

## OsmoBTS - Bug #3493

### osmo-bts-trx gprs Attach fails when using TCH/F\_PDCH

08/21/2018 04:03 PM - pespin

<b>Status:</b>	Resolved	<b>Start date:</b>	08/21/2018
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	neels	<b>% Done:</b>	100%
<b>Category:</b>	osmo-bts-trx		
<b>Target version:</b>	Dynamic TCH/H TCH/F PDCH		
<b>Spec Reference:</b>			
<b>Description</b>			
When running test voice:trx-b200+mod-bts0-dynts-ipa with osmo-gsm-tester, the modem is unable to GPRS Attach to the network.			
That failing test uses TCH/F_PDCH. However, another test using TCH/F_TCH/H_PDCH works fine.			
Same test run using osmo-bts-sysmo works fine with both TCH/F_PDCH and TCH/F_TCH/H_PDCH.			
I attach an archive with 3 test runs using different configs:			
<ul style="list-style-type: none"><li>• run.2018-08-21_17-42-15/gprs:trx-b200+mod-bts0-dynts-ipa: Shows how running osmo-bts-trx with TCH/F_PDCH fails.</li><li>• run.2018-08-21_17-48-47/gprs:sysmo+mod-bts0-dynts-ipa/: Shows how running osmo-bts-sysmo with TCH/F_PDCH succeeds.</li><li>• run.2018-08-21_17-52-16/gprs:trx-b200+mod-bts0-dynts-osmo/: Shows how running osmo-bts-trx with TCH/F_TCH/H_PDCH succeeds.</li></ul>			
<b>Related issues:</b>			
Related to OsmoBTS - Bug #1853: validate dynamic TCH/PDCH support in osmo-bts...		<b>Resolved</b>	<b>11/18/2016</b>

#### Associated revisions

##### Revision 1dcd63d3 - 08/28/2018 07:38 PM - Neels Hofmeyr

fix ip.access dyn TS for osmo-bts-trx

For enabling PDCH on a dynamic timeslot, PDTCH and PTCCCH SAPIs shall be enabled. While osmo-bts-sysmo uses the lchan->type to determine which SAPIs to enable (see lchan\_activate() in osmo-bts-sysmo/oml.c: sapis\_for\_lchan[lchan->type]), the osmo-bts-trx code instead relies on the chan\_nr indicating RSL\_CHAN\_OSMO\_PDCH = 0xc0 (see trx\_sched\_set\_lchan() in common/scheduler.c and the PDTCH,PTCCCH entries in trx\_chan\_desc[]).

The 0xc0 cbits are a non-standard invention specifically used for only Osmocom style dyn TS, so the chan\_nr for IPA style dyn TS will and should never include this cbits pattern. Hence gsm\_lchan2chan\_nr() correctly always returns the TCH/F equivalent chan\_nr for IPA dyn TS.

Because trx\_chan\_desc[] relies on the 0xc0 in the chan\_nr to activate the PDTCH and PTCCCH SAPIs, internally patch the 0xc0 cbits over the chan\_nr in osmo-bts-trx/l1\_if.c for channel de-/activation, iff lchan->type == PDTCH.

This is technically a convoluted mix-up of the cbits usage. Nevertheless, it is the simplest way to make IPA dyn TS behave the same as Osmocom dyn TS in scheduler.c.

Apparently, IPA style dyn TS have never worked for osmo-bts-trx before?

Related: OS#3493

Change-Id: I0eed8a135f2ab7e7c0d15ad5c76430b7fe54df3d

#### History

##### #1 - 08/21/2018 04:03 PM - pespin

- Related to Bug #1853: validate dynamic TCH/PDCH support in osmo-bts-trx added

##### #2 - 08/21/2018 04:03 PM - pespin

- File all-run.tar.gz added

### #3 - 08/22/2018 11:15 AM - neels

comparing the failing run.2018-08-21\_17-42-15 to the osmo dyn ts run.2018-08-21\_17-52-16:

The succeeding PCU BTS log, on startup, says, for each dyn TS:

```
20180821175236319 DOML <0001> oml.c:76 Sending PCU version report to BSC: 0.5.1.1-54af
20180821175236319 DPCU <0009> pcu_sock.c:608 Activate request received: TRX=0 TX=2
20180821175236319 DL1C <0006> llsap.c:1401 activating channel chan_nr=0xc2 trx=0
20180821175236319 DL1C <0006> scheduler.c:621 Activating PDTCH on trx=0 ts=2
20180821175236319 DL1C <0006> scheduler.c:621 Activating PTCCH on trx=0 ts=2
20180821175236319 DL1C <0006> llsap.c:573 activate confirm chan_nr=0xc2 trx=0
20180821175236319 DRSL <0000> rsl.c:812 (bts=0,trx=0,ts=2,ss=0) not sending CHAN ACT ACK
```

The failing one lacks the "Activating PxxCH":

```
20180821174235089 DOML <0001> oml.c:76 Sending PCU version report to BSC: 0.5.1.1-54af
20180821174235096 DPCU <0009> pcu_sock.c:608 Activate request received: TRX=0 TX=2
20180821174235096 DL1C <0006> llsap.c:1401 activating channel chan_nr=0x0a trx=0
20180821174235097 DL1C <0006> llsap.c:573 activate confirm chan_nr=0x0a trx=0
20180821174235097 DRSL <0000> rsl.c:812 (bts=0,trx=0,ts=2,ss=0) not sending CHAN ACT ACK
```

looking now why TCH/F\_PDCH fails to activate PDTCH and PTCCH SAPIs...

### #4 - 08/22/2018 11:33 AM - neels

the sysmoBTS version that works has the same chan\_nr and still succeeds to activate PDTCH:

```
20180629135302135 DOML <0001> oml.c:76 Sending PCU version report to BSC: 0.5.1.1-54af
20180629135302137 DPCU <0009> pcu_sock.c:608 Activate request received: TRX=0 TX=2
20180629135302137 DL1C <0006> llsap.c:1401 activating channel chan_nr=0x0a trx=0
20180629135302137 DL1C <0006> oml.c:1083 (bts=0,trx=0,ts=2,ss=0) MPH-ACTIVATE.req (hL2=0x000200bb, PDTCH TxDL)
20180629135302140 DL1C <0006> oml.c:816 (bts=0,trx=0,ts=2,ss=0) MPH-ACTIVATE.conf (PDTCH TxDL)
20180629135302141 DL1C <0006> oml.c:1083 (bts=0,trx=0,ts=2,ss=0) MPH-ACTIVATE.req (hL2=0x000200bb, PDTCH RxUL)
20180629135302145 DL1C <0006> oml.c:816 (bts=0,trx=0,ts=2,ss=0) MPH-ACTIVATE.conf (PDTCH RxUL)
20180629135302145 DL1C <0006> oml.c:1083 (bts=0,trx=0,ts=2,ss=0) MPH-ACTIVATE.req (hL2=0x000200bb, PTCCH TxDL)
20180629135302150 DL1C <0006> oml.c:816 (bts=0,trx=0,ts=2,ss=0) MPH-ACTIVATE.conf (PTCCH TxDL)
20180629135302150 DL1C <0006> oml.c:1083 (bts=0,trx=0,ts=2,ss=0) MPH-ACTIVATE.req (hL2=0x000200bb, PRACH RxUL)
20180629135302155 DL1C <0006> oml.c:816 (bts=0,trx=0,ts=2,ss=0) MPH-ACTIVATE.conf (PRACH RxUL)
20180629135302155 DL1C <0006> llsap.c:573 activate confirm chan_nr=0x0a trx=0
20180629135302155 DRSL <0000> rsl.c:812 (bts=0,trx=0,ts=2,ss=0) not sending CHAN ACT ACK
```

(dropped some log lines in-between for other ts)

### #5 - 08/22/2018 12:50 PM - neels

[pespin](#), can you try an osmo-gsm-tester run of at least osmo-bts-trx for the suites that do

- osmocom style dyn ts
- ipa style dyn ts
- non-dyn ts

with this patch plz: osmo-bts branch neels/trx\_dyn\_ipa

I hope that fixes it but I have no SDR hardware to test with...  
thx!

### #6 - 08/22/2018 05:46 PM - pespin

- Status changed from New to In Progress
- Assignee changed from neels to pespin

### #7 - 08/23/2018 01:16 PM - pespin

- Assignee changed from pespin to neels

Run the 3 tests as requested. The 3 of them pass with branch "neels/trx\_dyn\_ipa".

[https://jenkins.osmocom.org/jenkins/view/osmo-gsm-tester/job/osmo-gsm-tester\\_manual-run/141](https://jenkins.osmocom.org/jenkins/view/osmo-gsm-tester/job/osmo-gsm-tester_manual-run/141)

**#8 - 08/23/2018 01:22 PM - pespin**

Hm wait, I actually run the voice ones. I'll try now with the gprs ones just in case something is wrong there.

**#9 - 08/23/2018 01:52 PM - pespin**

The 3 gprs tests pass now too, so your commit fixes the issue:

[https://jenkins.osmocom.org/jenkins/view/osmo-gsm-tester/job/osmo-gsm-tester\\_manual-run/144](https://jenkins.osmocom.org/jenkins/view/osmo-gsm-tester/job/osmo-gsm-tester_manual-run/144)

**#10 - 08/24/2018 11:41 AM - neels**

- % Done changed from 0 to 90

<https://gerrit.osmocom.org/#/c/osmo-bts/+10598>

**#11 - 09/12/2018 01:40 PM - neels**

- Status changed from In Progress to Resolved

- % Done changed from 90 to 100

## Files

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all-run.tar.gz	3.24 MB	08/21/2018	pespin
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