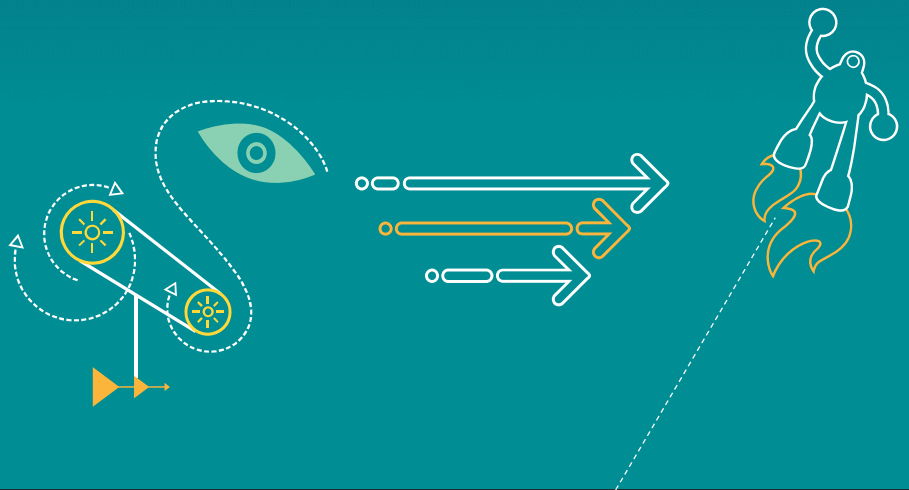
高通协议技术期刊 –2014/12/23

Qualcomm Technologies, Inc.



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Revision History

Revision	Date	Description
A	Dec 2014	Initial release

Note: There is no Rev. I, O, Q, S, X, or Z per Mil. standards.

Contents

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- MBN solution number
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- 全网通产品设计方案
- OEM must use MBN APP for CMCC/CT lab testing
- SVLTE test in CT Lab. SVLTE MBN is released formally.

8916/8936/9x30系统解决方案Solution

- 为了直观，便于检索，我们在Saleforce系统上编写了系统解决方案。包含各个技术领域，便于大家查找。
- 8916系统解决方案
- Solution Number: 00029134
- 链接： https://qualcomm-cdmatech-support.my.salesforce.com/50130000000VfUZ?srPos=0&srKp=501

- 8936/8939系统解决方案
- Solution Number: 00029333
- 链接：https://qualcomm-cdmatech-support.my.salesforce.com/50130000000Vg5B

- MDM9x30/9x35系统解决方案
- Solution Number 00029678
- https://qualcomm-cdmatech-support.my.salesforce.com/50130000000ViGQ

MBN介绍

- MBN的设计需求，文档，实现方法, 请参阅Solution number:00029357.
- https://qualcomm-cdmatech-support.my.salesforce.com/50130000000VgDA?srPos=0&srKp=501

CU USIM card issue

- **Problem Description:**
- Some kinds of CU test cards could not be recognized by QC platform based devices.
- Because the card don’t contain EF_UST/EF_Key which are mandatory files so our current logical will abort card initialize procedure.
-
- **Sample Log:**
- **//EF UST was not cached due FCP was all "FF"**
- 07:27:28.543 mmgsdi_uicc_rsp.c 3616 E MMGSDI: (UICC Get File Attr Extract Fail 0x3)
- 07:27:28.543 mmgsdiutil.c 2990 H mmgsdi_util_copy_access_type ef_enum:0xe0
- 07:27:28.543 mmgsdi_uicc_rsp.c 3779 H UICC RSP - GET FILE ATTR status is 0x0 for file 0xe0
- 07:27:28.543 mmgsdi_uicc.c 1083 E Cache read Service Table failed 0x11
-
- **//Failure in perso due UST was not cached**
- 07:27:29.653 mmgsdicache.c 748 E Cache not initialized 0x408
- 07:27:29.653 mmgsdi_uicc.c 1083 E Cache read Service Table failed 0x11
- 07:27:29.653 mmgsdi_perso_engine.c 1369 E Perso init data: USIM get cap failed,status=0x3
- 07:27:29.653 mmgsdi_perso_engine.c 4869 E MMGSDI: PERSO: PERSO INITIALIZE DATA FAILED: 0x3
-

CU USIM card issue

- **//USIM is deactivated**
- 07:27:29.654 mmgsdi.c 7793 H MMGSDI_SESSION_CHANGED_EVT, app: 0x3, slot: 0x1, activated: 0x0
-
- //No EF_Key
- 02:25:16.292 uim.c 09663 UIM_1: Setting POLL timer upon successfull completion of the command
- 02:25:16.292 mmgsdi_cnf.c 03371 MMGSDI_CNF_BUILD_GET_FILE_ATTR_DATA, status = 0x0
- 02:25:16.292 mmgsdi_uicc_rsp.c 03628 MMGSDI: (UICC Get File Attr Extract Fail 0x3)
- 02:25:16.292 mmgsdiutil.c 02992 mmgsdi_util_copy_access_type ef_enum:0xda
- 02:25:16.292 mmgsdi_uicc_rsp.c 03791 UICC RSP - GET FILE ATTR status is 0x0 for file 0xda
- 02:25:16.293 mmgsdi_card_init.c 02393 Init file 0xda failed with mmgsdi status 0x11
- 02:25:16.293 mmgsdi_card_init.c 05341 mmgsdi_card_init_proc_pre_perso_cache with mmgsdi_status:0x3
- 02:25:16.293 mmgsdi_card_init.c 05567 In mmgsdi_card_init_process_internal_pup_init_status, status: 0x3
- 02:25:16.293 mmgsdi_card_init.c 05019 No Refresh is in progress
-
- 0xda = MMGSDI_USIM_KEYS

CU USIM card issue

- **Solution:**
- Need adopt below code change:
- 1.
- in usim_pre_perso_init_table
- From:
-
- {MMGSDI_USIM_KEYS, TRUE, mmgsdi_card_init_cache_binary, NULL},
-
- To:
-
- {MMGSDI_USIM_KEYS, FALSE, mmgsdi_card_init_cache_binary, NULL},
-
- And please enable the feature MMGSDI_FEATURE_IGNORE_INIT_ERROR in 67211.
-
- 2.
- In mmgsdi_uicc_chk_srv_available
-
- if (mmgsdi_status != MMGSDI_SUCCESS)
- {
- /* not cached or failed to cache */
- UIM_MSG_ERR_1("Cache read Service Table failed 0x%x", mmgsdi_status);
- return mmgsdi_status;//Changed to return MMGSDI_SUCCESS;
- }

一键获取Data Service的ADB关键参数的批处理命令

- 遇到数据业务问题(网页打不开/上网慢等)，运行此批处理命令，可以一键获取较为全面的Android/Linux变量，尽量避免因信息不全而多次抓log。
- 本批处理命令主要获取：
- IP路由表/IP地址；
- TCP参数设置 (Window Size等);
- Android Property；
- CPU性能模式设置/温度设置等；
- SNMP/NetStat；
- 最后进行ping测试，验证modem底层链路是否畅通

一键获取Data Service的ADB关键参数的批处理命令

- 批处理命令的源代码如下：

```
set "CURR_TIME=%time:~,2%_%time:~3,2%_%time:~6,2%"
set "FILE_NAME=all_data_vars_%CURR_TIME%.txt"

@echo show ip route...
echo ========================  ipv4/v6 route ======================== >> %FILE_NAME%
echo ----- ip route show -----  >> %FILE_NAME%
adb shell ip route show >> %FILE_NAME%
echo ----- ip route list -----  >> %FILE_NAME%
adb shell ip route list >> %FILE_NAME%
echo ----- ip -6 route show -----  >> %FILE_NAME%
adb shell ip -6 route show >> %FILE_NAME%
echo ----- proc/net/route -----  >> %FILE_NAME%
adb shell cat proc/net/route >> %FILE_NAME%

@echo show ip route table
echo ========================  ipv4/v6 route table ======================== >> %FILE_NAME%
echo ----- ip route show table main -----  >> %FILE_NAME%
adb shell ip route show table main >> %FILE_NAME%
echo ----- ip route show table 1 -----  >> %FILE_NAME%
adb shell ip route show table 1 >> %FILE_NAME%
echo ----- ip route show table default -----  >> %FILE_NAME%
adb shell ip route show table default >> %FILE_NAME%
echo ----- ip route show table local -----  >> %FILE_NAME%
adb shell ip route show table local >> %FILE_NAME%

@echo show ip rule
echo ========================  ipv4/v6 rule ======================== >> %FILE_NAME%
```

一键获取Data Service的ADB关键参数的批处理命令

- echo ----- ip rule show ----- >> %FILE_NAME%
- adb shell ip rule show >> %FILE_NAME%
- echo ----- ip -6 rule show----- >> %FILE_NAME%
- adb shell ip -6 rule show >> %FILE_NAME%
- echo ----- ip -6 neigh show ----- >> %FILE_NAME%
- adb shell ip -6 neigh show >> %FILE_NAME%
-
- @echo show ip table
- echo ======================== iptables ======================== >> %FILE_NAME%
- echo ----- iptables -t mangle -L -n -v----- >> %FILE_NAME%
- adb shell iptables -t mangle -L -n -v >> %FILE_NAME%
- echo ----- iptables -L -n -v ----- >> %FILE_NAME%
- adb shell iptables -L -n -v >> %FILE_NAME%
- echo ----- iptables -t nat -L -n -v ----- >> %FILE_NAME%
- adb shell iptables -t nat -L -n -v >> %FILE_NAME%
-
- @echo show ip
- echo ======================== IP configuration ======================== >> %FILE_NAME%
- echo ----- netcfg ----- >> %FILE_NAME%
- adb shell netcfg >> %FILE_NAME%
- echo ----- ifconfig rmnet0 ----- >> %FILE_NAME%
- adb shell ifconfig rmnet0 >> %FILE_NAME%
- echo ----- ifconfig rmnet1 ----- >> %FILE_NAME%
- adb shell ifconfig rmnet1 >> %FILE_NAME%
- echo ----- ifconfig wlan0 ----- >> %FILE_NAME%
- adb shell ifconfig wlan0 >> %FILE_NAME%

一键获取Data Service的ADB关键参数的批处理命令

-
- @echo TCP windows size setting
- echo ======================== TCP Setting ========================== >> %FILE_NAME%
- adb shell cat /proc/sys/net/core/rmem_max >> %FILE_NAME%
- adb shell cat /proc/sys/net/core/wmem_max >> %FILE_NAME%
- adb shell cat /proc/sys/net/core/rmem_default >> %FILE_NAME%
- adb shell cat /proc/sys/net/core/wmem_default >> %FILE_NAME%
- adb shell cat /proc/sys/net/ipv4/tcp_rmem >> %FILE_NAME%
- adb shell cat /proc/sys/net/ipv4/tcp_wmem >> %FILE_NAME%
- adb shell cat /proc/sycat /proc/sys/net/ipv4/tcp_window_scalings >> %FILE_NAME%
-
- echo ======================== CPU Setting ========================== >> %FILE_NAME%
- echo ----- scaling_governor ----- >> %FILE_NAME%
- adb shell cat /sys/devices/system/cpu/cpu*/cpufreq/scaling_governor >> %FILE_NAME%
- echo ----- cpu online----- >> %FILE_NAME%
- adb shell cat /sys/devices/system/cpu/cpu*/online >> %FILE_NAME%
- echo ----- thermal_zone----- >> %FILE_NAME%
- adb shell cat /sys/class/thermal/thermal_zone*/temp >> %FILE_NAME%
- echo ----- cpuinfo_cur_freq----- >> %FILE_NAME%
- adb shell cat /sys/devices/system/cpu/cpu*/cpufreq/cpuinfo_cur_freq >> %FILE_NAME%
- @echo get property
- echo ======================== property ========================== >> %FILE_NAME%
- adb shell getprop >> %FILE_NAME%

一键获取Data Service的ADB关键参数的批处理命令

-
- @echo show snmp
- echo ======================== SNMP/NetStat ======================== >> %FILE_NAME%
- echo ----- cat /proc/net/netstat ----- >> %FILE_NAME%
- adb shell cat /proc/net/netstat >> %FILE_NAME%
- echo ----- cat /proc/net/snmp ----- >> %FILE_NAME%
- adb shell cat /proc/net/snmp >> %FILE_NAME%
- echo ----- cat /proc/net/snmp6 ----- >> %FILE_NAME%
- adb shell cat /proc/net/snmp6 >> %FILE_NAME%
-
- @echo -
- @echo --
- @echo ============================== press any key to ping baidu ==============================
- pause
-
- @echo ============================== ping... ==============================
- @echo -
- @echo --
- @echo press "CTRL+C" to stop ping server after ~20 seconds. So a few ping packet is sent
-
- adb shell ping www.baidu.com > ping_test_%CURR_TIME%.txt

全网通产品设计方案

- 1，For example, the project is designed to support CMCC CSFB+G DSDS, CU CSFB+G DSDS, CT SRLTE+G DSDS.
- Load CMCC CSFB+G DSDS MBN.
- Load CU CSFB+G DSDS MBN.
- Load CT SRLTE+G DSDS MBN.

In QXDM, go to NV Browser.
1. go to NV71546
2. at the top of the NV Browser window, CHECK ON "Multi SIM"
3. click on the drop down menu and select Subscription 0
4. Write a value of 1 to NV 71546
5. click on the drop down menu and select Subscription 1
6. Write a value of 1 to NV 71546
7. Reset the UE

- Refer to 80-N5576-96_Modem_SW_Config_Overview, If the UIM-based auto-selection feature is enabled by NV 71546, MCFG selects MBN based on the Issuer Identification Number (IIN) field of the ICCID in the UIM.

全网通产品设计方案

- **2, How Flex SIM Swap feature works?**
- On Dime3.0/4.0, DPM1.0, CDMA and SVLTE/SRLTE/SGLTE is not supported on Sub2. CSFB is supported on Sub2. On DPM2.0 and Bolt2.0 onwards, Flex SIM Swap feature is supported, Multimode stack is mapped to Sub2 to support all kinds of mode, this mapping is implemented from QCRIL side.
- 80-NR083-1 version B will be published recently to introduce how Flex Sim Swaps works. Please see contents below.
- **How FR20159 and MCFG module works together**
- FR20159 is to support dynamic mapping of modem stacks based on Network mode set for a subscription. For example, if Sub1 is set to GSM only, Sub2 is set to LTE included mode prefer, QCRIL will map Multimode stack to Sub2, GW stack to Sub1, now, Sub2 is primary sub.
- FR20159 is executed when UE boot up and user change Network Mode from UI while UE is running.
- Automatic selection feature is turned on by setting NV 71546=1. MCFG will detect the ICCID of the new primary sub and load the corresponding MBN file (the MBN includes policy file and NV/EFS files), then SSR(Sub System Restart) triggers.
- MCFG read ICCID without requiring a PIN code. SSR is not required on future Bolt 2.1 product line.
- Taking Table A-1 Modes of operation for DSDS, scenario 11 as example. When multimode is changed to sub2, SRLTE+G DSDS MBN and corresponding policy file will be loaded.
- To ensure MCFG works normally, user should load CMCC CSFB+G DSDS MBN, CU CSFB+G DSDS MBN, CT SRLTE+G DSDS MBN in advance for DSDS open market product.
- **If meet problem, please submit case with problem code: Modem software/MBN**

OEM must use MBN APP for CMCC/CT lab testing

- **Why use MBN APP for CT/CMCC project:**
- 1. With MBN APP, OEM is not easy to make mistake when set CMCC phone天线开口类型1,2,3,4,5
- 2. After changing NV for debugging purpose, it is easy for CMCC tester/onsite expert to recover default setting through activating MBN in MBN APP.
- 3. There is an agreement with CT/CMCC lab, Qualcomm provide an APP to choose different MBNs.
-
- **Next Step for CT/CMCC project:**
- 1. During project start, or before pre-cert lab, pls reminder OEM verify MBN APP
- 2. Once meet problem, pls submit case to Modem Software/MBN, for urgent pls add L1 tag or send me a mail.
- 3. Before enter pre-cert lab, Qualcomm team will also double check it.

- **For details, please refer to 80-NP686-1_C_ConfiguringUE_usingMBN.**

SVLTE test in CT Lab

1, SVLTE MBN is released now. Please refer to document:
80-NR766-1_E_ChinaTelecom_DeviceConfigandTestingInfo

2, some test item tips.

- 1) TC-INTERRAT-05006：步骤2，UE注册上1xRRT超时
- Solution: change NV3635 to pass the case

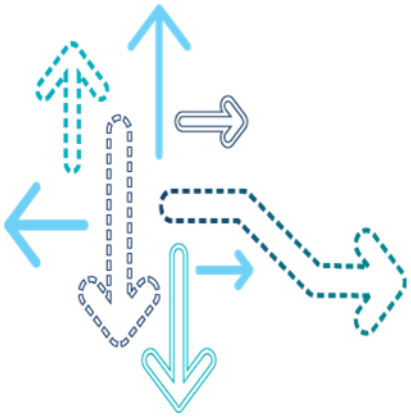
- 2) LTE数据速率不达标，如：TC-FDD_SVLTE-03001、03003、03004、03006、TC-FDD-DT-08001等
- Please refer to document 80-ND934-2_C_Data Throughput Troubleshooting, do below setting.
- (1)If network side script it LTE cat3, set UE to LTE cat3.
- (2)The other configuration is not necessary but best to have.
- adb root
  adb wait-for-device
  adb shell "stop mpdecision"
  adb shell "echo 1 > sys/devices/system/cpu/cpu1/online"
  adb shell "echo 1 > sys/devices/system/cpu/cpu2/online"
  adb shell "echo 1 > sys/devices/system/cpu/cpu3/online"
  adb shell "stop thermal-engine"
  adb shell "echo N > /sys/module/msm_thermal/parameters/enabled"
  adb shell "echo 1209600 > /sys/devices/system/cpu/cpu0/cpufreq/scaling_min_freq"
  adb shell "echo 1209600 > /sys/devices/system/cpu/cpu0/cpufreq/scaling_max_freq"
  adb shell "echo 1209600 > /sys/devices/system/cpu/cpu1/cpufreq/scaling_min_freq"
  adb shell "echo 1209600 > /sys/devices/system/cpu/cpu1/cpufreq/scaling_max_freq"
  adb shell "echo 1209600 > /sys/devices/system/cpu/cpu2/cpufreq/scaling_min_freq"
  adb shell "echo 1209600 > /sys/devices/system/cpu/cpu2/cpufreq/scaling_max_freq"
  adb shell "echo 1209600 > /sys/devices/system/cpu/cpu3/cpufreq/scaling_min_freq"
  adb shell "echo 1209600 > /sys/devices/system/cpu/cpu3/cpufreq/scaling_max_freq"

SVLTE test in CT Lab

- adb shell "echo performance > /sys/devices/system/cpu/cpu0/cpufreq/scaling_governor"
  adb shell "echo performance > /sys/devices/system/cpu/cpu1/cpufreq/scaling_governor"
  adb shell "echo performance > /sys/devices/system/cpu/cpu2/cpufreq/scaling_governor"
  adb shell "echo performance > /sys/devices/system/cpu/cpu3/cpufreq/scaling_governor"
- NV65953 (10, 600)
  echo 4194304 > /proc/sys/net/core/rmem_max---送测之前手动设置
  echo 4194304 > /proc/sys/net/core/wmem_max
  echo 2097152 > /proc/sys/net/core/rmem_default
  echo 2097152 > /proc/sys/net/core/wmem_default

References

Ref.	Document	
Qualcomm Technologies		
Q1	*Application Note: Software Glossary for Customers*	CL93-V3077-1
Standards		
S1	*Title*	Standard Number (June 2002)
Resources		
R1		



Questions?

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