

Figure - Bug #117797

【BSP】【EVT3】【ST】【OTA】0090-OTA升级至 0095，通过日志观察到MCU升级时异常断电，重新上电设备无法启动，一直重复UEFI阶段反复重启

2023-05-06 20:25 - 移动测试一组_CDTS 刘强

Status:	CLOSED	Start date:	2023-05-06
Priority:	High	Due date:	
Assignee:	移动测试一组_CDTS 刘强	% Done:	0%
Category:	BSP	Estimated time:	0.00 hour
Target version:		Found Version:	0095
Need_Info:	--	Degrated:	--
Resolution:	--	Verified Version:	
Severity:	Major	Fixed Version:	
Reproducibility:	Every time	Root cause:	MCU升级之前会从OTA压缩包解压bin文件写入
Test Type:	ST		
Description			
【前提条件】			
None			
【测试步骤】			
1. 烧写0090版本			
2. 上电开机，push OTA 0095 包			
3. 通过*#149# 开始进行OTA升级			
4. 通过logcat -b all grep "send data buf" 查看MCU升级过程，升级时断电			
5. 重新上电开机			
【预期结果】			
4.设备正常开机			
【实际结果】			
4 设备启动失败，一直重复UEFI阶段反复重启			

History

- #1 - 2023-05-06 20:26 - 移动测试一组_CDTS 刘强
- 0090-升级0094，相同操作和板子，未复现问题
- #2 - 2023-05-08 13:41 - CD TPM-王祥林
- Assignee changed from CD TPM-王祥林 to BSP组-RD3_CDTS 陈宙贤
- #3 - 2023-05-13 12:57 - BSP组-RD3_CDTS 陈宙贤
- Assignee changed from BSP组-RD3_CDTS 陈宙贤 to 移动测试一组_CDTS 刘强
- 已复现，在0090的版本OTA到0095时，当观察到在打印升级MCU日志时断电，断电重启后，看日志MCU能正常启动，但MPU未能成功启动。
- #4 - 2023-05-15 10:23 - CDTS-TEST 周婷
- Assignee changed from 移动测试一组_CDTS 刘强 to CD BSP 叶鹏

fota相关 请及时对应

#5 - 2023-05-15 17:41 - CD BSP 叶鹏

在升级app上面看到update_engine提示reboot的时候重启的设备，但是这个时候拔掉电源设备在uefi阶段一直循环；
从后续抓出来的tlog分析，只看到update_engine在verify的阶段的70%阶段；tlog日志应该还是没有包含完整的日志；

祥林哥将编译一个app，在升级mpu之后延迟几秒，用于测试mpu提示升级完成后断电是否会出现该情况

#6 - 2023-05-15 20:24 - CD TPM-王祥林

VB已起。

<https://dev.thundercomm.com/gerrit/c/general/platform/vendor/thundercomm/apps/TCService/+/200120>

http://192.168.87.26:8080/view/Projects/view/Project-IOT/job/VerifyBuild_for_IOT_6490/707/

#7 - 2023-05-17 19:52 - CD BSP 叶鹏

通过调查发现：是在需要升级mcu的升级条件下，mpu升级提示reboot之后等三秒给设备掉电，设备会出现一直不断重启的情况
是由于metadata损坏导致的，日志显示如下：

```
[ 9.075506] init: [libfs_mgr]superblock s_max_mnt_count:65535,/dev/block/platform/soc/1d84000.ufshc/by-name/metadata
[ 9.086328] init: [libfs_mgr]Filesystem on /dev/block/platform/soc/1d84000.ufshc/by-name/metadata was not cleanly shutdown; state flags: 0x1, incompat feature flags: 0x46
[ 9.101953] init: [libfs_mgr]check_fs(): mount(/dev/block/platform/soc/1d84000.ufshc/by-name/metadata,/metadata,ext4)=-1: No such file or directory
[ 9.116722] e2fsck: e2fsck 1.45.4 (23-Sep-2019)
[ 9.121423] e2fsck: /dev/block/platform/soc/1d84000.ufshc/by-name/metadata: recovering journal
[ 9.130341] e2fsck: Pass 1: Checking inodes, blocks, and sizes
[ 9.138130] e2fsck: Pass 2: Checking directory structure
[ 9.143600] e2fsck: Pass 3: Checking directory connectivity
[ 9.149337] e2fsck: Pass 4: Checking reference counts
[ 9.154563] e2fsck: Pass 5: Checking group summary information
[ 9.160587] e2fsck: Free blocks count wrong (2889, counted=2890).
[ 9.160732] i2c_geni 980000.i2c: i2c error :-107
[ 9.166864] e2fsck: Fix? yes
[ 9.171614] [MAX975X:heartbeat_work_func] ERROR Failed to read dev:0x40 addr:0x0013 ret:-107
[ 9.183450] e2fsck:
[ 9.187528] EXT4-fs (sda11): mounted filesystem with ordered data mode. Opts: discard
[ 9.202044] device-mapper: verity: sha256 using implementation "sha256-ce"
[ 9.212150] device-mapper: verity-fec: 252:2: FEC: recursion too deep
[ 9.218817] device-mapper: verity: 252:2: metadata block 361203 is corrupted
[ 9.226150] NPU_INFO: npu_reboot_handler: 760 Device is rebooting with code 1
[ 9.234575] sd 0:0:0:4: [sde] Synchronizing SCSI cache
[ 9.240847] sd 0:0:0:0: [sda] Synchronizing SCSI cache
[ 9.251679] reboot: Restarting system with command 'dm-verity device corrupted'
[ 9.259214] Going down for restart now
```

#8 - 2023-05-19 18:02 - CD BSP 叶鹏

- Status changed from New to RESOLVED

调查到是metadata损坏之后，通过重新刷metadata但是设备还是无法启动；擦掉userdata之后设备反而重新启动成功了。
根据上面现象分区，应该是解压出来的mcu镜像然后关机导致的设备镜像损坏。

使用祥林哥修改的添加sync操作的程序测试，发现升级mpu成功之后断电，设备重新上电后升级mcu成功，没有出现反复重启的问题了。

#9 - 2023-05-19 19:59 - IoT scm

Gerrit Merge Information :

ID	Project	Branch	Uploader
201252	general/platform/vendor/thundercom m/apps/TCService	Pre_figure_turbox-c2130c-la1.1-qssi12 -dev	wangxl0510@thundersoft.com
AF:MCU-OTA:Device can not boot after OTA.If power off device when upgrading mcu, the meta data will be broken.So we excute sync after writing mcu bin file.TC-RID: 1201-0200401IssueID: TS-R-BUG-117797Change-Id: Ie35ba632277b0ecb10c8509ada27e140d0d856b5			

#10 - 2023-05-19 20:01 - CD TPM-王祥林

- Assignee changed from CD BSP 叶鹏 to 移动测试一组_CDTS 刘强
- Root cause set to MCU升级之前会从OTA压缩包解压bin文件写入到data分区，如果断电会导致数据写入不完整，data分区损坏导致无法开机。

#11 - 2023-05-23 11:38 - 移动测试一组_CDTS 刘强

- Status changed from RESOLVED to VERIFIED

验证版本：0521db-》升级到0102

验证结果：VX\VC 升级时断电后，重新上电，升级成功

#12 - 2023-05-23 11:39 - 移动测试一组_CDTS 刘强

- Status changed from VERIFIED to CLOSED

Files			
teraterm.log	37.5 KB	2023-05-06	移动测试一组_CDTS 刘强
tlog_iov0201017500006162025411a2210150000000201_000433_0505090042.tar.gz	3.3 MB	2023-05-06	移动测试一组_CDTS 刘强