

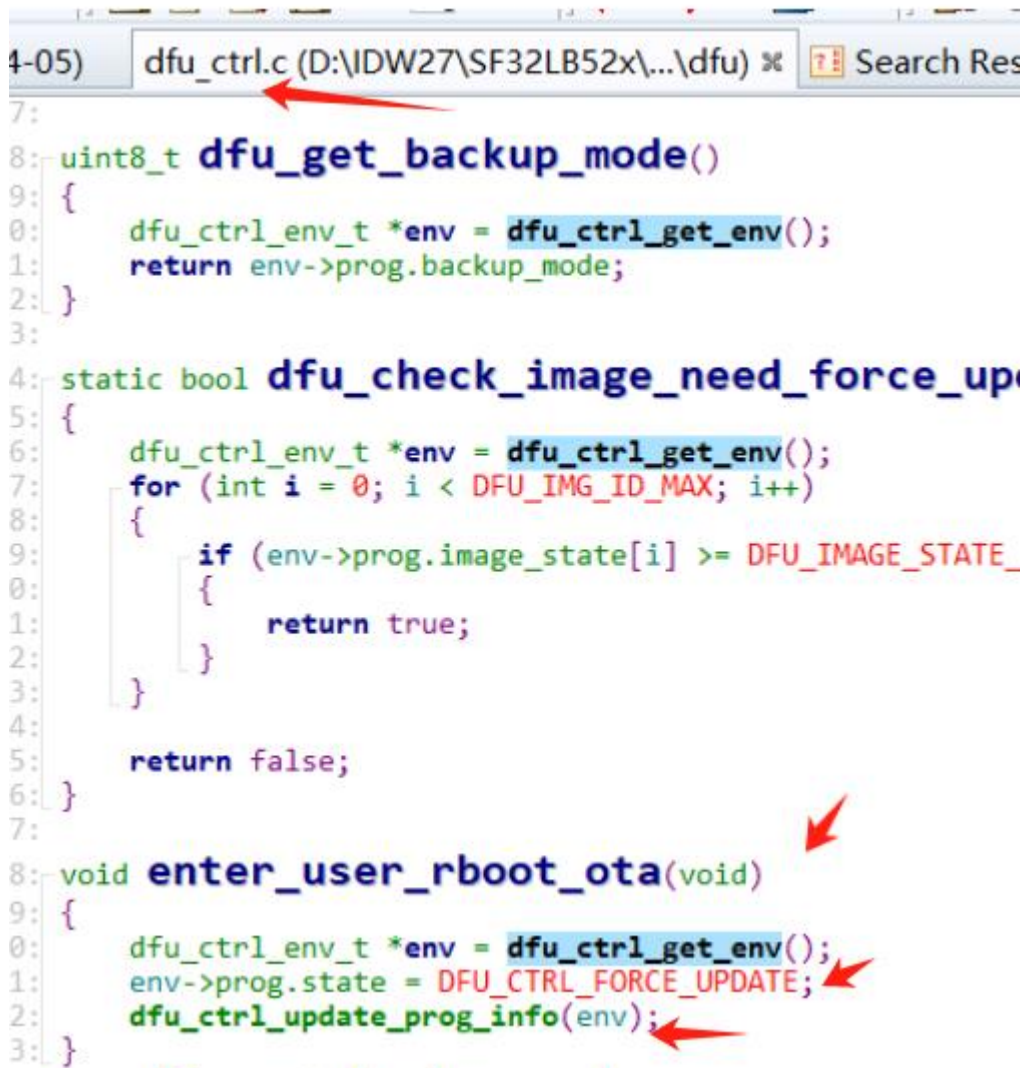
OTA_FAQ

1.手表端

1.1. ota 标志位怎么置，才能重启后进入 ota。

nor 方案代码看 dfu_ctrl.c

nand 方案代码看 dfu_ctrl_ext.c

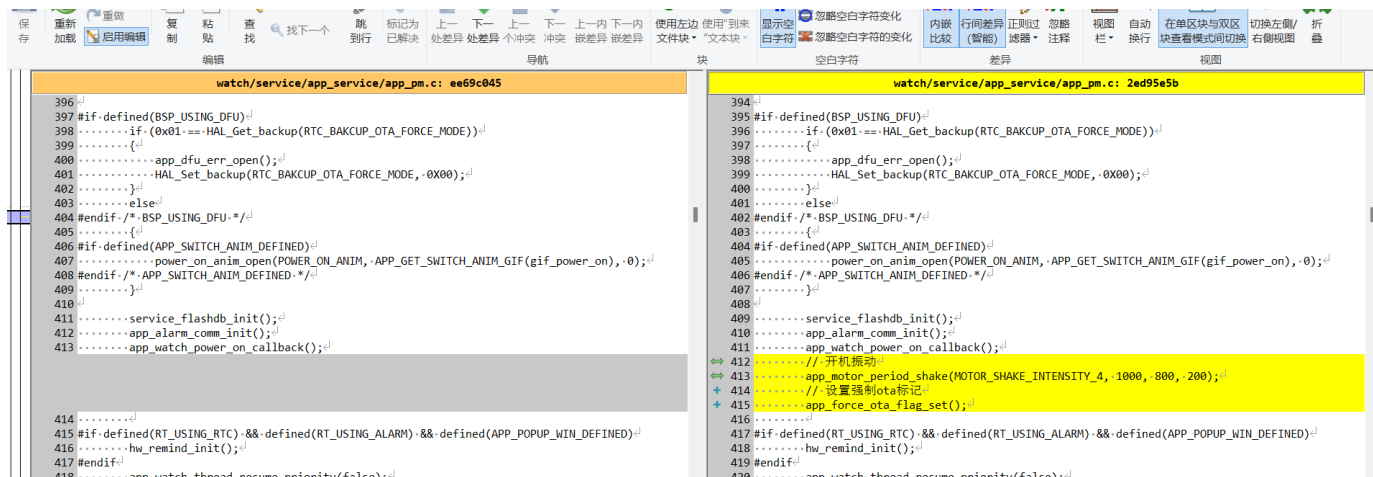


```
4-05) dfu_ctrl.c (D:\IDW27\SF32LB52x\...\dfu) Search Res
7:
8: uint8_t dfu_get_backup_mode()
9: {
10:     dfu_ctrl_env_t *env = dfu_ctrl_get_env();
11:     return env->prog.backup_mode;
12: }
13:
14: static bool dfu_check_image_need_force_update()
15: {
16:     dfu_ctrl_env_t *env = dfu_ctrl_get_env();
17:     for (int i = 0; i < DFU_IMG_ID_MAX; i++)
18:     {
19:         if (env->prog.image_state[i] >= DFU_IMAGE_STATE_
20:         {
21:             return true;
22:         }
23:     }
24:     return false;
25: }
26:
27: void enter_user_rboot_ota(void)
28: {
29:     dfu_ctrl_env_t *env = dfu_ctrl_get_env();
30:     env->prog.state = DFU_CTRL_FORCE_UPDATE;
31:     dfu_ctrl_update_prog_info(env);
32: }
```

1.2. 设备一直循环开机就重启。

一般是资源出现问题，或者 bug 导致机器变砖。

可以加个策略规避下资源异常导致无限重启变砖的问题，异常重启多少次，进入 ota。



app_factory_info.c

app_factory_info.h

1.3. dfu_link_sync_check error

根本原因是 app 没发数据，需要 app 排查。看图中 log 是由客户的 ble 消息，可以重点排查是不是 app 处理其他 ble 服务去了

ota 的时候，客户有私有协议交互。会导致我们的 ota 服务出现异常，sdk 会停止送数。

- 1) 其他 ble 服务影响
- 2) app 切后台
- 3) 手机灭屏

```

[12579862] DFUCTRLEXT: ble_dfu_flash_write OFFSET 5574656, SIZE 2048, addr 0x2009df44
ido_parser(1901):ota is running
[12624036] DFUCTRLEXT: dfu_link_sync_end
[12674084] DFUCTRLEXT: dfu_link_sync_end
[12674088] DFUCTRLEXT: dfu_link_sync_check error 2723
[12674093] DFUCTRLEXT: dfu_link_lose_check_req index 2723, rsp 0
[12674099] APP.UI: app_get_ota_status: ota is running
[12674106] sibles: rev wr rsp:left_txnum 8

ido_parser(1901):ota is running
ido_parser(1901):ota is running
[12724148] DFUCTRLEXT: remote lost
[12724151] DFUCTRLEXT: dfu_link_sync_end
[12724155] DFUCTRLEXT: dfu_ctrl_error_handle
[12724160] APP.UI: event 9

[12724164] DFUCTRLEXT: DFU_FLASH_MSG_TYPE_EXIT
[12724168] DFUCTRLEXT: mb delete
[12724172] [APP_OTA]: app_ota_file_decode: event 9 DFU_APP_ERROR_DISCONNECT_IND
[12724180] [APP_OTA]: app_ota_file_decode: ota err, res overwrite 1
[12724186] [APP_OTA]: app_ota_recv_deinit
app_active_action: action
ui.ota(639):app_ota_window_handle_event: APP_OTA_ERR_IND, resource overwrite 1
ido_parser(1901):ota is running
ido_parser(1901):ota is running
ido_parser(1901):ota is running
[12807612] [APP_OTA]: app_ota_abnormal_mode:ota mode 2, res state 0, img state 0
ui.ota(102):app_ota_install_resource_ready_cb:failed, ota mode 2, restart to abnormal
ido_parser(1901):ota is running
ido_parser(1901):ota is running
ido_parser(1901):ota is running

```

app_flash_log.c (D:\IDW27\...\app) app_status.c (D:\IDW27\...\watch_data) dfu_ctrl.c (D:\IDW27\SF32LB52xv...\dfu) dfu_ctrl_ext.c (D:\IDW27\...\dfu) ftl_flash_drv.c (D:\IDW27\...

dfu_ctrl.c

Symbol Name (Alt+L)

- dfu_ctrl_install_completed
- dfu_protocol_close_handler
- dfu_link_lose_check_rsp
- dfu_protocol_packet_handler
- dfu_serial_transport_error_hand
- dfu_ctrl_update_prog_info
- error "FlashDB shall be enabled"
- dfu_ctrl_enter_force_update_sta
- dfu_ctrl_timer_2_normal_mode
- dfu_ctrl_enter_idle_state_of_nor
- dfu_ctrl_error_handle
- dfu_ctrl_timer_handler
- dfu_link_lose_check_req
- dfu_rsp_sync_handler
- dfu_link_sync_check
- dfu_sync_timer_handler
- dfu_sync_erase_timer_handler
- dfu_link_sync_start
- dfu_link_sync_end
- dfu_register
- dfu_flash_addr_set
- dfu_flash_addr_get
- dfu_flash_addr_reset
- dfu_ctrl_reboot_handler
- dfu_respond_start_request_ext
- dfu_respond_start_request
- run_img

```

3471: if (env->mode == DFU_CTRL_NORMAL_MODE)
3472: {
3473:     dfu_protocol_session_close();
3474: }
3475:
3476: dfu_ctrl_error_handle(env);
3477: }
3478:
3479:
3480: static bool dfu_link_sync_check()
3481: {
3482:     dfu_ctrl_env_t *env = dfu_ctrl_get_env();
3483:     uint32_t current_value;
3484:     uint8_t current_rsp;
3485:
3486:     if (env->mode == DFU_CTRL_NORMAL_MODE)
3487:     {
3488:         current_value = env->ota_state.fw_context.code_img.curr_img_info.img_info.dl_info.curr_pkt_num;
3489:         current_rsp = env->ota_state.fw_context.code_img.curr_img_info.img_info.dl_info.num_of_rsp;
3490:     }
3491:     else
3492:     {
3493:         current_value = env->prog.fw_context.code_img.curr_img_info.img_info.dl_info.curr_pkt_num;
3494:         current_rsp = env->prog.fw_context.code_img.curr_img_info.img_info.dl_info.num_of_rsp;
3495:     }
3496:
3497:     if (env->sync_size == current_value)
3498:     {
3499:         LOG_I("dfu_link_sync_check error %d", env->sync_size);
3500:         dfu_link_lose_check_req(env->sync_size, current_rsp);
3501:         dfu_link_sync_start(DFU_SYNC_TYPE_RSP);
3502:         return false;
3503:     }
3504:     env->sync_size = current_value;
3505:     return true;
3506: } // end dfu_link_sync_check
3507:
3508: static void dfu_sync_timer_handler(void *para)

```

(anondfu_ctrl_env_t)::prog Data Member in dfu_internal.h (D:\IDW27\...\dfu) at line 442

```

typedef struct

```

1.4. ota 时要规避弹窗，读写文件系统，大小核通信，最好关闭 sensor，闹钟等。

全量 ota 是裸写，如果有弹窗。可能访问资源出现异常。访问的资源地址可能变了，可能没了。

ota 时读写文件系统也是一样的，由于是裸写，会导致 ota 资源时，文件系统出现变化。如果正在 ota 时，有其他代码来改动了，会导致 ota 效验失败。

```
[53251179] DFUCTRLEXT: packet count(51200), len(2084)
[53251202] APP.UI: app_get_ota_status: ota is running
[53251210] sibles: rev wr rsp:left_txnum 8

[BLE_PLATFORM](184):BLE_EVENT:SIBLES_WRITE_VALUE_RSP
ble_channel_evt:BLE_GATTS_EVT_HUN_TX_COMPLETE
[DATA_CHANNEL_MANAGER](548):receive_msg type 0 msg_id 5
ble_channel_msg_id:MSG_CHANNEL_ID_SEND_COMPLETE
[53253864] drv.i2c: bus err:1, xfer:0/1, i2c_stat:24, i2c_errcode=20
[53253872] drv.i2c: reset and send 9 clks
[53256131] sibles: cb_id 1
[53256134] sibles: tb cb:100e0361,id:3
[53256139] sibles: tb cb:100e2c2d,id:4
[53256143] sibles: tb cb:100dee99,id:1
[53256147] DFUCTRLEXT: dfu_img_send_end_handler
[53256153] DFUCTRLEXT: dfu_link_sync_end
[53256158] DFUCTRLEXT: DFU_FLASH_MSG_TYPE_VERIFY
[53258792] drv.i2c: bus err:1, xfer:0/1, i2c_stat:24, i2c_errcode=20
[53258800] drv.i2c: reset and send 9 clks
[53263728] drv.i2c: bus err:1, xfer:0/1, i2c_stat:24, i2c_errcode=20
[53263736] drv.i2c: reset and send 9 clks
[53268664] drv.i2c: bus err:1, xfer:0/1, i2c_stat:24, i2c_errcode=20
[53268672] drv.i2c: reset and send 9 clks
[53273600] drv.i2c: bus err:1, xfer:0/1, i2c_stat:24, i2c_errcode=20
[53273608] drv.i2c: reset and send 9 clks
[53278528] drv.i2c: bus err:1, xfer:0/1, i2c_stat:24, i2c_errcode=20
[53278536] drv.i2c: reset and send 9 clks
```



1.5. nor 方案 ab 区备份升级

所有 bin 备份 otapatch.zip

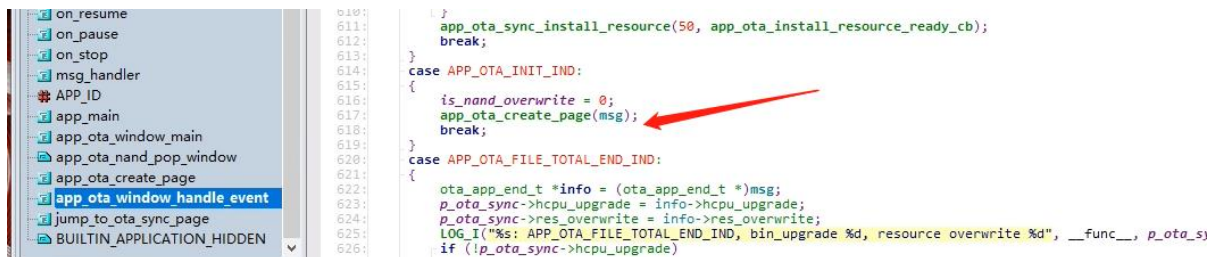
1.6. app_ota_service



升级和续传都会最先走这个 case



续传的时候会调用 `app_ota_send_msg_to_bg` 回复状态



`app_ota_abnormal_mode` 这个接口拿到的值不是 0，就认为是有异常默认流程进异常 ota。

`app_ota_running_set` ota 各阶段会致 1

2. 手机端

2.1. ota 后 app 回连手表无法连接

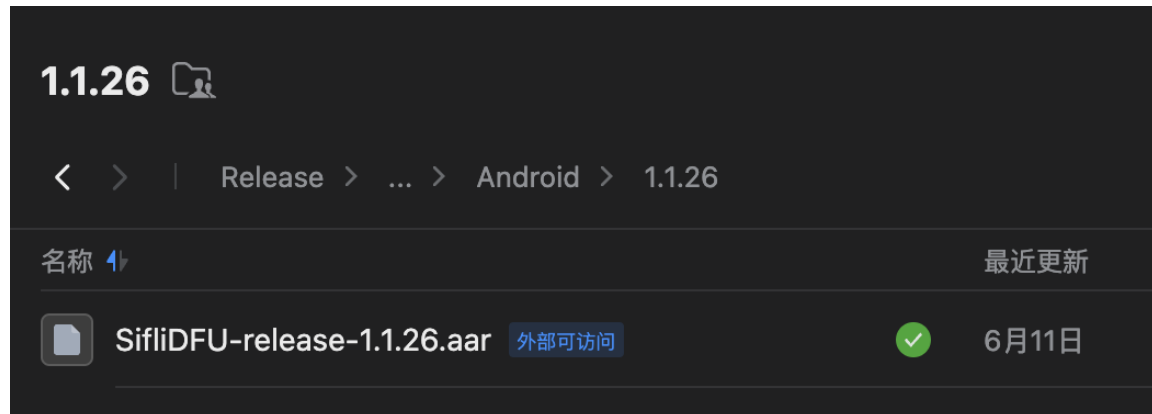
iOS 在刚打开蓝牙中心连接手表时，手表可能会 disable service, 手机端会收

到 serviceModified 事件，在这个事件之后重新发现服务。

app 里面有轮询检查连接状态，当前失败了，也可以下一个轮询机会再连接

2.2. 思澈 sdk，Android 平台支持 app 后台/灭屏升级

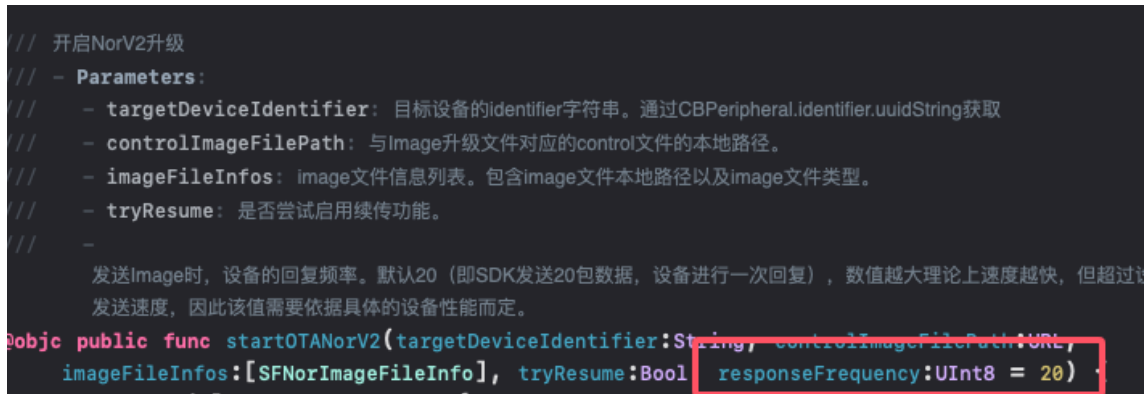
siflidfu 支持绑定 activity 方式，需要 app 合入 1.1.26 之后的 sdk 版本



2.3. 手机 app 切后台导致 ble 出现断连

```
09-12 15:37:10.986 D/BtGatt.GattService(12747): writeCharacteristic() - trying to acquire permit.
09-12 15:37:10.988 D/BtGatt.GattService(12747): onWriteCharacteristic() - increasing permit for address=18:09:FC:F2:BA:43
09-12 15:37:10.992 D/BtGatt.GattService(12747): writeCharacteristic() - trying to acquire permit.
09-12 15:37:10.994 D/BtGatt.GattService(12747): onWriteCharacteristic() - increasing permit for address=18:09:FC:F2:BA:43
09-12 15:37:11.002 D/BtGatt.GattService(12747): writeCharacteristic() - trying to acquire permit.
09-12 15:37:11.004 D/BtGatt.GattService(12747): onWriteCharacteristic() - increasing permit for address=18:09:FC:F2:BA:43
09-12 15:37:11.010 D/BtGatt.GattService(12747): writeCharacteristic() - trying to acquire permit.
09-12 15:37:11.011 D/BtGatt.GattService(12747): onWriteCharacteristic() - increasing permit for address=18:09:FC:F2:BA:43
09-12 15:37:11.017 D/BtGatt.GattService(12747): writeCharacteristic() - trying to acquire permit.
09-12 15:37:11.018 D/BtGatt.GattService(12747): onWriteCharacteristic() - increasing permit for address=18:09:FC:F2:BA:43
09-12 15:37:11.025 D/BtGatt.GattService(12747): writeCharacteristic() - trying to acquire permit.
09-12 15:37:11.027 D/BtGatt.GattService(12747): onWriteCharacteristic() - increasing permit for address=18:09:FC:F2:BA:43
09-12 15:37:11.033 D/BtGatt.GattService(12747): writeCharacteristic() - trying to acquire permit.
09-12 15:37:11.034 W/ActivityManager( 1670): Stopping Service due to app idle: u0a346 -2m49s574ms com.example.otatest/com.sifli.siflidfu.SifliDFUService
09-12 15:37:11.036 D/BtGatt.GattService(12747): onWriteCharacteristic() - increasing permit for address=18:09:FC:F2:BA:43
09-12 15:37:11.041 I/sifli-DFU(29411): release
09-12 15:37:11.046 D/BluetoothGatt(29411): cancelOpen() - device: XX:XX:XX:XX:BA:43
09-12 15:37:11.053 I/bthali.flowcontrol( 1169): HciEventPreProcess: HCI Event 0xe Opcode 0xfd59 Length 22 unhandled by ControllerActivityWatcher
09-12 15:37:11.053 D/BtGatt.GattService(12747): writeCharacteristic() - trying to acquire permit.
09-12 15:37:11.055 D/BtGatt.GattService(12747): onWriteCharacteristic() - increasing permit for address=18:09:FC:F2:BA:43
09-12 15:37:11.058 I/bt_btif_gattc(12747): packages/modules/Bluetooth/system/btif/src/btif_gatt_client.cc:360 - btif_gattc_close_impl: client_if=13, conn_id=13
09-12 15:37:11.058 I/gatt_api(12747): GATT_Disconnect: conn_id=13
```

2.4. iPhone8 以前的 frequency 可以设成 5(这个会出现 ble 传输异常，app 不发数据导致手表主动断连)

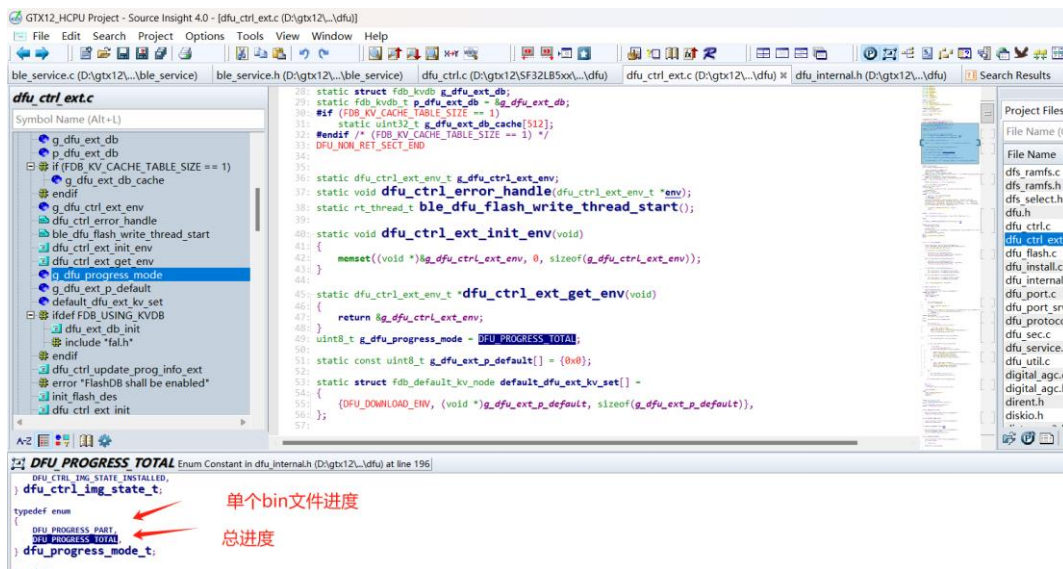


原因：在早期的 iPhone 手机上，它不支持持续的写入 20 个数据切片，固件端收包错误，断开连接。

判断一下机型低于等于 iPhone 8，把回复频率降低到 5 能得到改善。

2.5. 手机跟 app 进度对不上

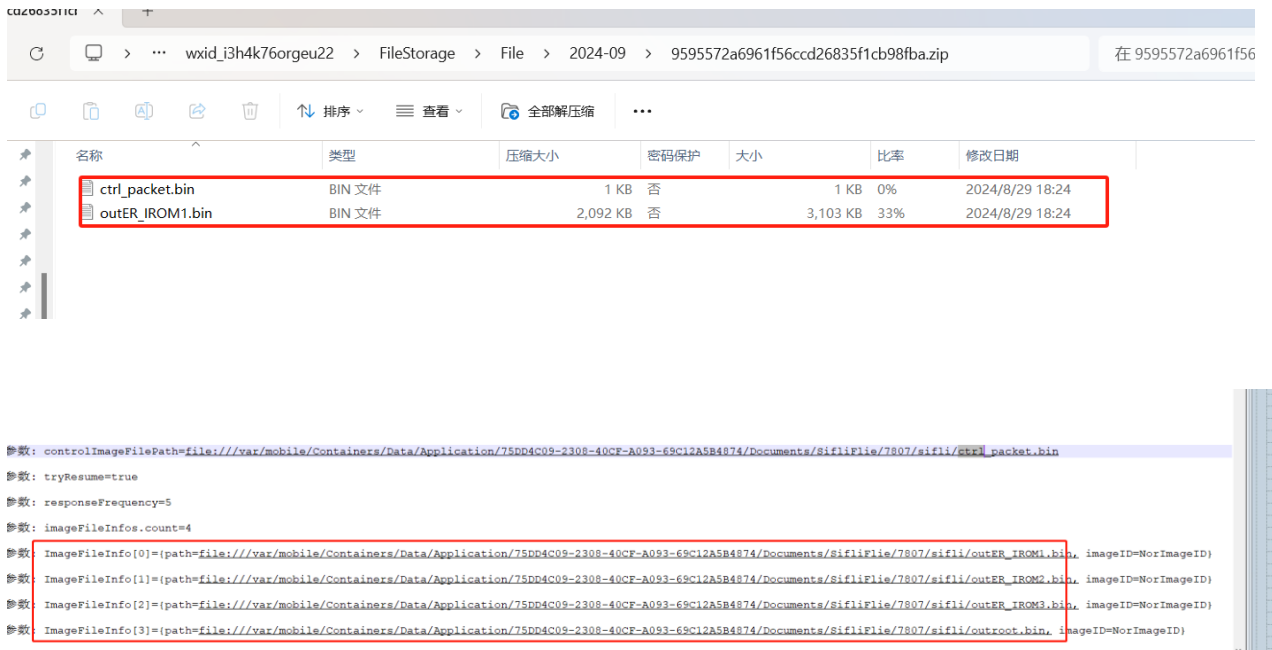
1. 检查手表代码，看使用的是总传输进度，还是单个 bin 的进度



2. 看 app 传输的 bin 文件跟要升级的 bin 文件是否匹配

例：

压缩包里的文件，跟 app 传输给手表的不匹配



3.ota 固件打包脚本

ota_packet_make_nor 脚本.7z 是制作 nor flash ota.bin 的脚本

ota_packet_make_nand 脚本.7z 是制作 nand flash ota.bin 的脚本

不能混用，注意区分压缩方式跟对应的 image

ota_packet_make_nor 脚本.7z

ota_packet_make_nand 脚本.7z