

OsmoBTS - Bug #3310

Voice call always failed with Nokia 1600

05/31/2018 12:53 PM - timojacobus

Status:	Resolved	Start date:	05/31/2018
Priority:	Low	Due date:	
Assignee:	roh	% Done:	100%
Category:	osmo-bts-trx		
Target version:			
Spec Reference:			

Description

Hi, I wasnt to report bug with our old Nokia 1600 mobile phones.

Problem: Incoming, outgoing call always failed if one of phones is Nokia 1600.

Detailed informations:

- Calling from Nokia 1600 (extension 23855) to Google Nexus 5 (extension 23119)
- Call fails after 30-45 seconds (seems like dropped by Nokia), Nokia without gsm signal.

- PCAPs with RSL+OML and with gsmmap included
- log files included
- BTS+BSC configs included

We noticed that calls with Nokia will always fail after 30-45 seconds. Both outgoing and incoming calls. In RSL, there is CC Connect ACK, no CC Disconnect or CC Release. When a call fails, then after some time the connection failure occurs.

At the beginning of call, voice is clear, about 10 seconds before drop is voice corrupted and then call fails.

Before call failed, there are many of entries of this type in log - "Received bad TCH frame ending at fn=619067 for TCH/F". We tried also same RX gain/TX atten. modifications, also MS power settings, but with no effect.

With another different phones, calls work perfectly, so we suspecting the undefined behaviour of Nokia 1600 (https://www.gsmarena.com/nokia_1600-1188.php)

Tests:

1. call accepted, call failed
2. call accepted, call failed (longer pcap with connection failure)
3. only alerting, call failed

HW:

Ettus B200 with external clock
Nokia 1600 (tried several phones same type)
LG Nexus 5

SW:

UHD_003.009.006-0-g122d5f8e
gnuradio 3.7.11

```
libosmocore 0.9.6
  libosmo-abis 0.3.3
  libosmo-netif 0.0.7
```

```
osmo-trx 0.1.9
  osmo-bts 0.5.0
  OpenBSC version 0.15.0.788-271ce
```

Also tried with latest versions, but with same results

UHD_3.12.0.git-159-g9cf1a8e9
gnuradio 3.7.12

```
libosmocore 0.11.0
  libosmo-abis 0.5.0
  libosmo-netif 0.2.0
```

```
osmo-trx 0.4.0
  osmo-bts 0.8.0
  OpenBSC version 1.1.0
```

History

#1 - 06/23/2018 06:35 PM - laforge

- Assignee set to roh
- Priority changed from Normal to Low
- % Done changed from 0 to 10

I ordered a Nokia 1600. [roh](#), please try to reproduce the problem with the phone, once it arrives.

#2 - 06/28/2018 07:11 PM - roh

hi. i got the nokia1600 laforge ordered, but sadly the phone reports 'ungueltige sim' -> 'sim invalid' which means it is likely simlocked, contrary to the labeling 'ohne simlock' on the package.
seems we need to either get another phone or unlock this one first.

timojacobus: can you please add your osmo-trx-uhd.cfg as well?
also it would be interesting to know which builds you use for testing. i am using the debian9 feed 'latest'

#3 - 06/28/2018 07:13 PM - roh

timojacobus: another question would be what kind of clock-source do you use for the usrp? some gps-disciplined oscillator?

kind regards

#4 - 06/29/2018 04:58 PM - laforge

On Thu, Jun 28, 2018 at 07:11:07PM +0000, roh [REDMINE] wrote:

hi. i got the nokia1600 laforge ordered, but sadly the phone reports 'ungueltige sim' -> 'sim invalid' which means it is likely simlocked, contrary to the labeling 'ohne simlock' on the package.

I've notified the seller about this. Would be interesting to try with some cards that have 26201 / 26202 / 26207 as operator code.

#5 - 06/30/2018 03:36 AM - roh

i have tried some old tchibo sim of mine, which i think uses the o2 network and it asked me for a pin i cannot remember anymore instead of the error message.

#6 - 07/11/2018 08:40 AM - timojacobus

- File osmo-trx.cfg added

roh wrote:

timojacobus: another question would be what kind of clock-source do you use for the usrp? some gps-disciplined oscillator?

kind regards

Hi, I added osmo-trx.cfg file (from latest configuration). Clock source in not original Ettus TCXO module, but custom precise oscillator.

#7 - 10/02/2018 01:38 PM - roh

- Status changed from New to In Progress

i just tried it in a 'old nitb & old sysmobts' setup and it worked for me (voice call, no issues)

will test with osmo-trx at the next opportunity

#8 - 10/02/2018 05:13 PM - roh

- Status changed from In Progress to Resolved

- % Done changed from 10 to 100

i have just tested the nokia1600 in a voice call to a samsung s4mini on a cell running on a usrp b200 using the nightly builds of our debian9 feed. (split-nitb)

there is voice in both directions and the call is stable. codec is FR.

clock is from a E4406A.

@timojacobus: sure your clock is proper? (correct slope/levels etc?)

sorry - i could not reproduce this problem.

osmo-trx-uhd.cfg:

```
log stderr
logging filter all 1
logging color 1
logging print category 1
logging timestamp 1
logging print file basename
logging level all info
!
line vty
```

```
no login
!
trx
bind-ip 127.0.0.1
remote-ip 127.0.0.1
base-port 5700
egprs disable
tx-sps 4
rx-sps 4
clock-ref external
rt-prio 18
chan 0
```

osmo-bts.cfg

```
log stderr
logging color 1
logging timestamp 0
logging level rsl notice
logging level oml notice
logging level rll notice
logging level rr notice
logging level meas error
logging level pag error
logging level l1c error
logging level l1p error
logging level dsp error
logging level abis error
!
line vty
no login
!
phy 0
instance 0
osmotrx rx-gain 1
osmotrx tx-attenuation 1
osmotrx ip local 127.0.0.1
osmotrx ip remote 127.0.0.1
bts 0
band 1800
ipa unit-id 1801 0
oml remote-ip 127.0.0.1
gsmtap-sapi ccch
gsmtap-sapi pdtch
trx 0
phy 0 instance 0
```

osmo-bsc.cfg

```
log stderr
logging filter all 1
logging color 0
logging print category 0
logging timestamp 0
logging print file 1
logging level all everything
logging level rll notice
logging level mm notice
logging level rr notice
logging level rsl notice
logging level nm info
logging level pag notice
logging level meas notice
logging level msc notice
logging level ho notice
logging level hodec notice
logging level ref notice
```

```

logging level nat notice
logging level ctrl notice
logging level filter debug
logging level pcu debug
logging level lcls notice
logging level lglobal notice
logging level llapd notice
logging level linp notice
logging level lmux notice
logging level lmi notice
logging level lmib notice
logging level lsms notice
logging level lctrl notice
logging level lgtp notice
logging level lstats notice
logging level lgsup notice
logging level loap notice
logging level lss7 notice
logging level lsccp notice
logging level lsua notice
logging level lm3ua notice
logging level lmgcp notice
logging level ljibuf notice
!
stats interval 5
!
line vty
no login
!
el_input
el_line 0 driver ipa
network
network country code 901
mobile network code 70
encryption a5 0
neci 1
paging any use tch 0
handover 0
handover algorithm 1
handover1 window rxlev averaging 10
handover1 window rxqual averaging 1
handover1 window rxlev neighbor averaging 10
handover1 power budget interval 6
handover1 power budget hysteresis 3
handover1 maximum distance 9999
dyn_ts_allow_tch_f 0
periodic location update 30
bts 0
type sysmobts
band DCS1800
cell_identity 0
location_area_code 1
base_station_id_code 63
ms max power 15
cell reselection hysteresis 4
rxlev access min 0
radio-link-timeout 32
channel allocator ascending
rach tx integer 9
rach max transmission 7
channel-description attach 1
channel-description bs-pa-mfrms 5
channel-description bs-ag-blks-res 1
early-classmark-sending forbidden
ip.access unit_id 1801 0
oml ip.access stream_id 255 line 0
neighbor-list mode manual-si5
neighbor-list add arfcn 100
neighbor-list add arfcn 200
si5 neighbor-list add arfcn 10
si5 neighbor-list add arfcn 20
codec-support fr
gprs mode none
no force-combined-si
trx 0

```

```
rf_locked 0
arfcn 871
nominal power 23
max_power_red 10
rsl e1 tei 0
timeslot 0
  phys_chan_config CCCH+SDCCH4
  hopping enabled 0
timeslot 1
  phys_chan_config TCH/F
  hopping enabled 0
timeslot 2
  phys_chan_config TCH/F
  hopping enabled 0
timeslot 3
  phys_chan_config TCH/F
  hopping enabled 0
timeslot 4
  phys_chan_config TCH/F
  hopping enabled 0
timeslot 5
  phys_chan_config TCH/F
  hopping enabled 0
timeslot 6
  phys_chan_config TCH/F
  hopping enabled 0
timeslot 7
  phys_chan_config TCH/F
  hopping enabled 0
msc 0
no bsc-welcome-text
no bsc-msc-lost-text
no bsc-grace-text
codec-list fr1
type normal
allow-emergency allow
amr-config 12_2k forbidden
amr-config 10_2k forbidden
amr-config 7_95k forbidden
amr-config 7_40k forbidden
amr-config 6_70k forbidden
amr-config 5_90k allowed
amr-config 5_15k forbidden
amr-config 4_75k forbidden
mgw remote-ip 127.0.0.1
mgw remote-port 2427
mgw local-port 2727
mgw endpoint-range 1 31
bsc
mid-call-timeout 0
no missing-msc-text
```

Files

log_1.txt	2.82 MB	05/31/2018	timojacobus
log_2.txt	2.75 MB	05/31/2018	timojacobus
log_3.txt	2.4 MB	05/31/2018	timojacobus
pcap_1_clean.pcapng	214 KB	05/31/2018	timojacobus
pcap_2_clean.pcapng	143 KB	05/31/2018	timojacobus
pcap_3_clean.pcapng	132 KB	05/31/2018	timojacobus
osmo-bts.cfg	1.27 KB	05/31/2018	timojacobus
openbsc.cfg	1.6 KB	05/31/2018	timojacobus
bsc.hlr	27 KB	05/31/2018	timojacobus
osmo-trx.cfg	357 Bytes	07/11/2018	timojacobus