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\*@brief for TLSR chips

\* @date May 06, 2021

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**Patch for Flash driver and low voltage detection: used for “telink\_sig\_mesh\_sdk” SDK version V3.3.2 and prior.**

Note: if you are developing based on V3.3.2, please update to V3.3.3 for all patch. Other versions,

in order to update patch, you need to do the following things:

# Patch Release Note

**Features**

* Support ZBit flash.
* Improve the efficiency of ota when using ZBit flash.
* Calibrate the flash vref according to the reading value from flash.
* add low voltage detection function: if low voltage is detected, the chip will enter sleep state. for more details, please refer to the codes of 'BATT\_CHECK\_ENABLE'.

**BUG FIXS**

* N/A

**BREAKING CHANGES**

* Flash::Modify some Flash API usage for compitible.
* void flash\_read\_mid(unsigned char\* mid) change to unsigned int flash\_read\_mid(void),the mid from 3byte change to 4byte.
* The API of flash\_read\_status、flash\_write\_status not provide to external use,you need use the API in the directory of flash depend on mid(eg:flash\_write\_status\_midxxxxxx).
* •The first argument of API int flash\_read\_mid\_uid\_with\_check( unsigned int \*flash\_mid ,unsigned char \*flash\_uid),flash\_mid need 4byte space.The second argument need 16byte,has two case,8byte or 16byte,if the flash only has 8byte uid,flash\_uid[8:15] will be clear to zero.
* The API of flash\_lock,flash\_unlock will be instead of flash\_lock\_midxxxxxx and flash\_unlock\_midxxxxxx.

**Features**

* 支持ZBit flash。
* 根据校准值校准Flash电压。
* 当使用ZBit Flash时提升OTA效率。
* 增加低电压检测功能：如果检测到低电压，芯片进入休眠状态。具体请参考BATT\_CHECK\_ENABLE对应的代码。

**Bug fixs**

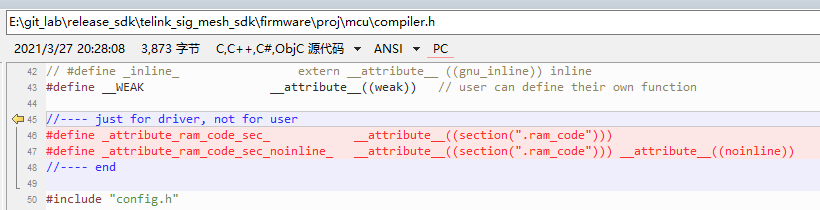
* N/A

**BREAKING CHANGES**

* Flash:为兼容不同的Flash型号，Flash驱动结构做了调整，修改了部分Flash接口调用方式。
* void flash\_read\_mid(unsigned char\* mid) 改为 unsigned int flash\_read\_mid(void),mid由3byte改为4byte,最高byte用于区分mid相同但是功能存在差异的flash。 \*为兼容不同型号的Flash,flash\_read\_status、flash\_write\_status不提供给外部使用，需要使用对应接口时，需要根据mid去选择flash目录下的接口(例如：flash\_write\_status\_midxxxxxx)。
* 接口int flash\_read\_mid\_uid\_with\_check( unsigned int \*flash\_mid ,unsigned char \*flash\_uid)的第一个参数flash\_mid需要4个字节空间，第二个参数需要16byte空间， 现有flash的uid有两种情况，一种16byte，一种8byte，如果是8byte，flash\_uid[8:15]会被清零。
* 接口flash\_lock、flash\_unlock由flash\_lock\_midxxxxxx和flash\_unlock\_midxxxxxx替代。

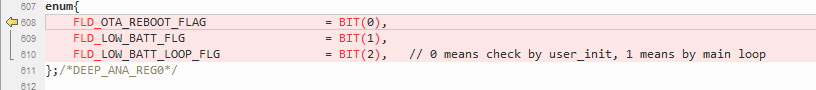
# Update flash driver

1. replace file " **\drivers\8258\flash.c** , **flash.h**"
2. add folder "**\drivers\8258\flash**" to path "\**drivers\8258**”
3. add "**\drivers\8258\flash\_mesh\_extend.c**" to path "**\drivers\8258**”
4. update file " **\proj\mcu\ compiler.h**" to add define of “\_attribute\_ram\_code\_sec\_” and “\_attribute\_ram\_code\_sec\_noinline\_”

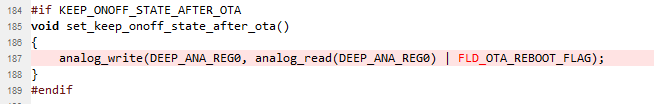


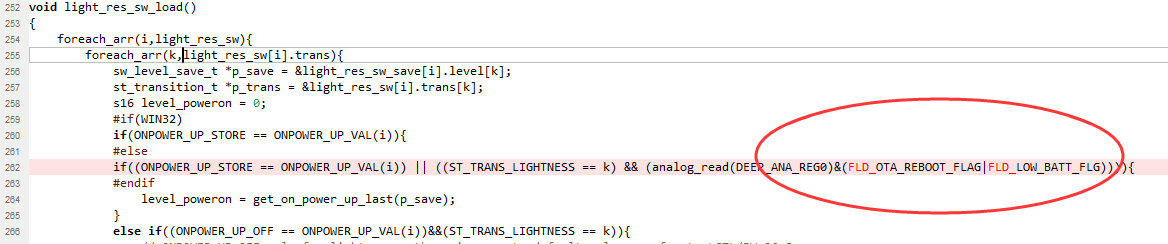
# Add low voltage detection function

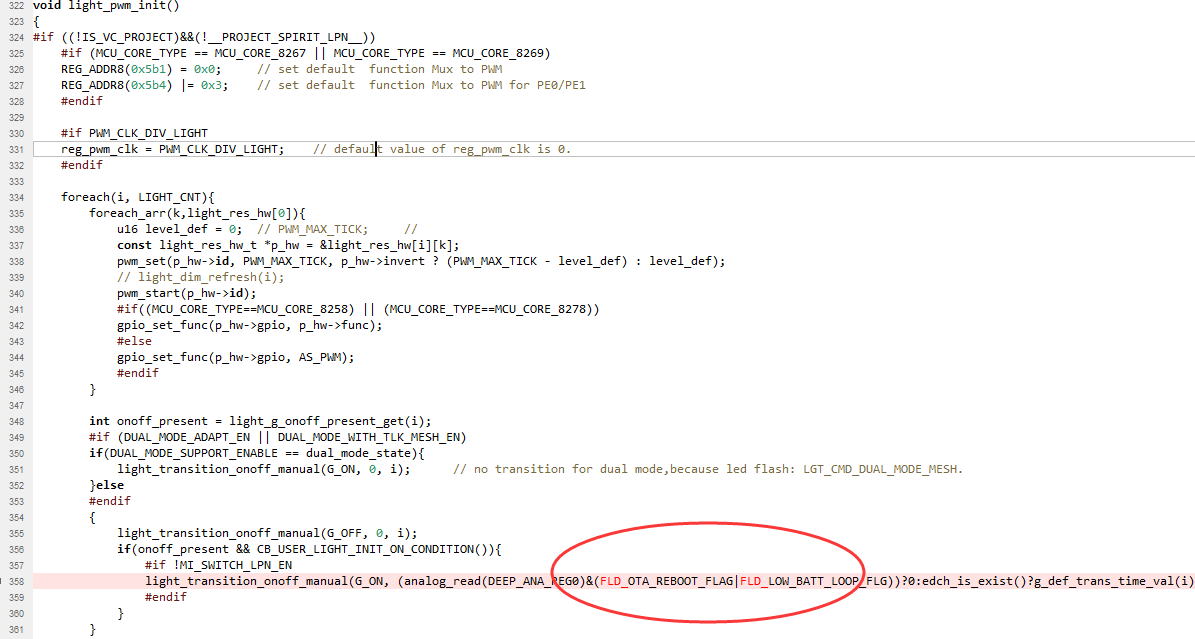
1. replace file " **\drivers\8258\ adc.c, adc.h**", " **\drivers\8278\ adc.c, adc.h**"
2. add " \vendor\common\battery\_check.c, battery\_check.h, battery\_check\_827x.c" to path "\**vendor\common\**”
3. update "proj\_lib\ble\blt\_config.h” to add” FLD\_OTA\_REBOOT\_FLAG”, ” FLD\_LOW\_BATT\_FLG” and “LOW\_BATT\_LOOP\_FLG”



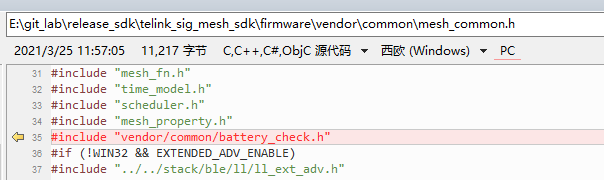
1. update " vendor/common/light.c” to add or update ” FLD\_OTA\_REBOOT\_FLAG”, ” FLD\_LOW\_BATT\_FLG” and “LOW\_BATT\_LOOP\_FLG”, as shown below:







1. update " vendor/common/mesh\_common.h” to add “#include "battery\_check.h"



1. update to add define of “BATT\_CHECK\_ENABLE” and IO setting into

firmware/vendor/boot\_loader/app\_config\_8258.h

firmware/vendor/boot\_loader/app\_config\_8278.h

firmware/vendor/mesh/app\_config\_8258.h

firmware/vendor/mesh/app\_config\_8278.h

firmware/vendor/mesh\_gw\_node\_homekit/app\_config\_8258.h

firmware/vendor/mesh\_lpn/app\_config\_8258.h

firmware/vendor/mesh\_lpn/app\_config\_8278.h

firmware/vendor/mesh\_provision/app\_config\_8258.h

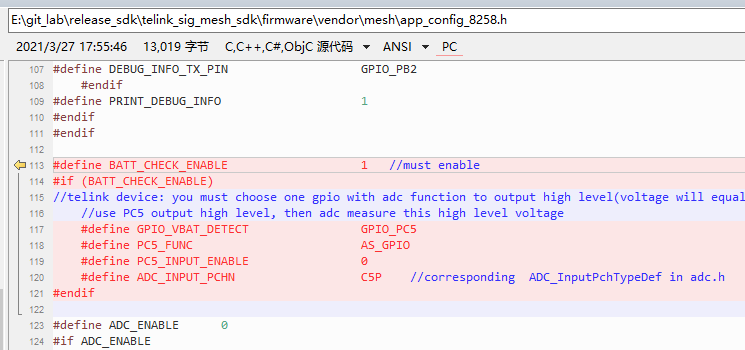
firmware/vendor/mesh\_provision/app\_config\_8278.h

firmware/vendor/mesh\_switch/app\_config\_8258.h

firmware/vendor/mesh\_switch/app\_config\_8278.h

firmware/vendor/spirit\_lpn/app\_config\_8258.h

firmware/vendor/spirit\_lpn/app\_config\_8278.h



1. update to add function calling of “app\_battery\_power\_check\_and\_sleep\_handle(1);” in all main\_loop(), and “app\_battery\_power\_check\_and\_sleep\_handle(0);” at the first of all user\_init(). Include:

firmware/vendor/mesh/app.c

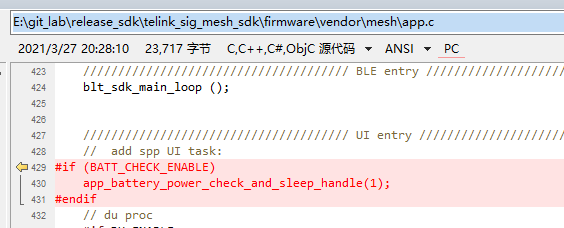
firmware/vendor/mesh\_gw\_node\_homekit/app.c

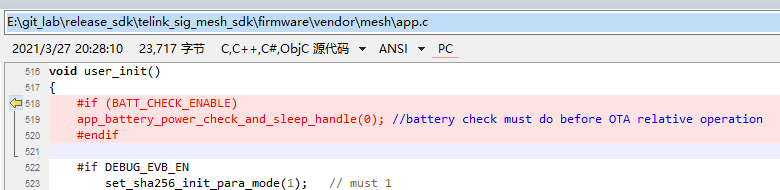
firmware/vendor/mesh\_lpn/app.c

firmware/vendor/mesh\_provision/app.c

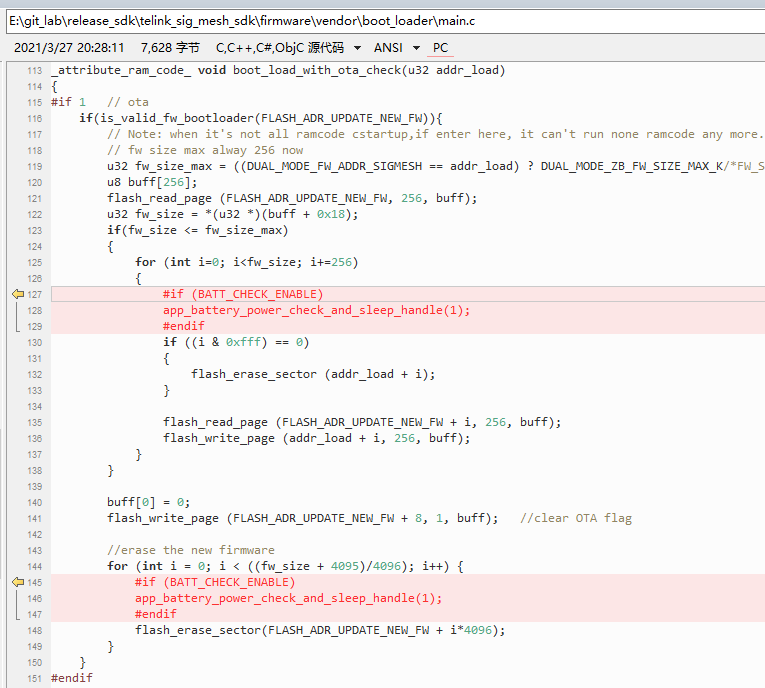
firmware/vendor/mesh\_switch/app.c

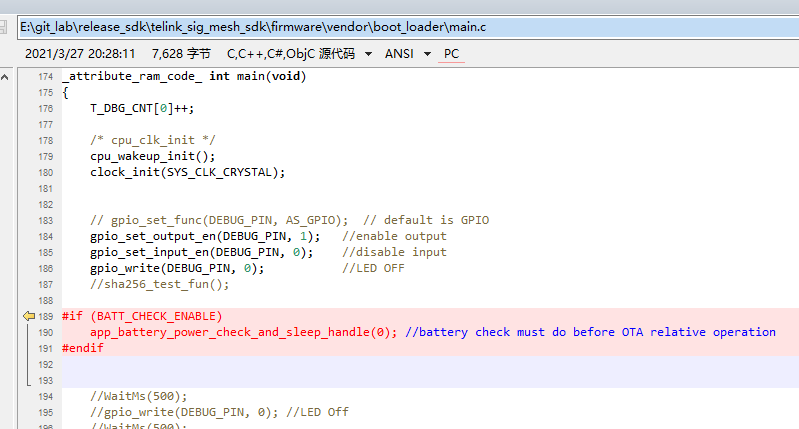
firmware/vendor/spirit\_lpn/app.c



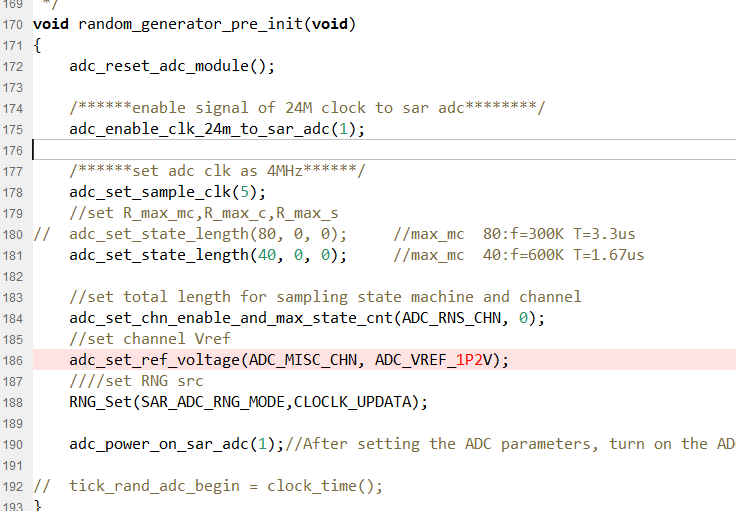


1. update “\vendor\boot\_loader\main.c” to add function calling of “app\_battery\_power\_check\_and\_sleep\_handle(1);” and “app\_battery\_power\_check\_and\_sleep\_handle(0);”



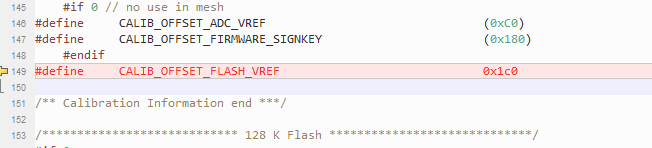


1. for sdk version v3.2.1 and prior, 825x serials, update the function “random\_generator\_pre\_init()” in file “drivers\8258\random.c” , change ADC\_VREF\_0P6V to ADC\_VREF\_1P2V as followed:

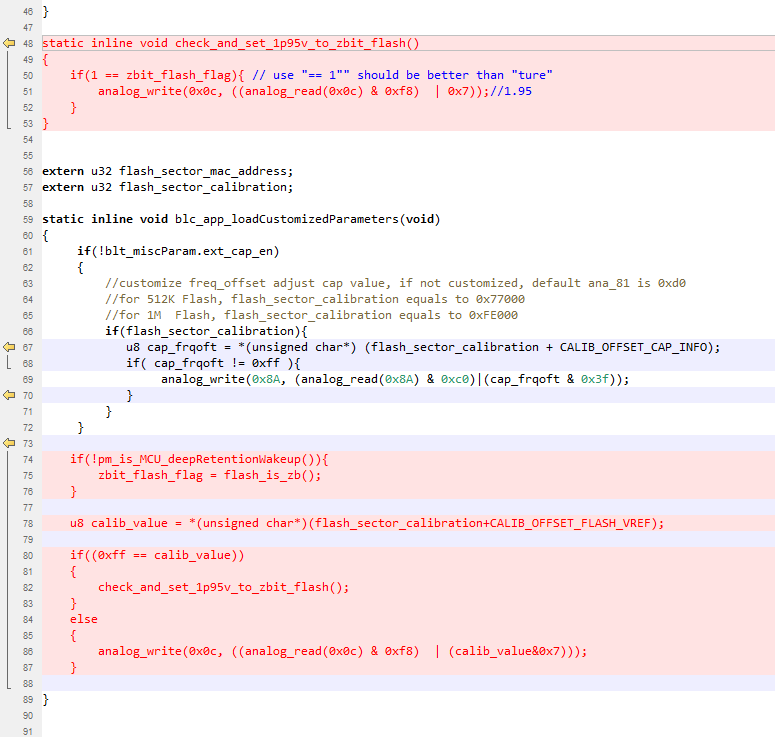


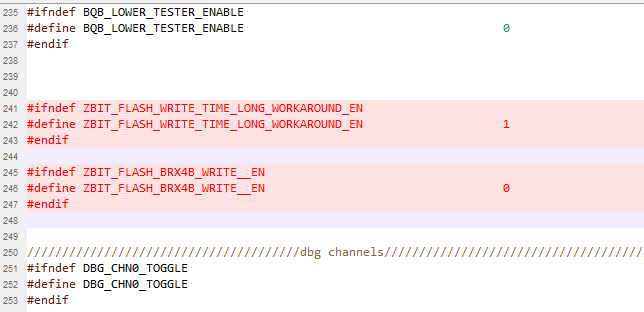
# Calibrate the flash vref according to the reading value from flash

1. update "proj\_lib\ble\blt\_config.h” to add ” CALIB\_OFFSET\_FLASH\_VREF” in red.

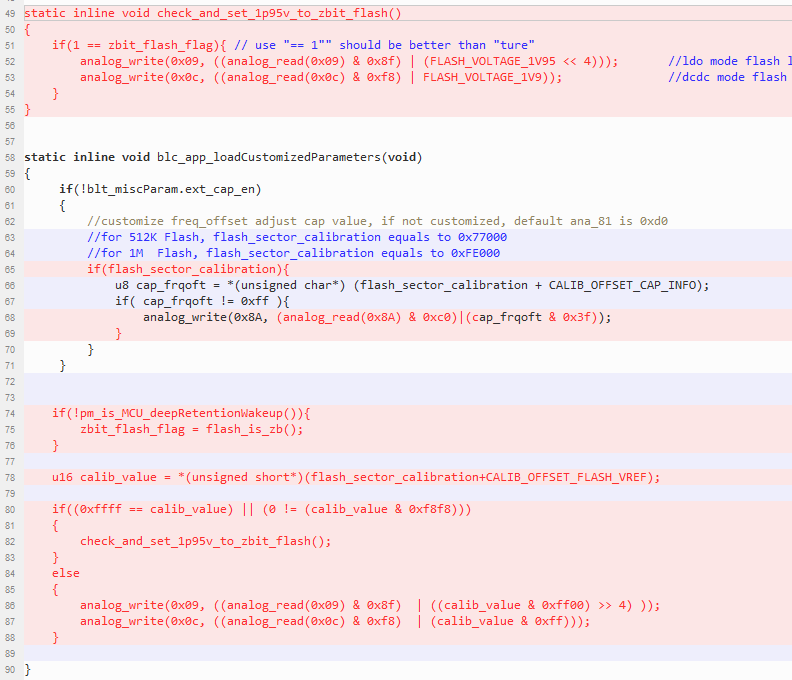


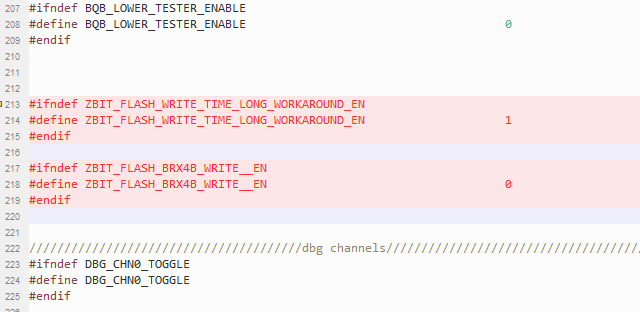
1. update “\stack\ble\blt\_config.h” to add codes in red:



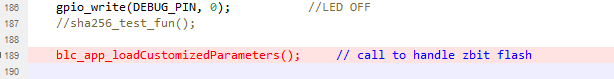


1. update “\stack\ble\_8278\blt\_config.h” to add codes in red:



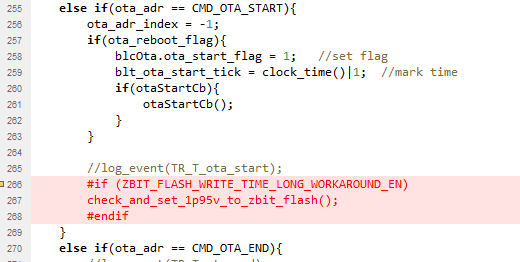


1. update the function “main()” in file “\vendor\boot\_loader\main.c” to add the codes in red.

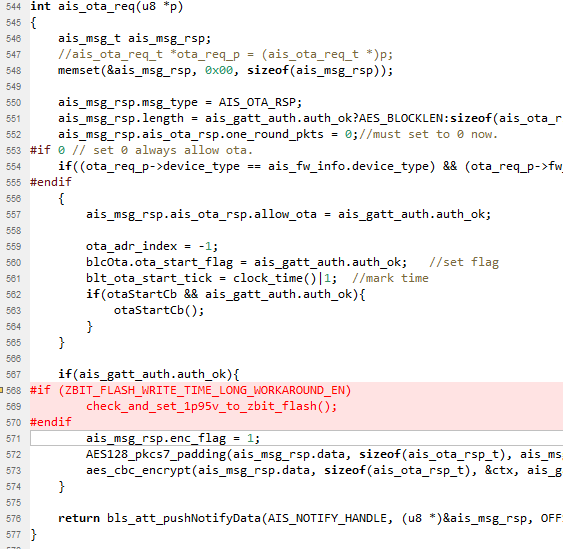


1. update the functions in file “\vendor\common\ble\_ll\_ota.c” to add the codes in red:

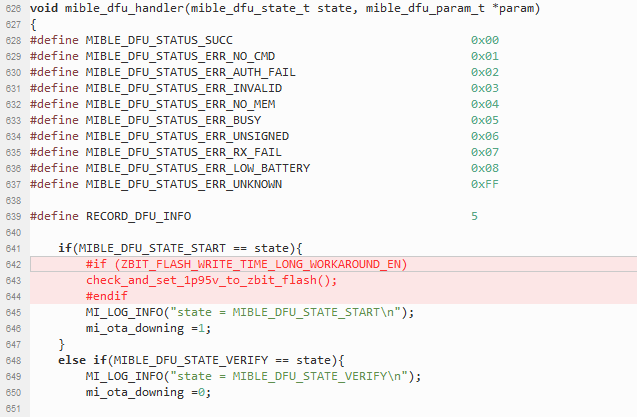
**“otaWrite ()”:**



**“ais\_ota\_req”:**



1. update the function “mible\_dfu\_handler()” in file “\vendor\common\mi\_api\telink\_sdk\_mible\_api.c” to add the codes in red:



1. update the function “mesh\_cmd\_sig\_blob\_transfer\_handle ()” in file “\vendor\common\mesh\_ota.c” to add the codes in red, if “mesh\_ota.c” is existed:

