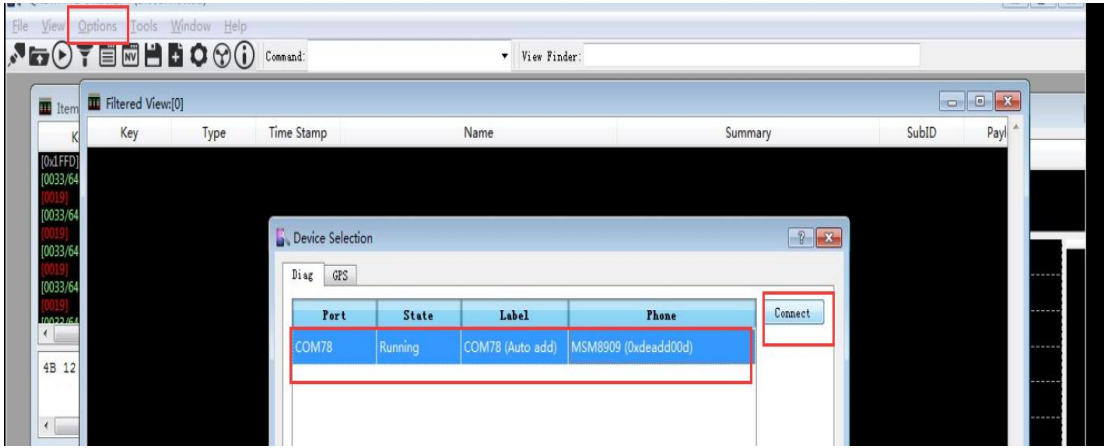
7.点击Browse，选择需要升级的软件包　　8.点击start



高通9206使用

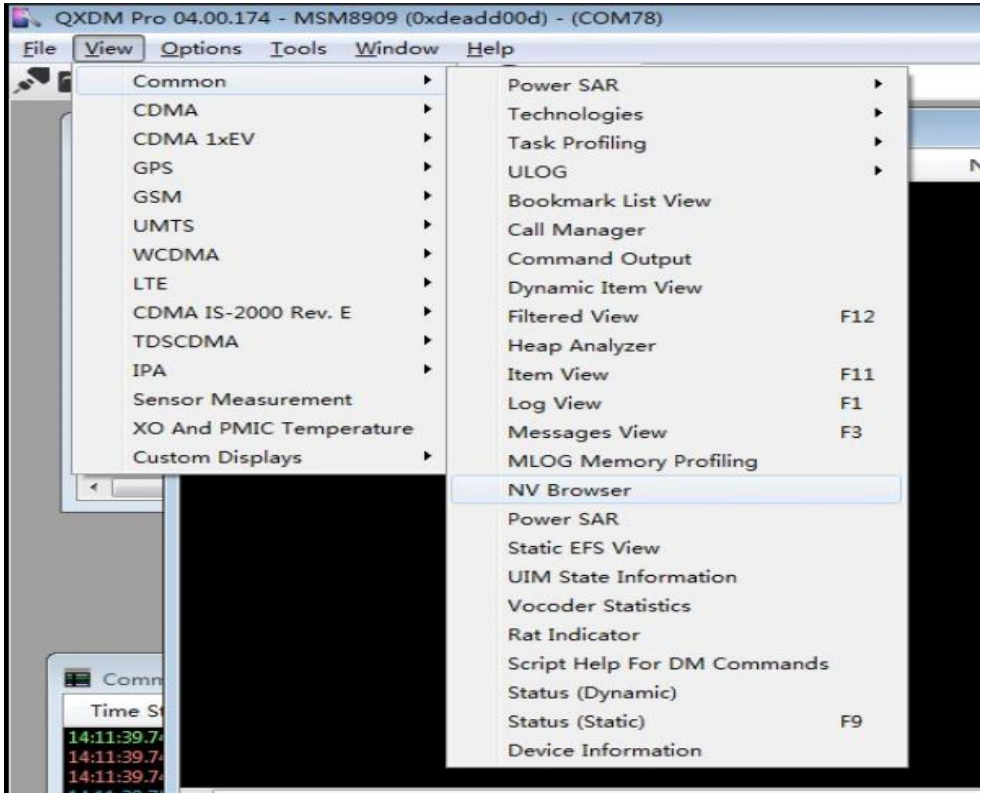


打开QXDM软件，点击Options>communication，连接终端



高通9206使用

点击view->common->nv browse



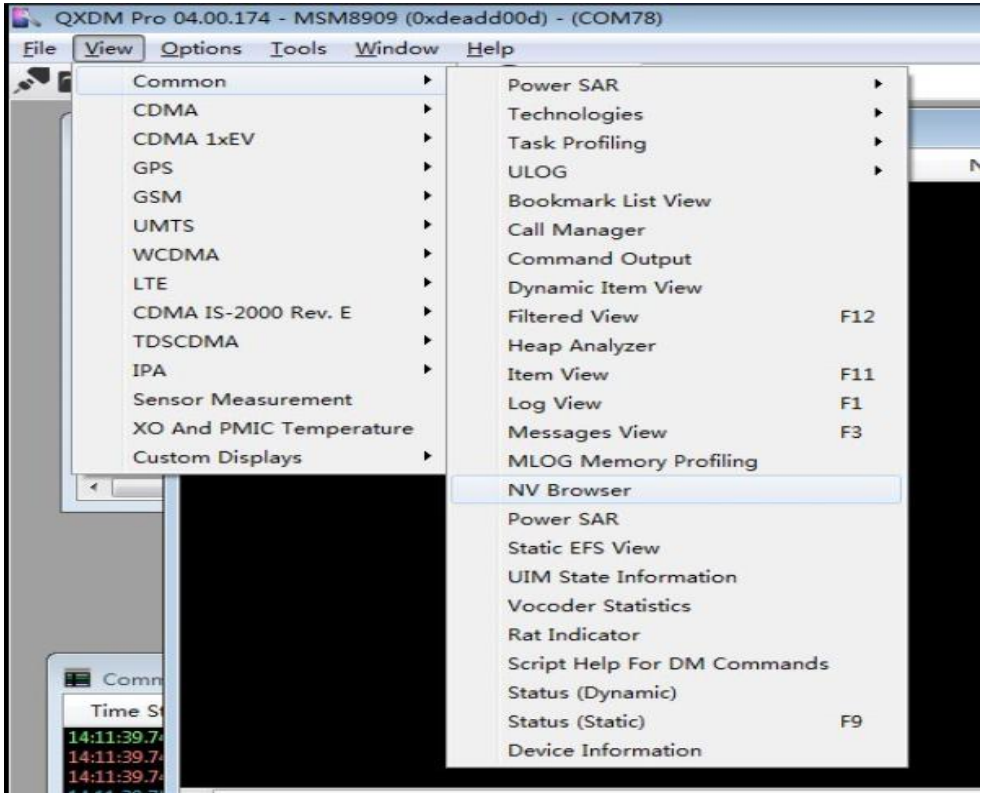
如下NV值一定需要确认

Band计算方式：
例如：band8为二进制第8位置为1，即为10000000，转换为十进制则为128

Key	Value
00010	30 - LTE Only
00850	0x1 - PS Only
65777	1 - UE_USAGE_SETTING_DATA_CE.
73912	2 - CM_LTE_IOT_OP_MODE_PREF
	128（锁定band）
73916	1
70310	True
06828	128（锁定band）

高通9206使用

点击view->common->nv browse



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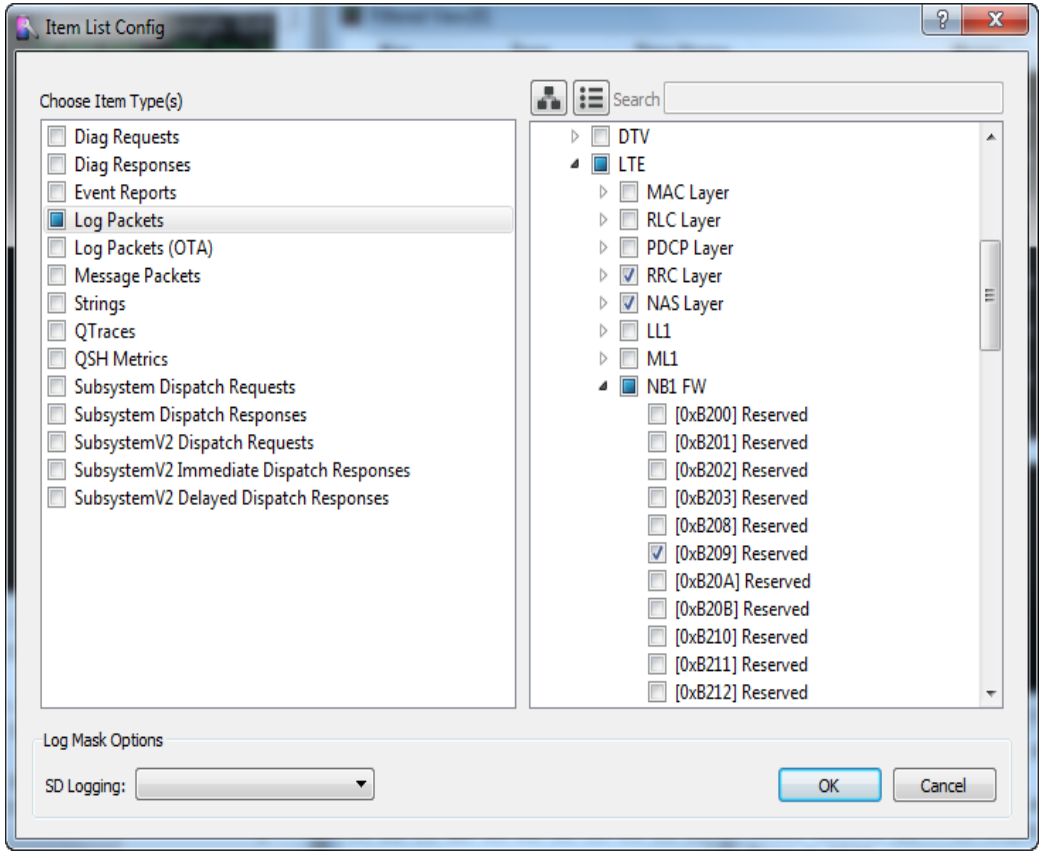
高通9206使用



在信令窗口右键选择configuration，选择需要过滤的信令

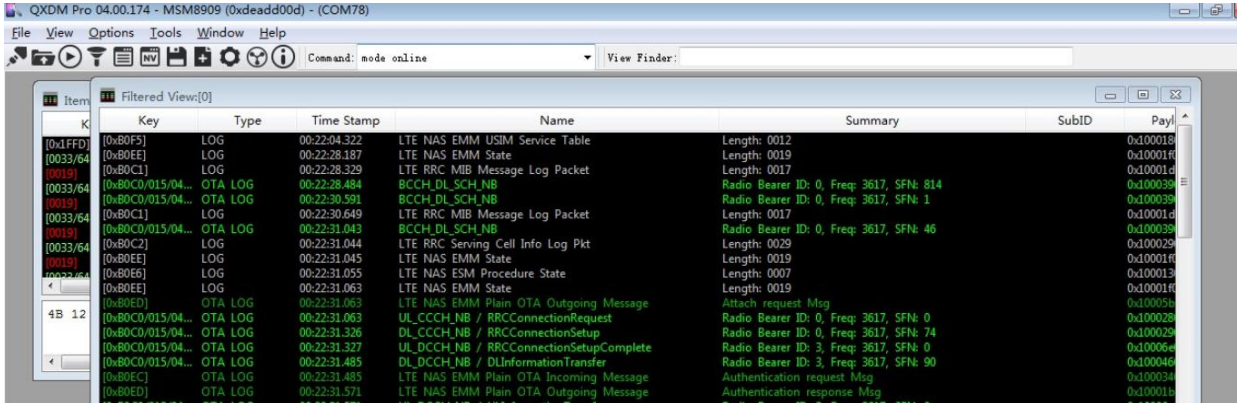
由于高通发布的QXDM分内部版本和外部版本。 很多消息，我们从外部QXDM 中看到是Reserved消息，实际是有定义的。以0xB209为例，它是高通9206终端搜索网络的一条重要消息。当QXDM中不断输出0xB209消息时，说明9206还没有搜索到NB-IoT网络

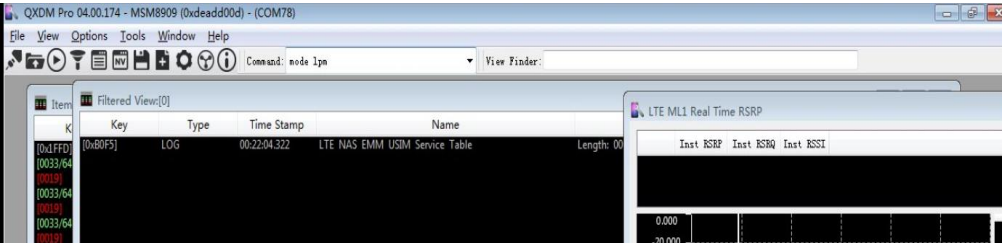
高通9206使用

mode lpm命令 – dettach

mode online命令—attach

Mode reset命令—重启



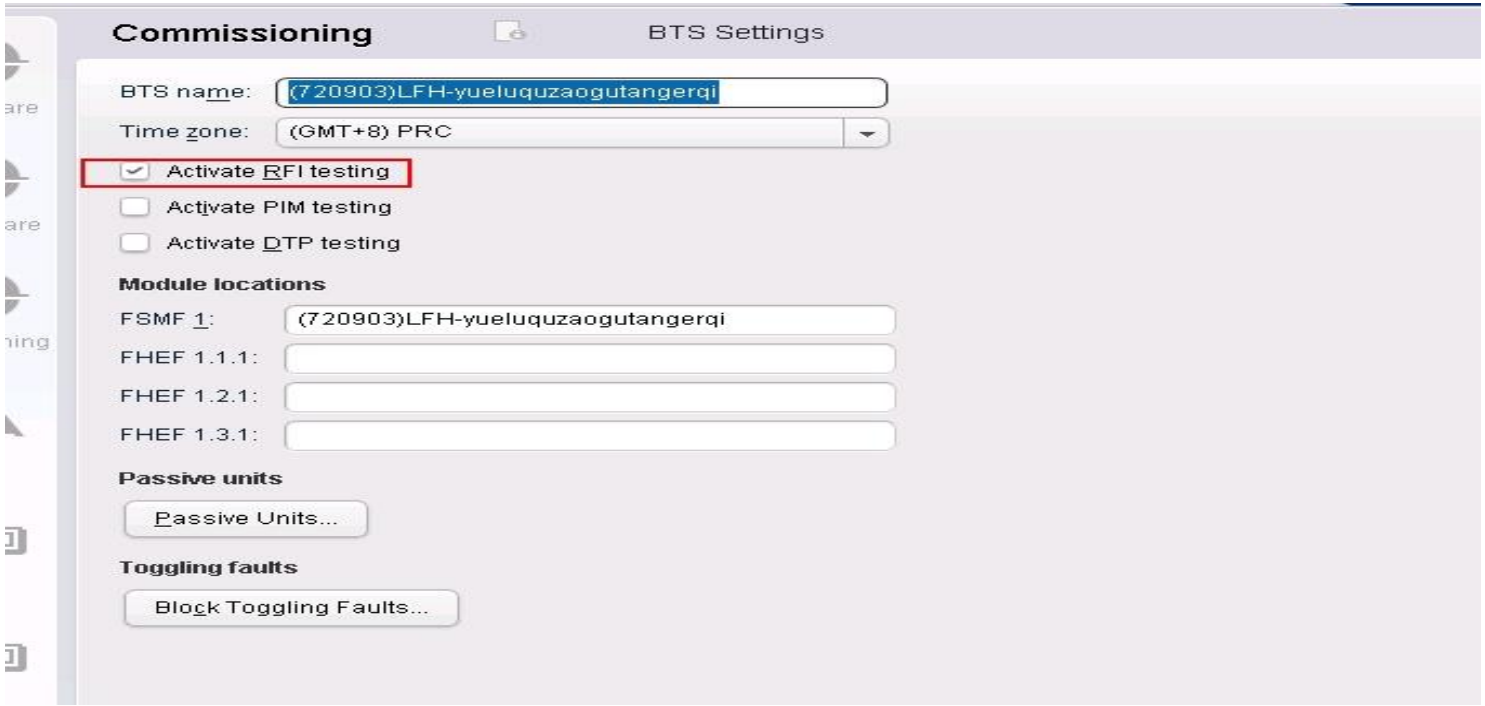


Attach成功后，拨号上网的方式和intel的一样

Troubleshoot tools

取底噪

1.打开基站feature：勾选Activate RFI testing

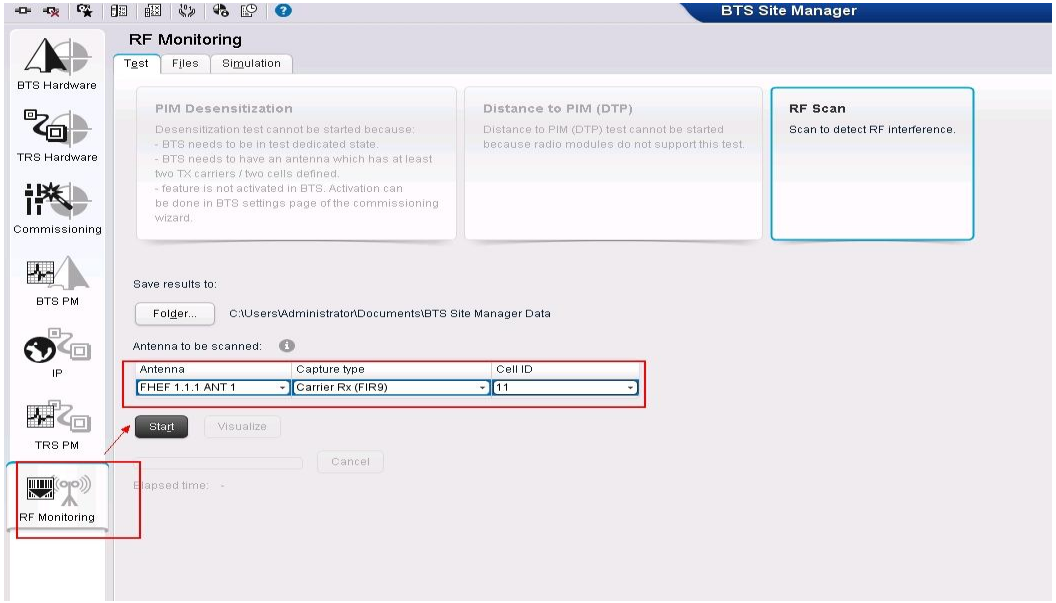


取底噪

需要安装matlab（MCR），按照提示点击链接下载即可

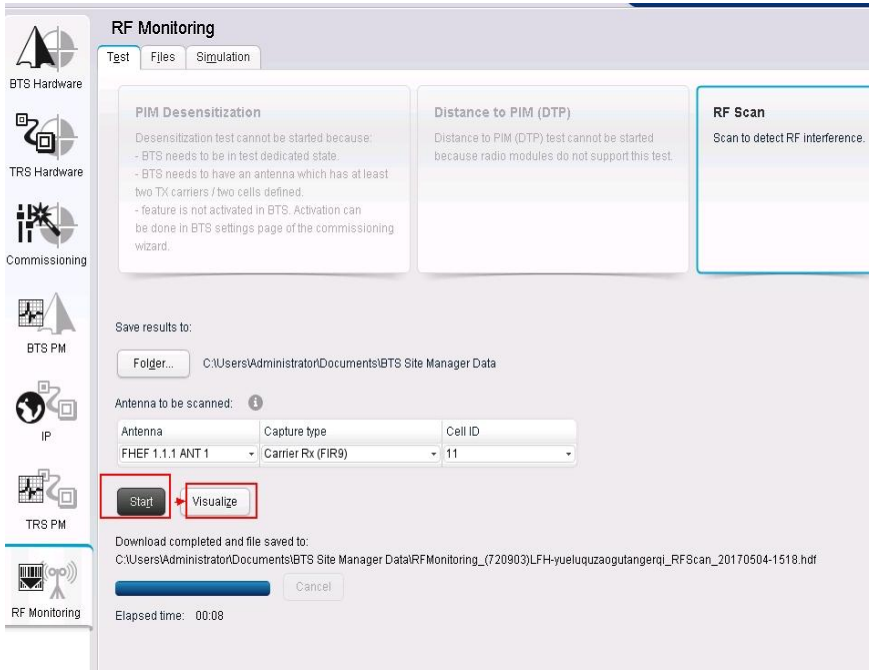
Please install 32bit version of MATLAB Compiler Runtime (MCR) for release R2015a. Installation package can be downloaded from the following location:
http://www.mathworks.se/products/compiler/mcr

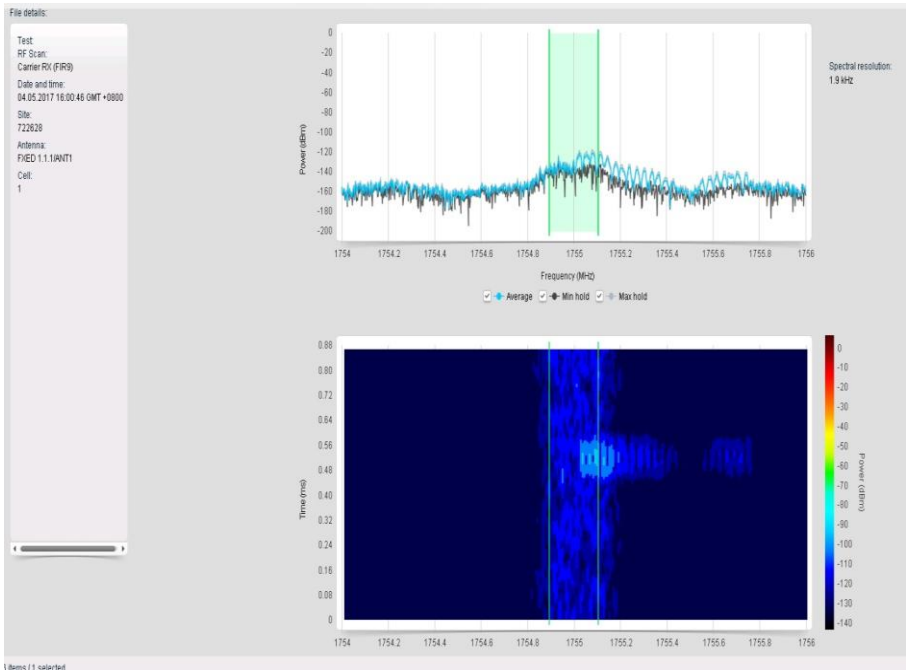
2.在基站界面RF Monitoring→RF Scan 选取要获取底噪的天线口，及捕获的类型，点击start



取底噪

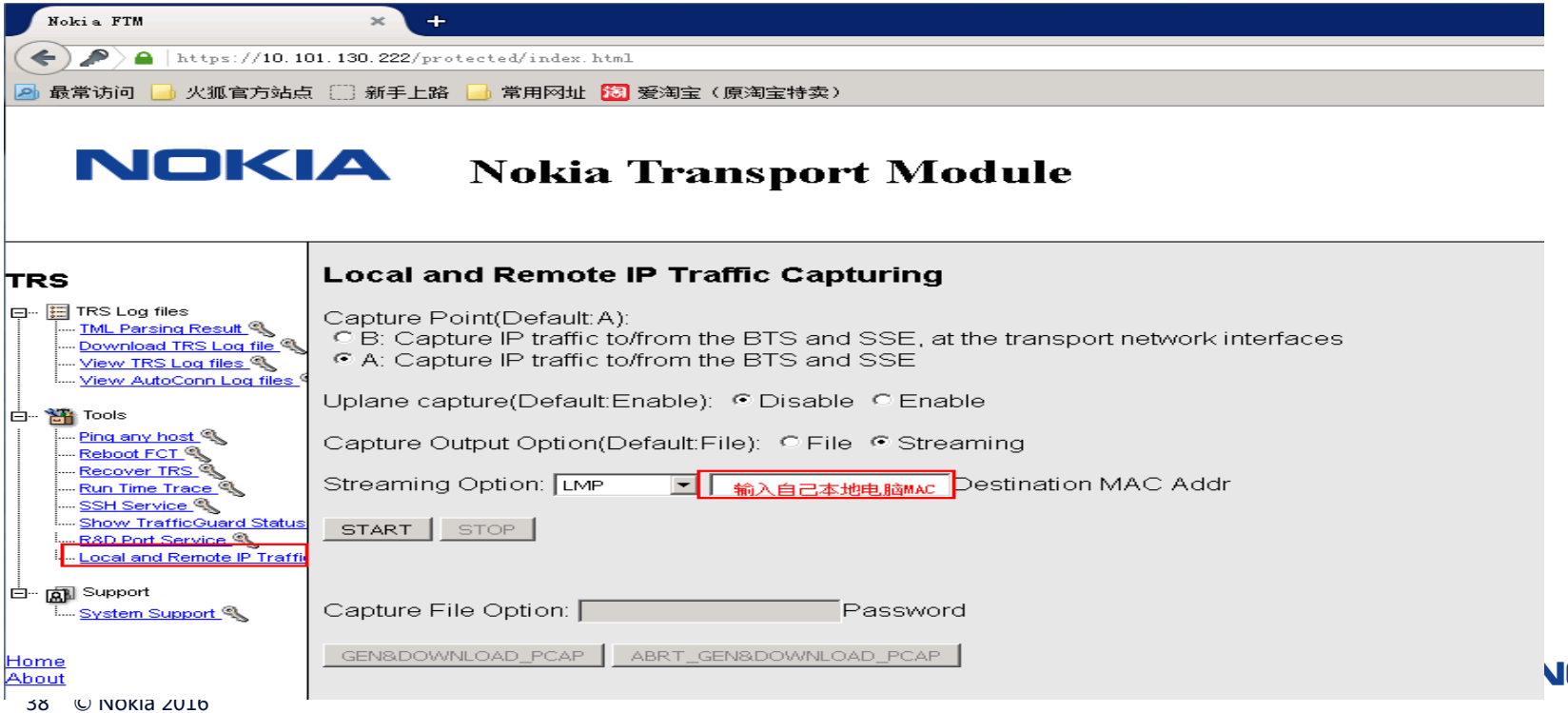
3.点击Visualize ，即可获取底噪的图形，将鼠标放置在线上可以看到具体的值





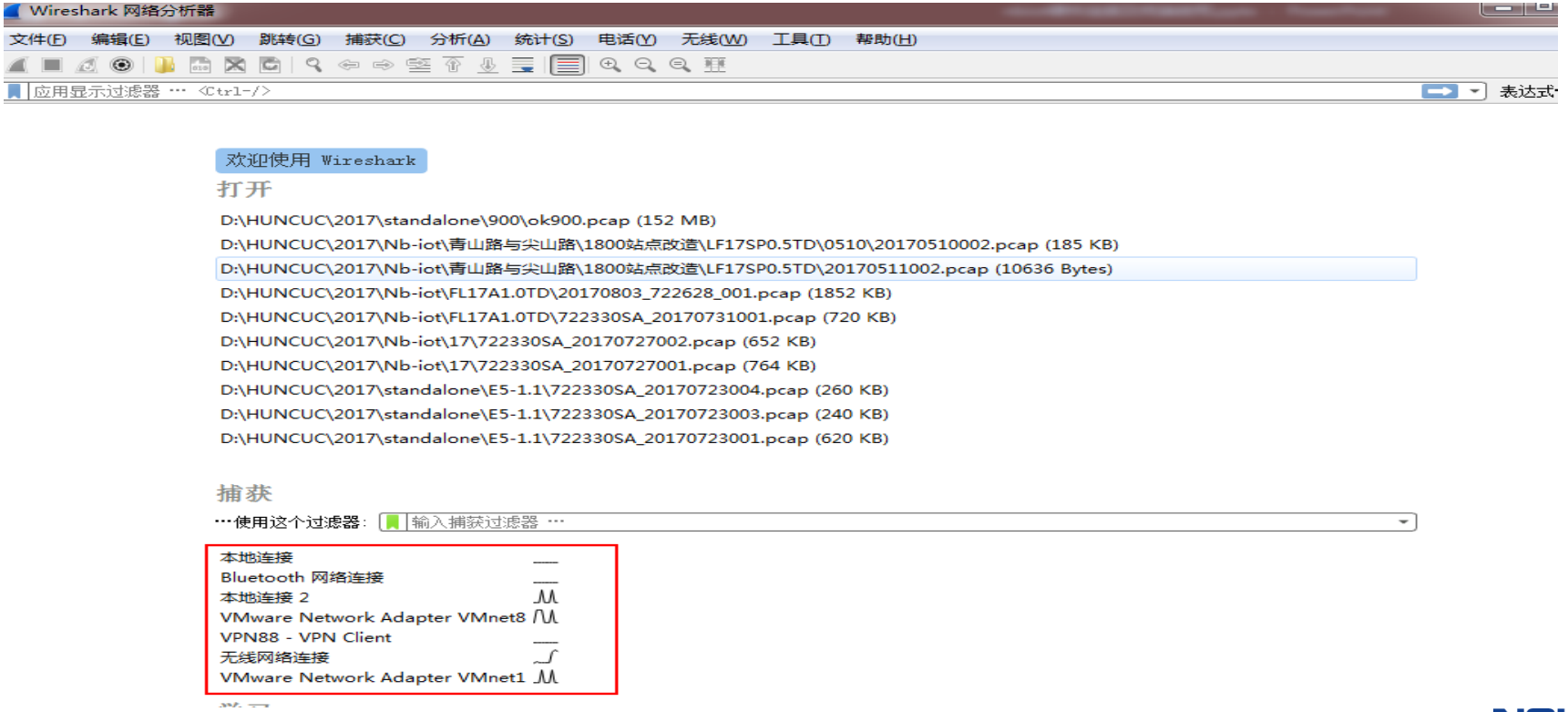
取wireshark LOG　本地实时取LOG

1.连接基站后，使用网页打开基站，点击Local andRemote IP Traffica，再LMP后输入自己本地电脑MAC地址



取wireshark LOG　本地实时取LOG

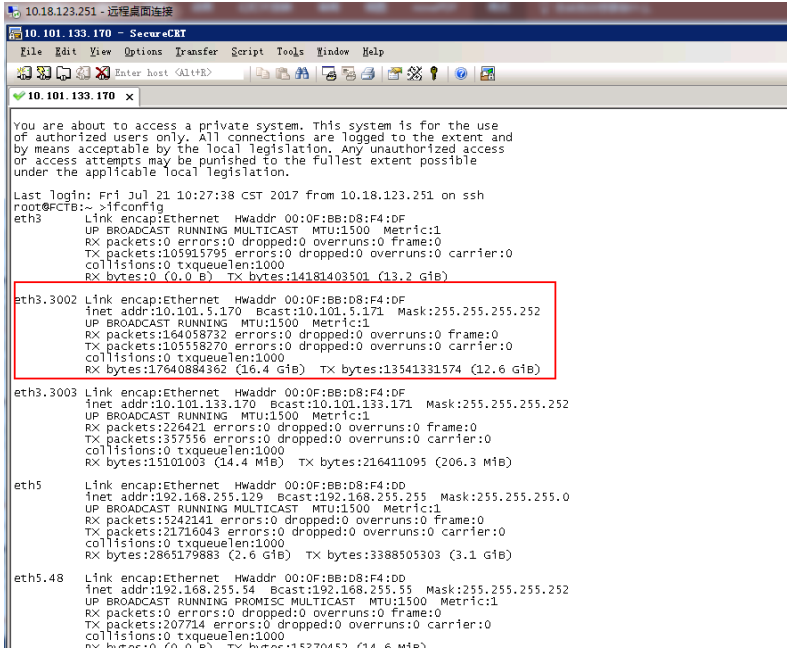
2.使用wireshark 捕获本地连接LOG



取wireshark LOG　远程取LOG

1.SSH登录到基站，用户名：toor4nsn　密码：oZPSPOrRieRtu

2执行命令：ifconfig 找到控制面ip的端口

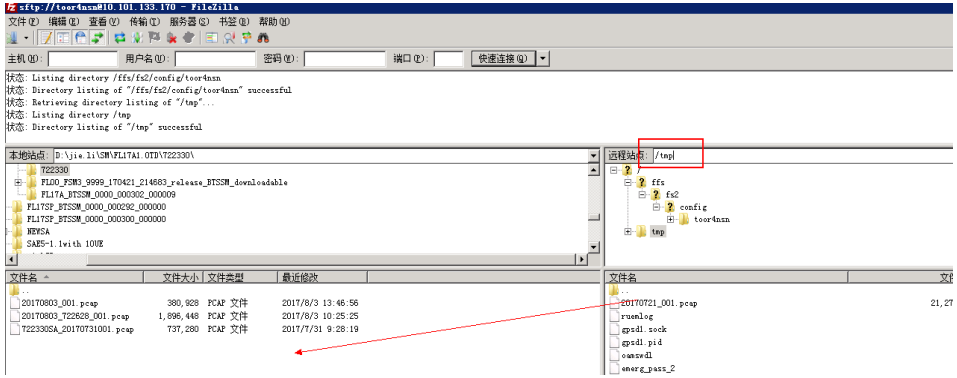


3执行命令：tcpdump –i eth3.3002 –w /tmp/xxxx.pcap 抓取LOG到tmp目录下

```
          collisions:0 txqueuelen:1000
          RX bytes:2865598261604 (2.6 TiB)  TX bytes:454551478007 (423.3 GiB)

root@FCTB:~ >tcpdump -i eth3.3002 -w /tmp/20170721_001.pcap
tcpdump: listening on eth3.3002, link-type EN10MB (Ethernet), capture size 262144 bytes
```

4.使用FTP工具取到本地打开




NOKIA