Application Note : Telink Burning and Debugging Tool (BDT) User Guide

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Brief:

This document is the user guide for Telink Burning and Debugging Tool (BDT).

TELINK SEMICONDUCTOR

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Revision History

Version	Major Changes	Date	Author
1.0.0	Initial release	2018/10	LJW, PT, Ryan, Cynthia
1.1.0	1. Support Multi-devices 2. Added timestamp 3. Path space problem 4. Path buffer overflow etc.	2019/8	LJW, JF

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1 Brief Introduction

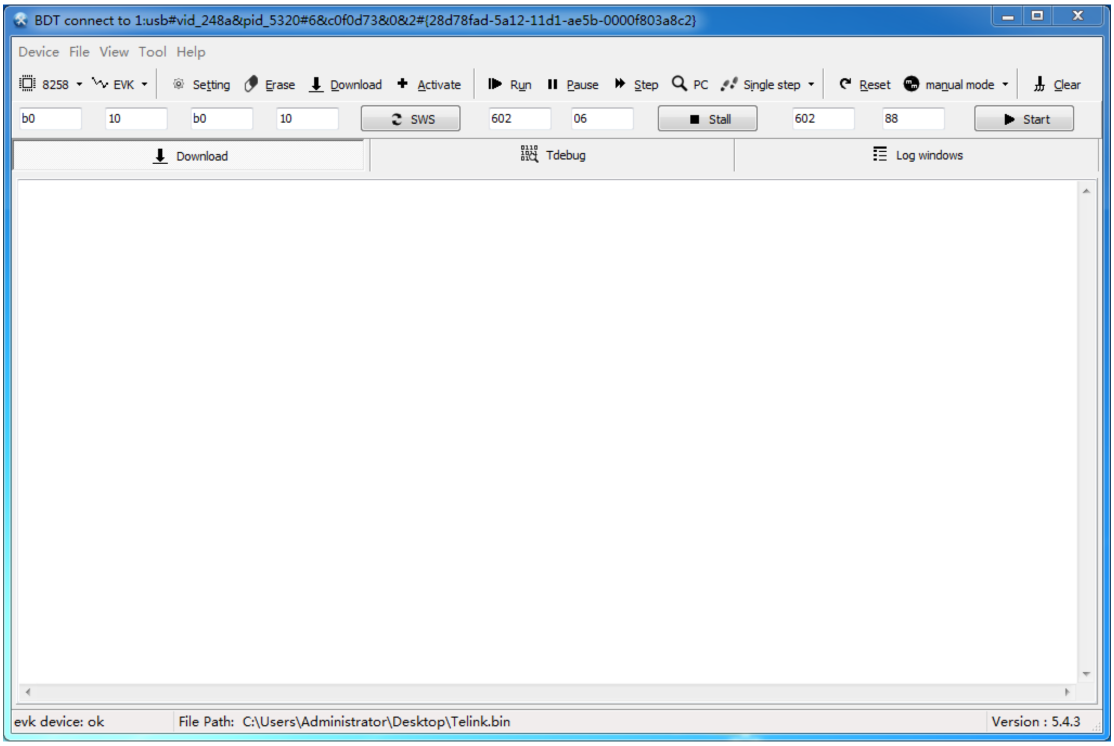
“**Telink Burning and Debugging Tool (BDT)**” applies to all engineers who want to develop applications based on Telink SoCs including 8267, 8269, 8266, 8232, 8233, 8366, 8368 and 8x5x series.

This document presents the guide on how to use “**Telink Burning and Debugging Tool (BDT)**”.

1.1 Function Overview

During SDK development, by using “**Telink Burning and Debugging Tool (BDT)**”, firmware can be directly downloaded into the target board (e.g. development board) via USB mode or “**Burning EVK**” (abbreviated as EVK) mode.

Its main functions include “Erase flash sector”, “Download firmware”, “Activate MCU when communication failed”, “Access memory space including FLASH /CORE /ANALOG /OTP”, “Read/Write global variable” and “View USB log”.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

b0 10 b0 10 602 06 602 88

evk device: ok

File Path: C:\Users\Administrator\Desktop\Telink.bin

Version : 5.4.3

Figure 1-1 Main interface

2 Operation Guide

2.1 Download firmware

2.1.1 Connect hardware

Before using "**Telink Burning and Debugging Tool (BDT)**", it's needed to connect the target board with PC.

There are two methods to connect the target board with PC, as shown below.

Method 1: Directly connect the target board with PC via USB.

This method only applies to target board with USB interface and MCU supporting USB function, e.g. a dongle board.

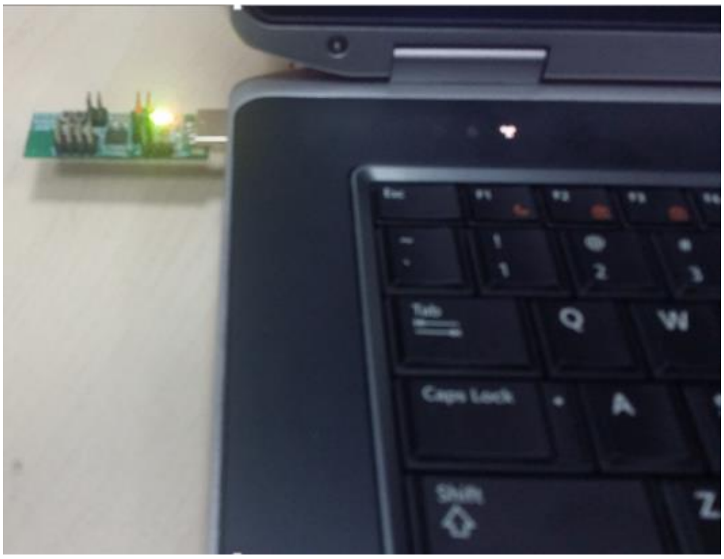


Figure 2-1 Connect target board with PC directly

Method 2: Connect the target board with PC via Telink "**Burning EVK**" TLSR8266BR56.

1) Connect the "**Burning EVK**" with PC via USB cable. Observe the indicating lights of the "**Burning EVK**": The indicating lights will blink once to indicate that the "**Burning EVK**" and its connection with PC is OK.

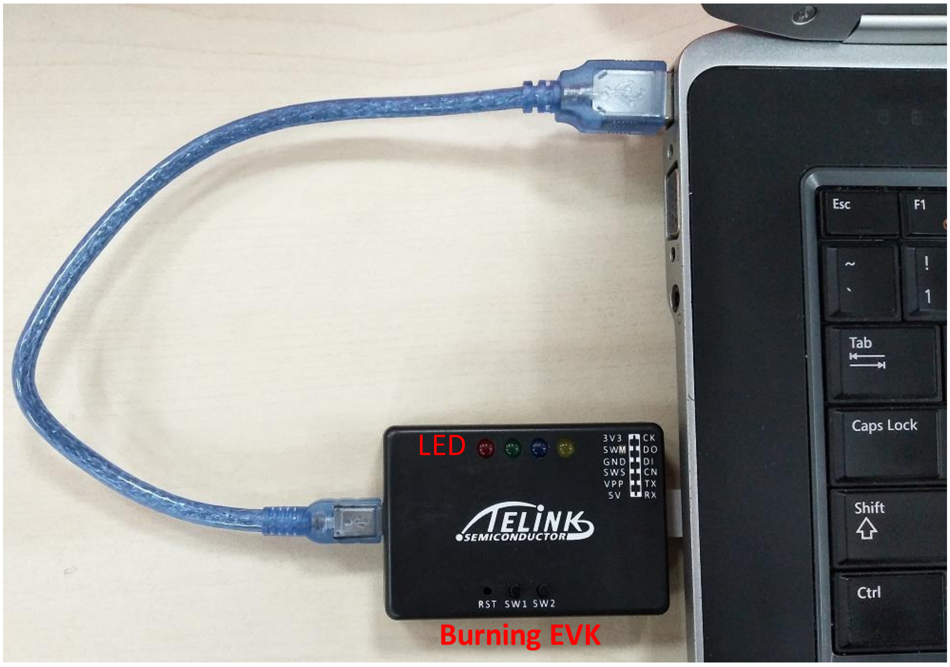


Figure 2-2 Connect “**Burning EVK**” with PC

2) Connect target board with “**Burning EVK**”.

There are two methods to connect the target board with the “**Burning EVK**”.

a) Connect the target board with the “**Burning EVK**” via USB interface directly, as shown below. This connection method only applies to target board with USB interface and MCU supporting USB function, e.g. a dongle board.

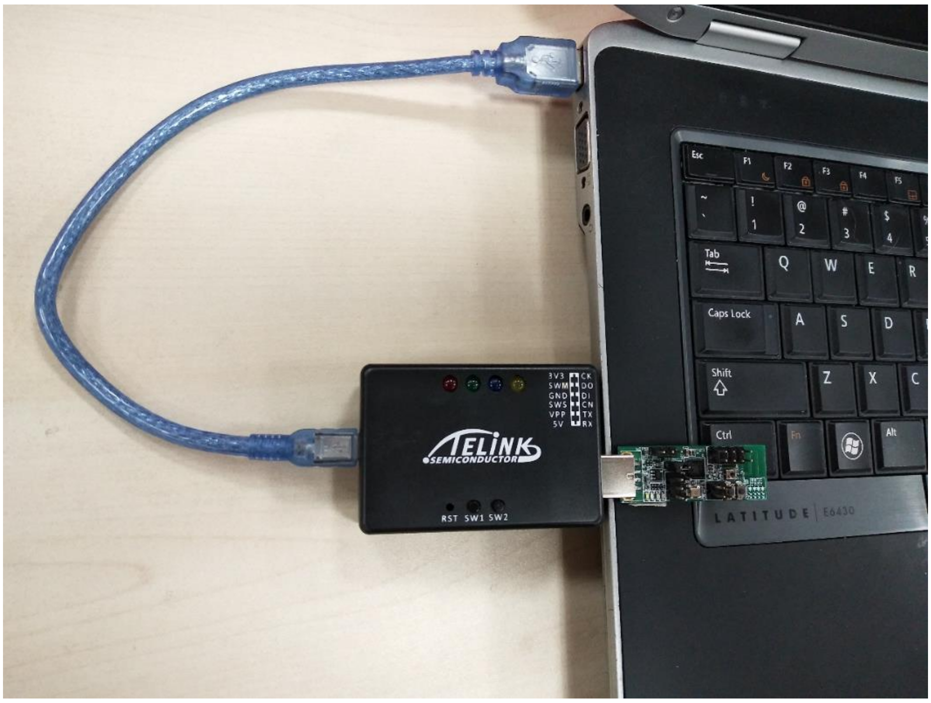


Figure 2-3 Connect target board with “**Burning EVK**” via USB

b) Connect the target board with the “**Burning EVK**” via Swire (Single wire) interface, as shown below.

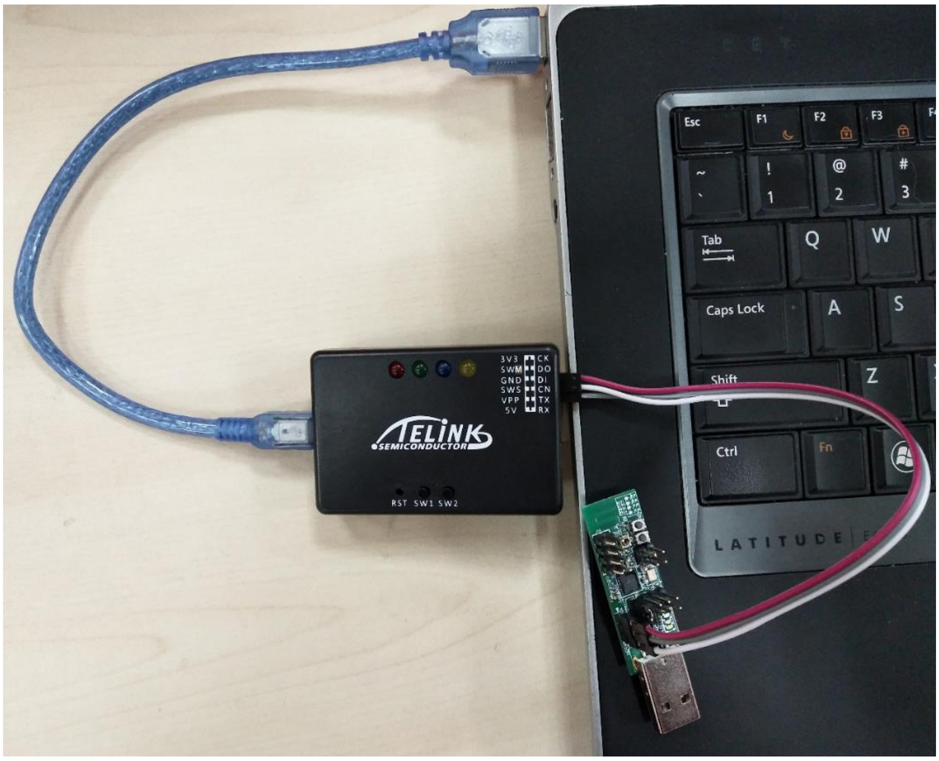


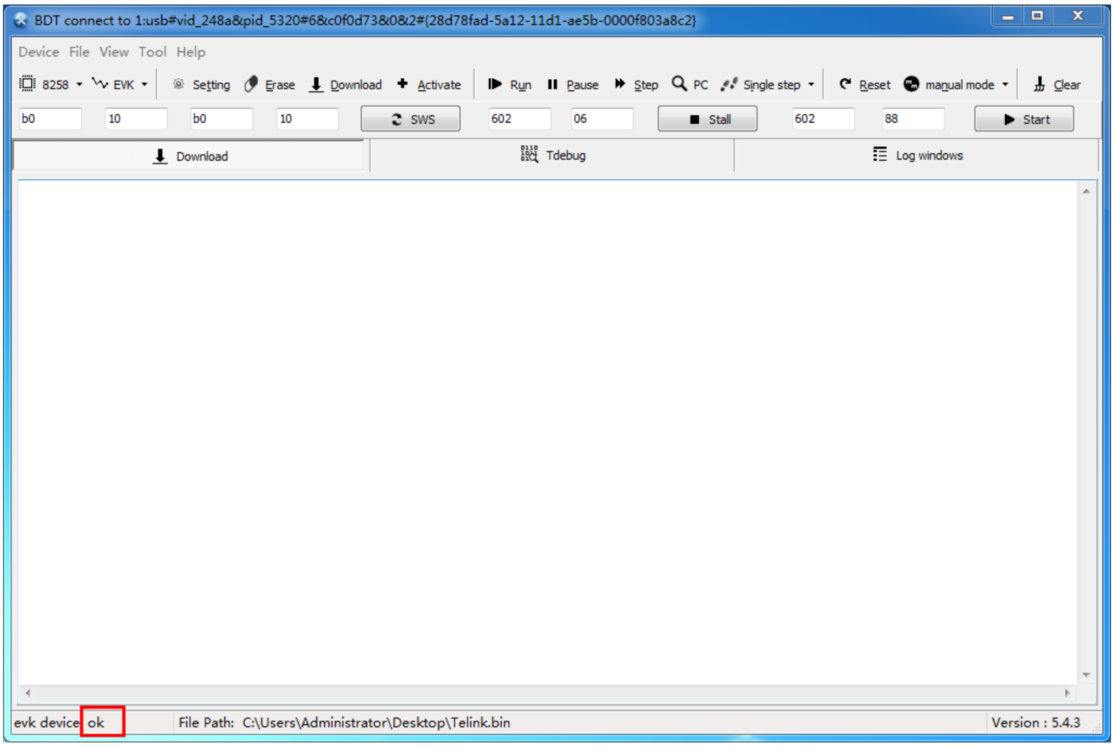
Figure 2-4 Connect target board with “**Burning EVK**” via Swire

Please refer to Telink document “***AN_18010500_User Guide for Telink Burning EVK TLSR8266BR56***” for the detailed guide of TLSR8266BR56.

After connecting the target board to PC via USB method or “**Burning EVK**” method, there are two methods to download firmware into the target board, which respectively correspond to the two hardware connection methods above.

2.1.2 Connect Device

Before downloading firmware into the target board, please ensure that the device have been found by BDT as the following figure.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

evk device ok

File Path: C:\Users\Administrator\Desktop\Telink.bin

Version : 5.4.3

Figure 2-5 Burning and Debugging Tool

If BDT do not find device as the following figure, you can Click “Refresh” to check available device.

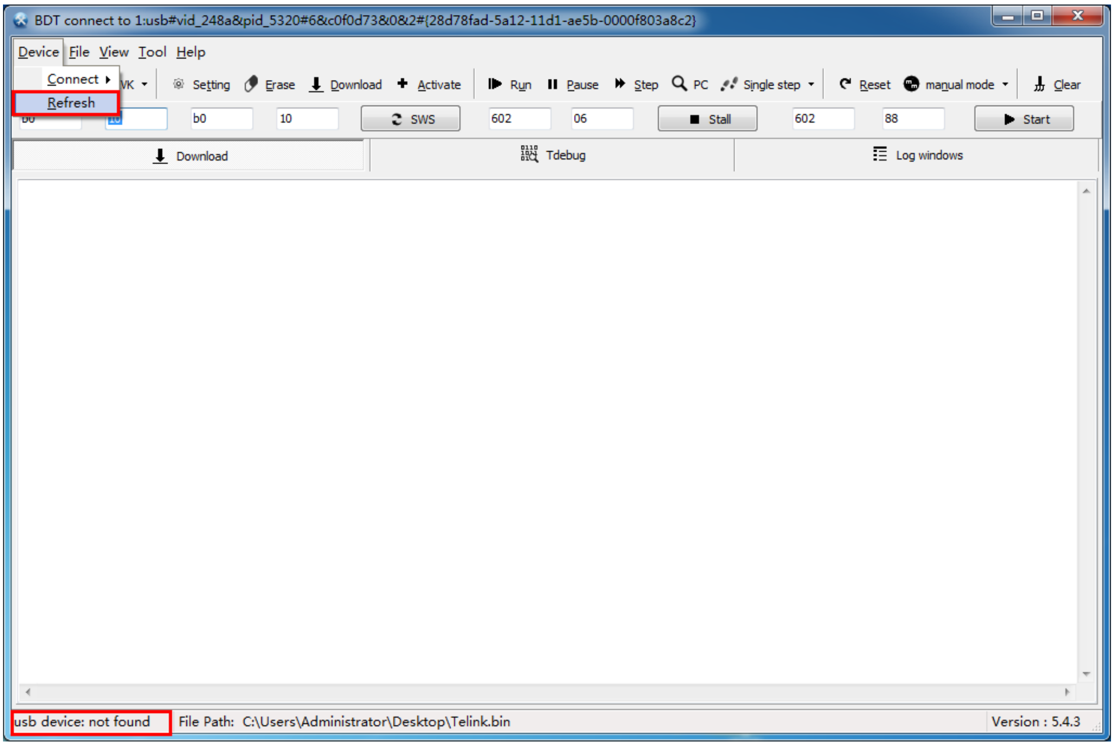
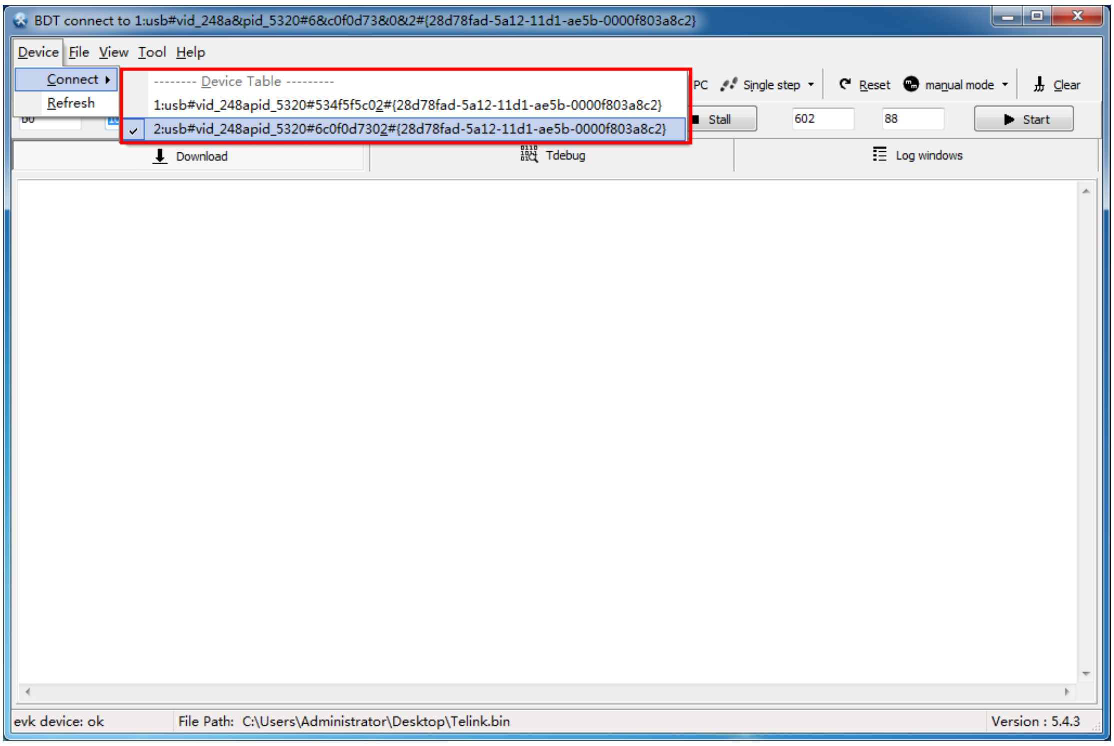


Figure 2-6 Check Available Device

If BDT find many devices, all devices will be listed as the following figure. After clicking the button “Refresh”, the first device will be connected to BDT by default. If you want to connect other devices, you can select the specified device as the following figure.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

-------- Device Table ---------

1:usb#vid_248apid_5320#534f5f5c02#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

✓ 2:usb#vid_248apid_5320#6c0f0d7302#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

evk device: ok

File Path: C:\Users\Administrator\Desktop\Telink.bin

Version : 5.4.3

Figure 2-7 Select the Specified Device

2.1.3 Download FW into “FLASH” via “USB” mode

Before using “**USB**” mode to download or debug MCU, please ensure that the specified MCU supports USB function and its USB function is available. Refer to section **4 Function Support List** for details.

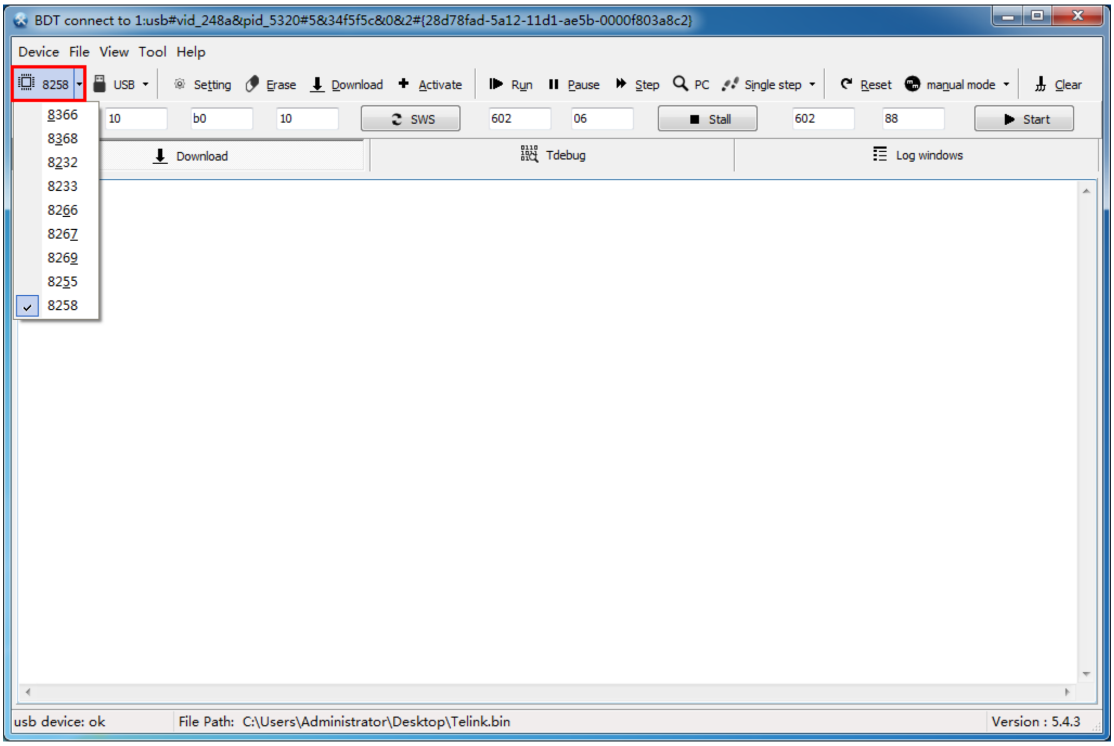
Then user can follow the guide in this section to download firmware into specific flash space of the target board via “**USB**” mode.

Step1: Select chip type of the target board, e.g. 8258 (default option). The following two methods are supported.

✧ Method 1: Use the drop-down menu to select chip type.

✧ Method 2: Press the shortcut key combination “Ctrl + Q” to switch chip type.

*Note: All chip type options and default option are configurable in the “config.ini” file.



BDT connect to 1:usb#vid_248a&pid_5320#5&34f5f5c&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

usb device: ok

File Path: C:\Users\Administrator\Desktop\Telink.bin

Version : 5.4.3

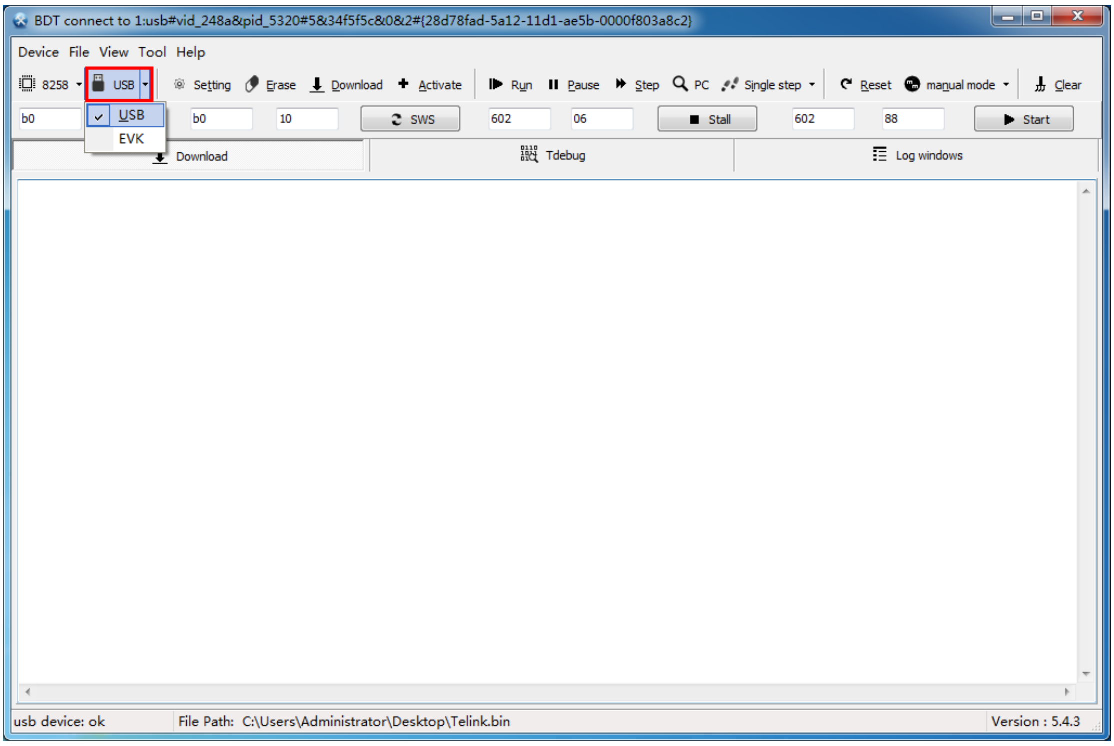
Figure 2-8 Select chip type

Step2: Select download mode as “USB”. The following two methods are supported.

✧ Method 1: Use the drop-down menu to select USB download mode.

✧ Method 2: Press the shortcut key combination “Ctrl + W” to switch to USB download mode. The drop-down menu will automatically show the current download mode after each switch.

*Note: All download mode options and default option are configurable in the “config.ini” file.



BDT connect to 1:usb#vid_248a&pid_5320#5&34f5f5c&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

usb device: ok

File Path: C:\Users\Administrator\Desktop\Telink.bin

Version : 5.4.3

Figure 2-9 Select download mode as “USB”

Step3: Click the “**Setting**” button to open the Setting dialog window. Select the “FLASH” setting option. User can adopt either of the following two methods to set the offset of flash starting address for target firmware storage, e.g. 0x000000 (default option).

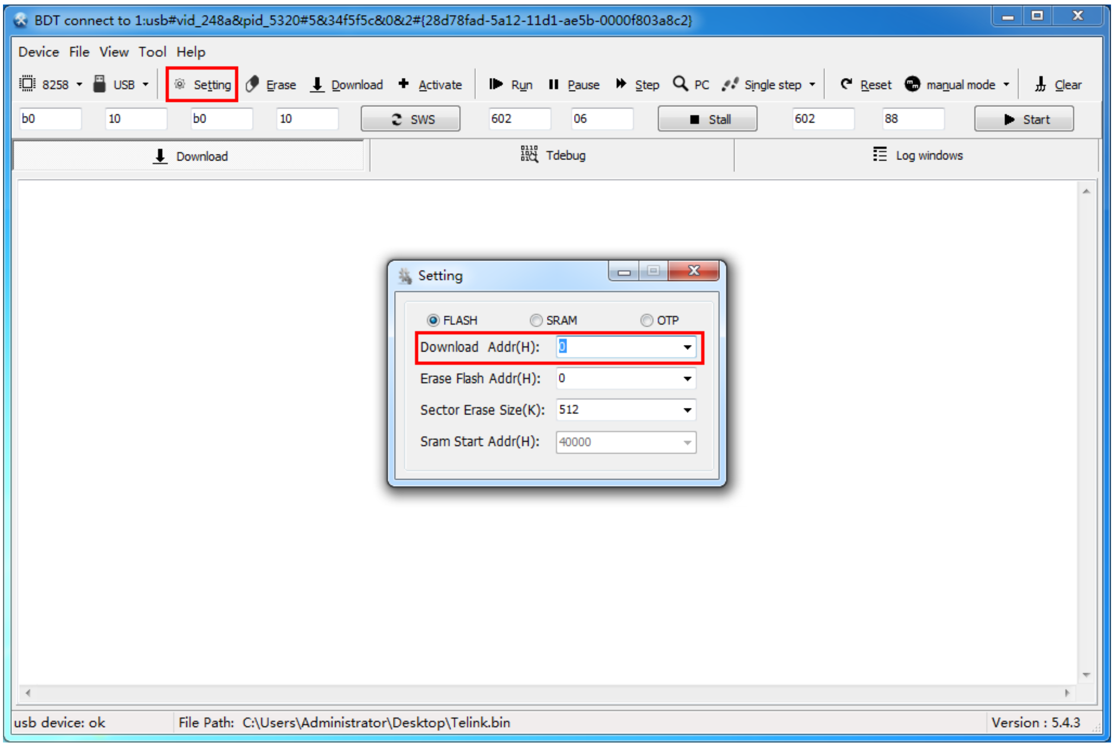
✧ Method 1: Use the drop-down menu of “Download Addr” to select the offset option available.

✧ Method 2: Input the offset address in the editable box of “Download Addr”.

*Notes:

1) All setting options and default option are configurable in the “**config.ini**” file.

2) User can also configure the “SRAM”/“OTP” setting option so as to download target firmware to destination area in SRAM or OTP.



BDT connect to 1:usb#vid_248a&pid_5320#5&34f5f5c&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

Setting

● FLASH ○ SRAM ○ OTP

Download Addr(H): 0

Erase Flash Addr(H): 0

Sector Erase Size(K): 512

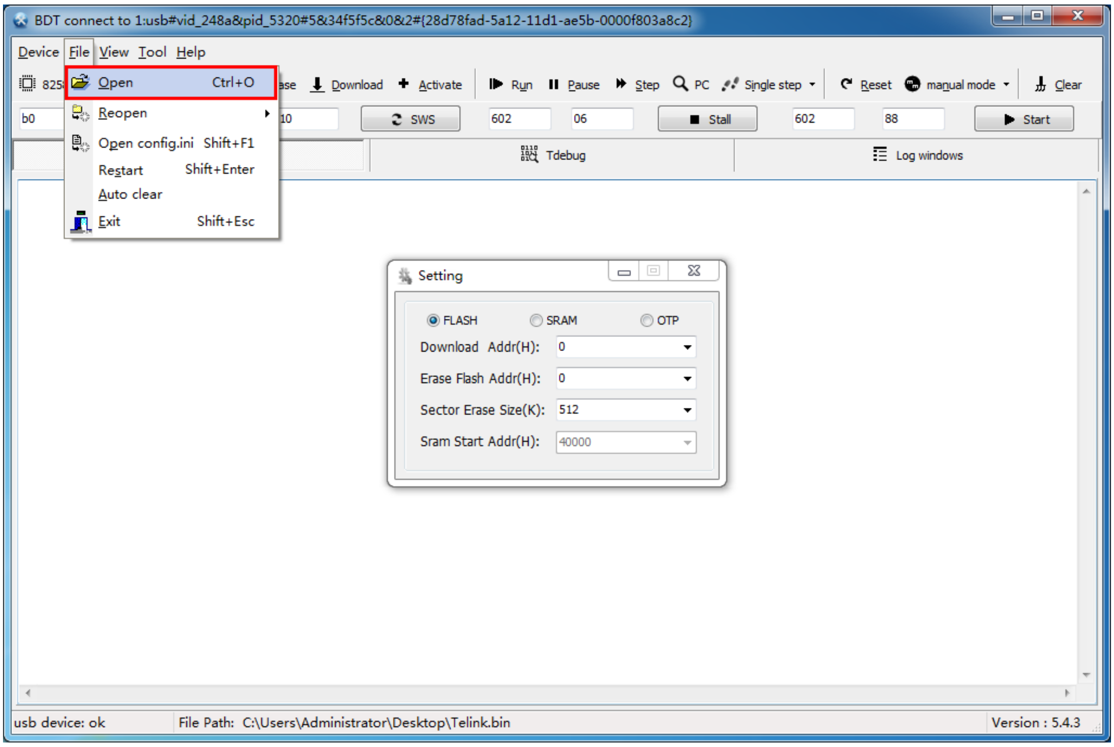
Sram Start Addr(H): 40000

usb device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-10 Select starting offset address

Step4: Select the target firmware file to be downloaded into the target board.

1) Click **File->Open** to open the file select window.


BDT connect to 1:usb#vid_248a&pid_5320#5&34f5f5c&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

Setting

◉ FLASH ○ SRAM ○ OTP

Download Addr(H): 0

Erase Flash Addr(H): 0

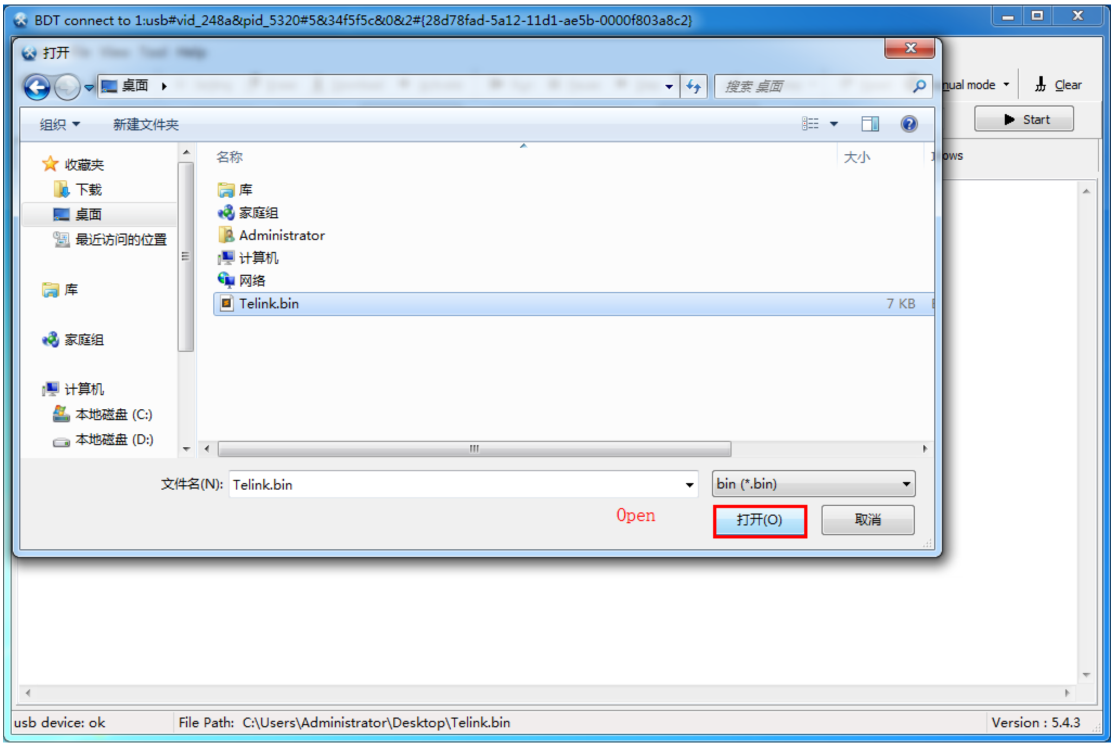
Sector Erase Size(K): 512

Sram Start Addr(H): 40000

usb device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-11 Open file select window

2) On the file select window, select the target bin file (e.g. Telink.bin) and then click the "**Open**" button.


BDT connect to 1:usb#vid_248a&pid_5320#5&34f5f5c&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

打开

桌面 ▸

文件名(N): Telink.bin

bin (*.bin)

usb device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-12 Select target file and open new file path

The file path will be displayed at the bottom of the main interface. Every time when a new file path is opened via the file select window, it will be added to the submenu of “File->Reopen”. This simplifies FW selection in subsequent operations by enabling user to directly select the target file path available in the submenu of “Reopen”.

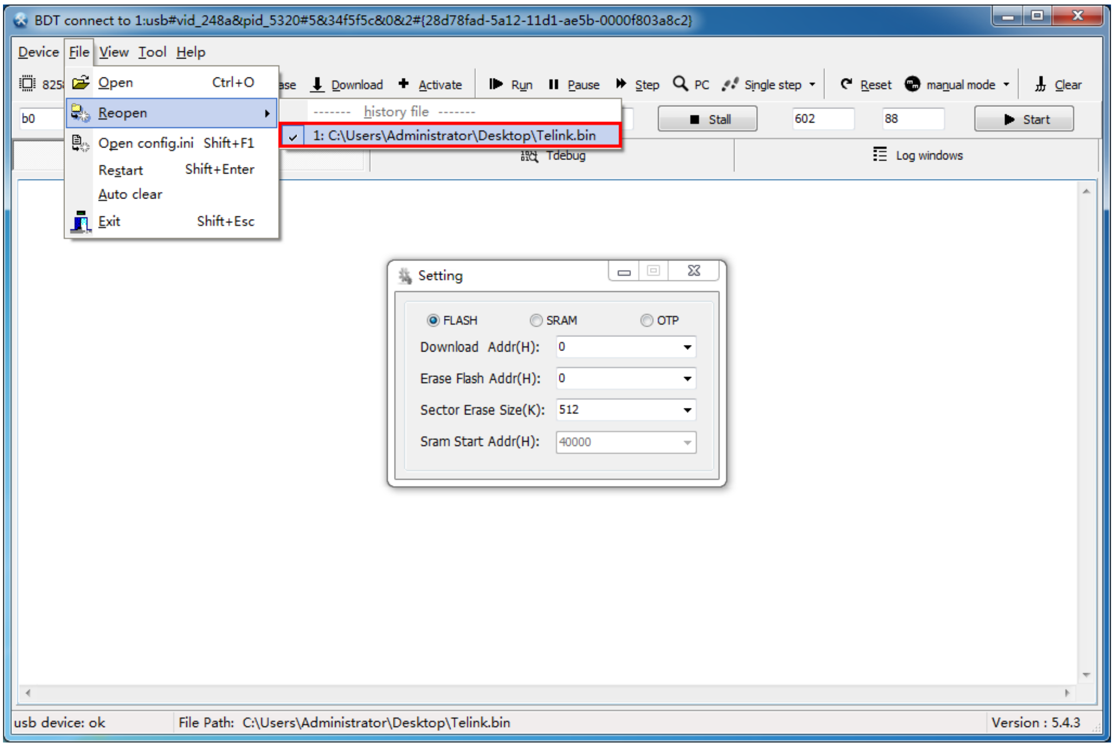
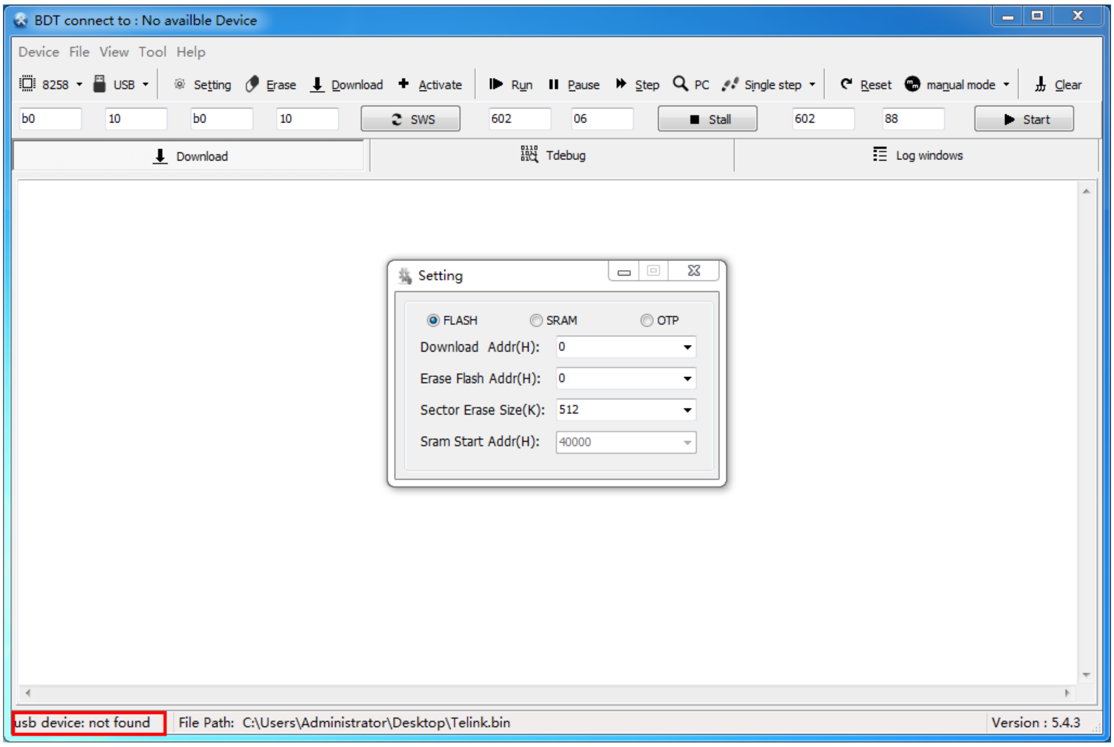

BDT connect to 1:usb#vid_248a&pid_5320#5&34f5f5c&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
Open Ctrl+O
Reopen
Open config.ini Shift+F1
Restart Shift+Enter
Auto clear
Exit Shift+Esc
------- history file -------
1: C:\Users\Administrator\Desktop\Telink.bin
Download
Activate
Run
Pause
Step
PC
Single step
Reset
manual mode
Clear
Stall
602
88
Start
Tdebug
Log windows
Setting
FLASH
SRAM
OTP
Download Addr(H): 0
Erase Flash Addr(H): 0
Sector Erase Size(K): 512
Sram Start Addr(H): 40000
usb device: ok
File Path: C:\Users\Administrator\Desktop\Telink.bin
Version : 5.4.3

Figure 2-13 Directly select target file path in the submenu of “Reopen”

Step5: Check connection status between the target board and the PC and make sure it's OK.

✧ If the status of connection is OK, the left bottom of the main interface will show "usb device: ok" or "evk device: ok".

✧ If the left bottom of the main interface shows "usb device: not found", it indicates the connection between the target board and the PC is not available.



BDT connect to : No availble Device

Setting

● FLASH ○ SRAM ○ OTP

Download Addr(H): 0

Erase Flash Addr(H): 0

Sector Erase Size(K): 512

Sram Start Addr(H): 40000

usb device: not found

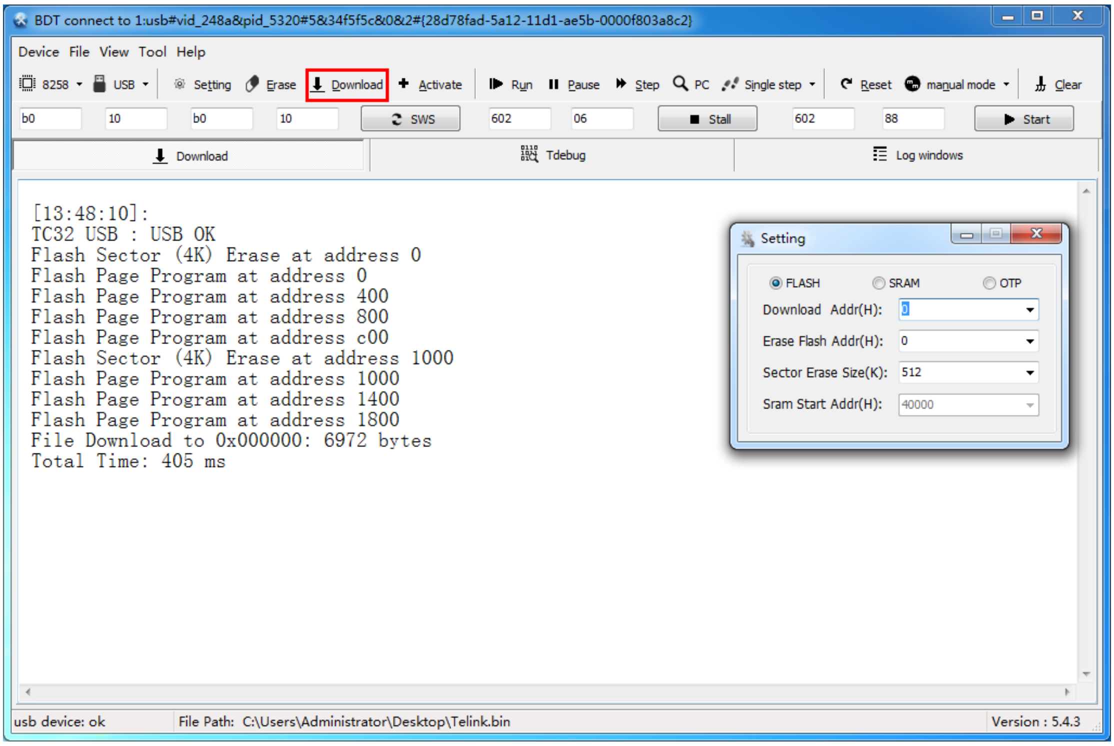
File Path: C:\Users\Administrator\Desktop\Telink.bin

Version : 5.4.3

Figure 2-14 Connection status indication

Step6: Download the selected file into the target board.

By clicking the "Download" button, the selected firmware file will be downloaded into the specified flash space of the target board via USB mode. The log window will indicate corresponding log information, as shown below.



BDT connect to 1:usb#vid_248a&pid_5320#5&34f5f5c&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

```
[13:48:10]:
TC32 USB : USB OK
Flash Sector (4K) Erase at address 0
Flash Page Program at address 0
Flash Page Program at address 400
Flash Page Program at address 800
Flash Page Program at address c00
Flash Sector (4K) Erase at address 1000
Flash Page Program at address 1000
Flash Page Program at address 1400
Flash Page Program at address 1800
File Download to 0x000000: 6972 bytes
Total Time: 405 ms
```

Setting

● FLASH ○ SRAM ○ OTP

Download Addr(H): 0

Erase Flash Addr(H): 0

Sector Erase Size(K): 512

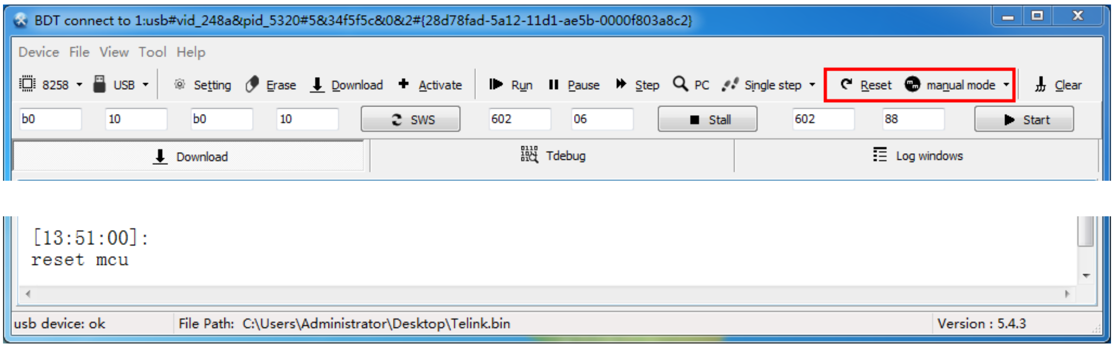
Sram Start Addr(H): 40000

usb device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-15 Download FW into Flash via USB mode

Step7: Reset MCU to make the newly-downloaded program run without the need to power cycle MCU (unplug/plug from Burning EVK). User can follow either of the following two methods to make MCU boot and run.

✧ If "manual mode" is selected via the drop-down menu, after FW burning user can click the "Reset" button at the top right corner of the tool to manually reset the MCU.

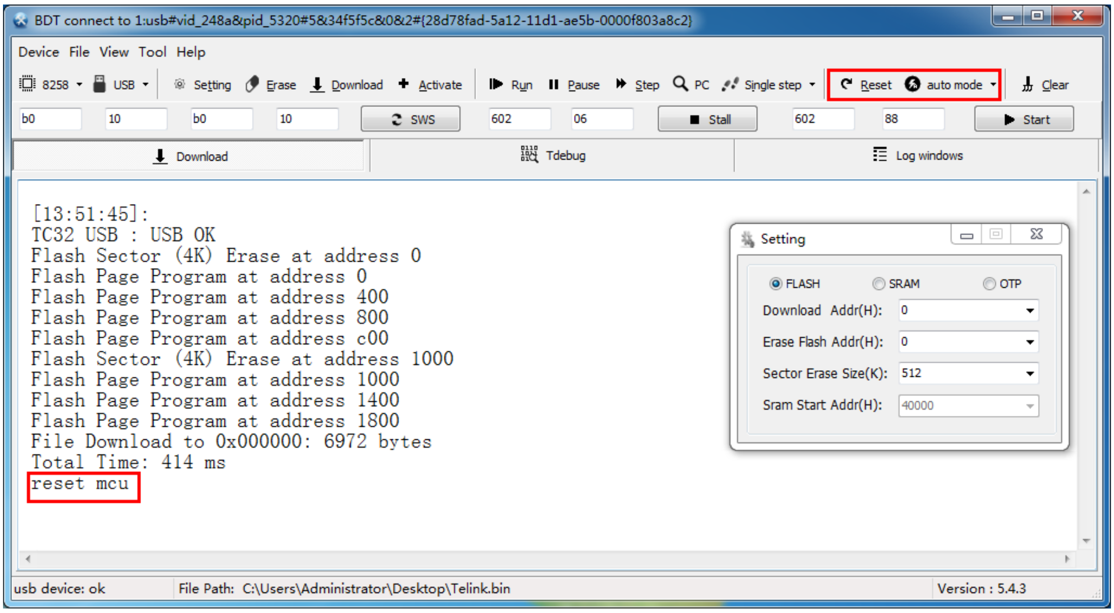


```
[13:51:00]:
reset mcu
```

usb device: ok | File Path: C:\Users\Administrator\Desktop\Telink.bin | Version : 5.4.3

Figure 2-16 Manual MCU reset

✧ User can also select "auto mode" via the drop-down menu before FW burning, so as to enable auto reset after FW burning.



```
[13:51:45]:
TC32 USB : USB OK
Flash Sector (4K) Erase at address 0
Flash Page Program at address 0
Flash Page Program at address 400
Flash Page Program at address 800
Flash Page Program at address c00
Flash Sector (4K) Erase at address 1000
Flash Page Program at address 1000
Flash Page Program at address 1400
Flash Page Program at address 1800
File Download to 0x000000: 6972 bytes
Total Time: 414 ms
reset mcu
```

● FLASH ○ SRAM ○ OTP

Download Addr(H): 0

Erase Flash Addr(H): 0

Sector Erase Size(K): 512

Sram Start Addr(H): 40000

usb device: ok | File Path: C:\Users\Administrator\Desktop\Telink.bin | Version : 5.4.3

Figure 2-17 Auto MCU reset

2.1.4 Download FW into "FLASH" via "EVK" mode

Before using **"EVK"** mode to download firmware, please ensure that target board is connected to PC via "**Burning EVK**" method and the single wire communication of the target board is established.

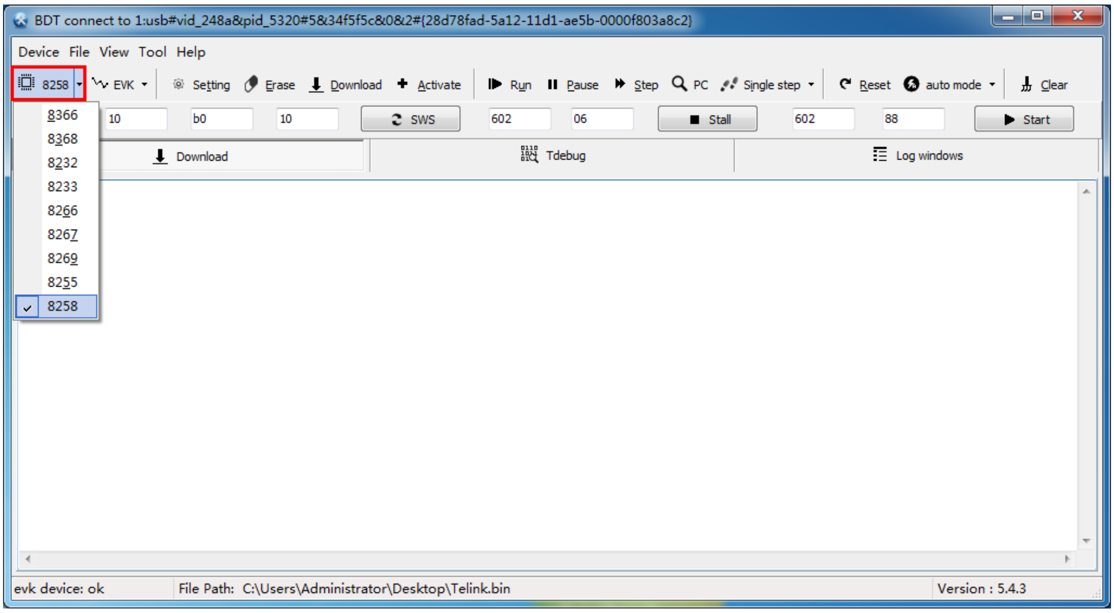
User can follow the guide in this section to download firmware into specific flash space of the target board via “**EVK**” mode.

Step1: Select chip type of the target board, e.g. 8258 (default option). The following two methods are supported.

✧ Method 1: Use the drop-down menu to select chip type.

✧ Method 2: Press the shortcut key combination “Ctrl + Q” to switch chip type. The drop-down menu will automatically show the current type after each switch.

*Note: All chip type options and default option are configurable in the “config.ini” file.



evk device: ok

File Path: C:\Users\Administrator\Desktop\Telink.bin

Version : 5.4.3

Figure 2-18 Select Chip Type

Step2: Select download mode as “EVK”. The following two methods are supported.

- Method 1: Use the drop-down menu to select EVK download mode.
- Method 2: Press the shortcut key combination “Ctrl + W” to switch to EVK download mode. The drop-down menu will automatically show the current download mode after each switch.

*Note: All download mode options and default option are configurable in the “config.ini” file.

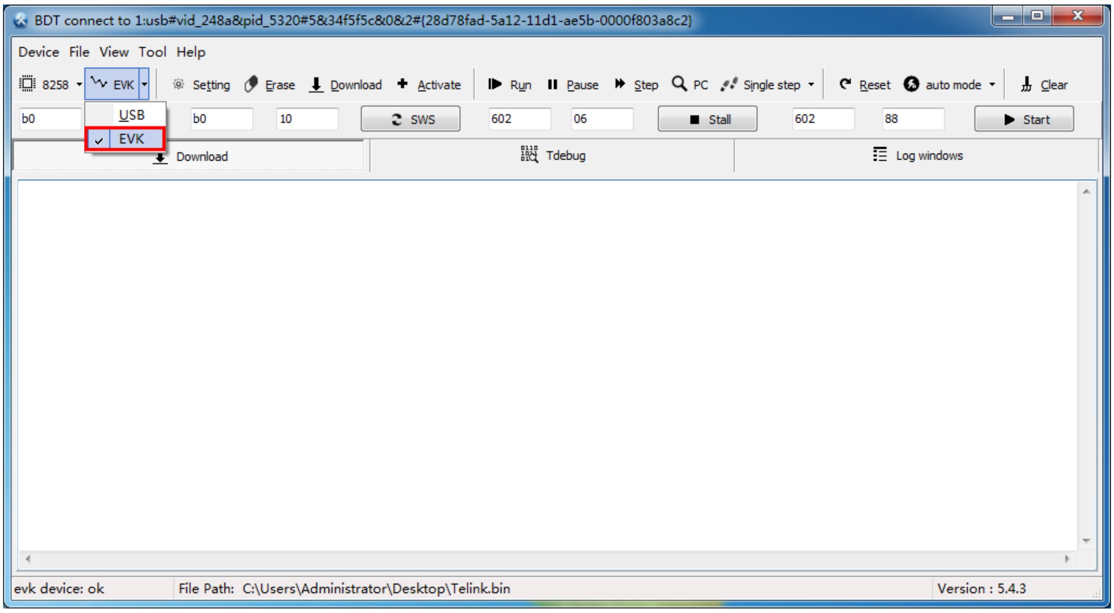

BDT connect to 1:usb#vid_248a&pid_5320#5&34f5f5c&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258
EVK
USB
EVK
Setting
Erase
Download
Activate
Run
Pause
Step
PC
Single step
Reset
auto mode
Clear
b0
b0
10
SWS
602
06
Stall
602
88
Start
Download
Tdebug
Log windows
evk device: ok
File Path: C:\Users\Administrator\Desktop\Telink.bin
Version : 5.4.3

Figure 2-19 Select download mode as “EVK”

Step3: Click the "**Setting**" button to open the Setting dialog. Select the "FLASH" setting option. User can adopt either of the following two methods to set the offset of flash starting address for target firmware storage, e.g. 0x000000 (default option).

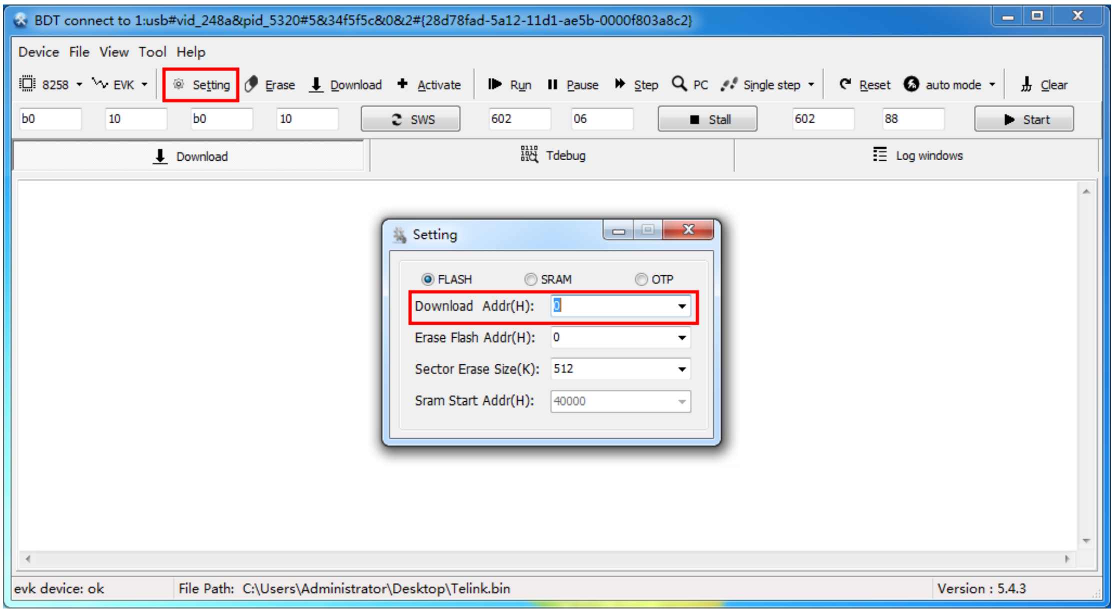
✧ Method 1: Use the drop-down menu of "Download Addr" to select the offset option available.

✧ Method 2: Input the offset address in the editable box of "Download Addr".

*Notes:

1) All setting options and default option are configurable in the "**config.ini**" file.

2) User can also configure the "SRAM"/"OTP" setting option so as to download target firmware to destination area in SRAM or OTP.


BDT connect to 1:usb#vid_248a&pid_5320#5&34f5f5c&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

● FLASH ○ SRAM ○ OTP

Download Addr(H): 0

Erase Flash Addr(H): 0

Sector Erase Size(K): 512

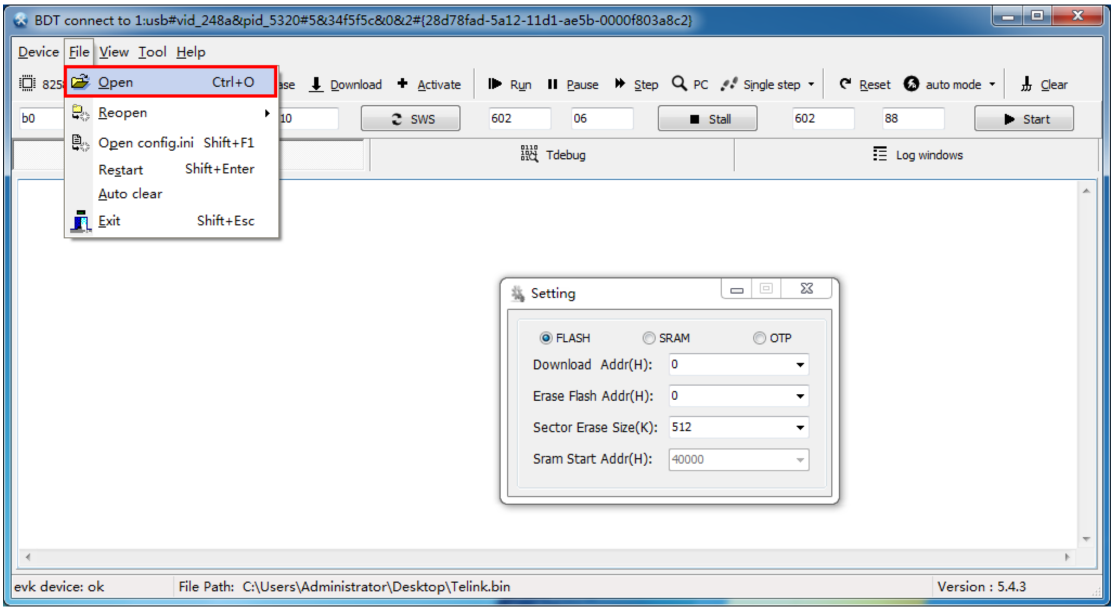
Sram Start Addr(H): 40000

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-20 Open the Setting Dialog

Step4: Select the target firmware file to be downloaded into the target board.

User can select the target file via the “**File->Open**”, or via the “**File->Reopen**” if it’s available in the submenu. The file path will be visible at the bottom of the main interface.



BDT connect to 1:usb#vid_248a&pid_5320#5&34f5f5c&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

● FLASH ○ SRAM ○ OTP

Download Addr(H): 0

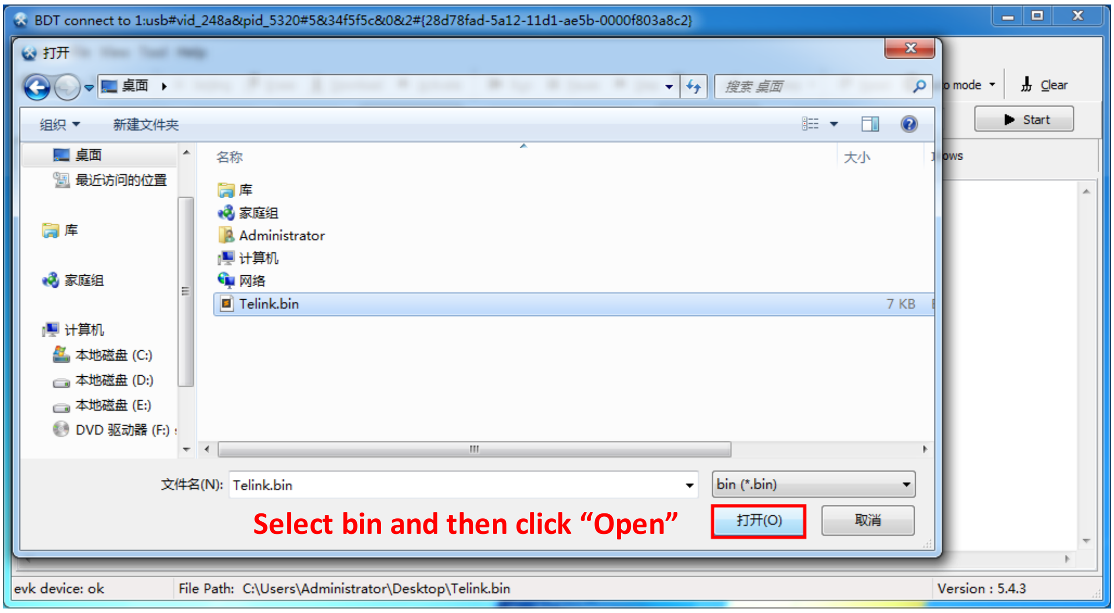
Erase Flash Addr(H): 0

Sector Erase Size(K): 512

Sram Start Addr(H): 40000

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-21 Select the Target File



BDT connect to 1:usb#vid_248a&pid_5320#5&34f5f5c&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

文件名(N): Telink.bin

bin (*.bin)

Select bin and then click “Open”

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-22 Select bin File

Step5: Check connection status between the target board and the PC and make sure it's OK.

✧ If the status of connection is OK, the left bottom of the main interface will show "usb device: ok" or "evk device: ok".

✧ If the left bottom of the main interface shows "usb device: not found", it indicates the connection between the target board and the PC is not available.

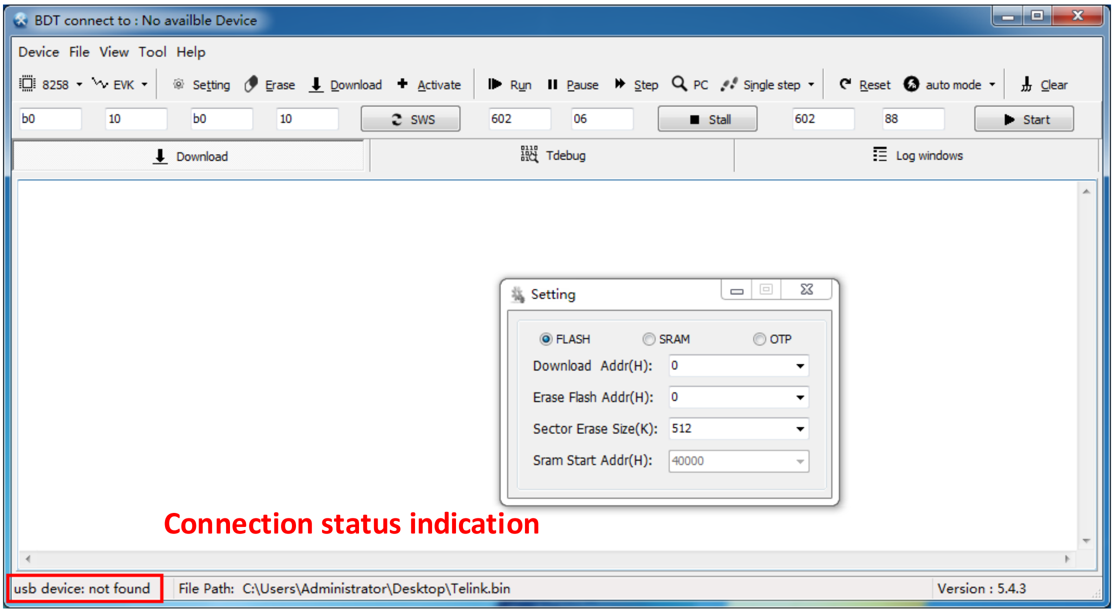
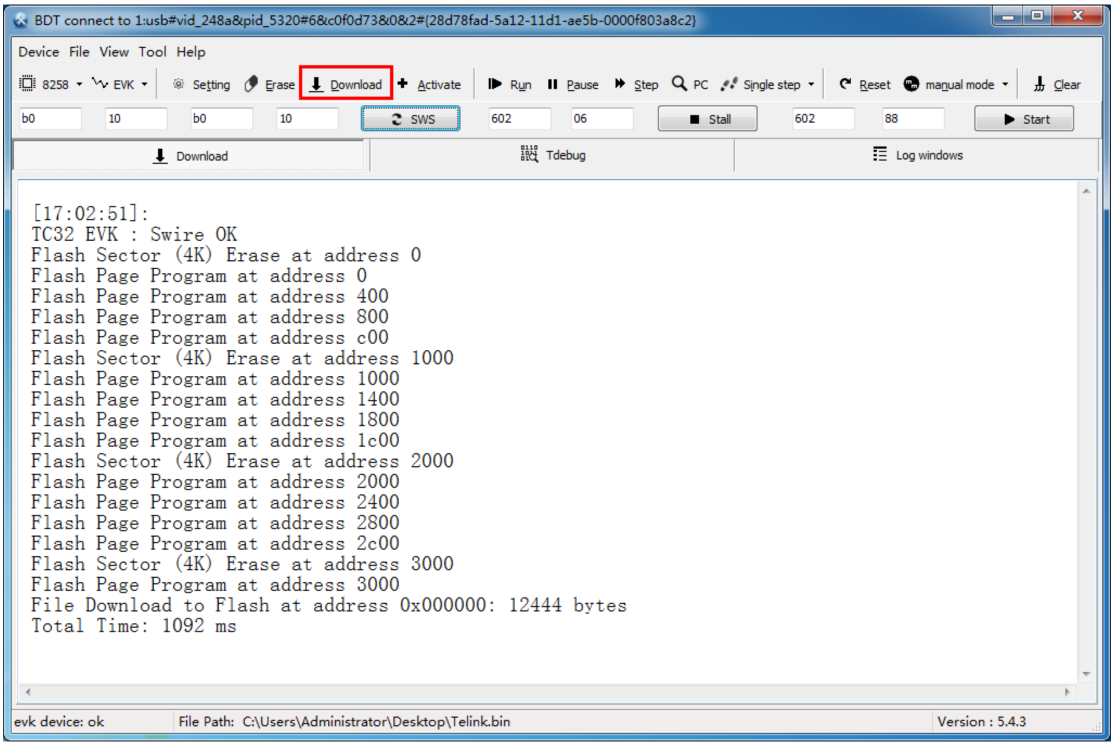

BDT connect to : No availble Device
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows
Setting
● FLASH ○ SRAM ○ OTP
Download Addr(H): 0
Erase Flash Addr(H): 0
Sector Erase Size(K): 512
Sram Start Addr(H): 40000
Connection status indication
usb device: not found
File Path: C:\Users\Administrator\Desktop\Telink.bin
Version : 5.4.3

Figure 2-23 Check Connection Status

Step6: Download the selected file into the target board.

By clicking the “Download” button, the selected firmware file will be downloaded into the specified flash space of the target board via EVK mode. The log window will indicate corresponding log information, as shown below.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset manual mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

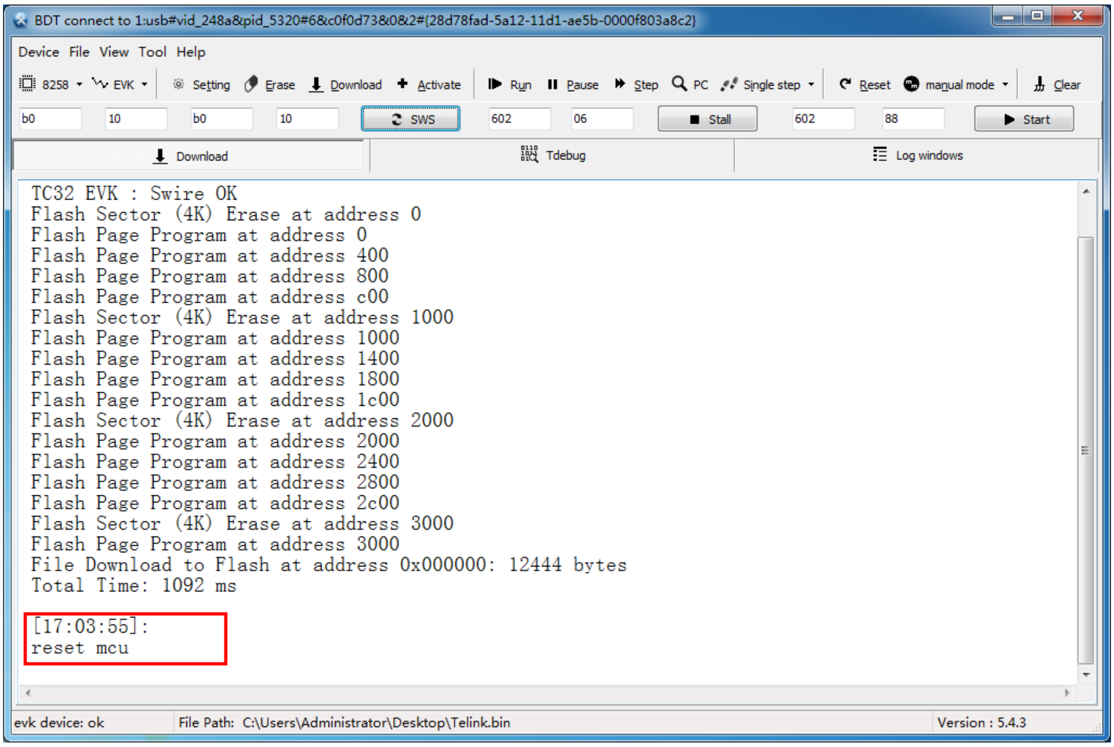
```
[17:02:51]:
TC32 EVK : Swire OK
Flash Sector (4K) Erase at address 0
Flash Page Program at address 0
Flash Page Program at address 400
Flash Page Program at address 800
Flash Page Program at address c00
Flash Sector (4K) Erase at address 1000
Flash Page Program at address 1000
Flash Page Program at address 1400
Flash Page Program at address 1800
Flash Page Program at address 1c00
Flash Sector (4K) Erase at address 2000
Flash Page Program at address 2000
Flash Page Program at address 2400
Flash Page Program at address 2800
Flash Page Program at address 2c00
Flash Sector (4K) Erase at address 3000
Flash Page Program at address 3000
File Download to Flash at address 0x000000: 12444 bytes
Total Time: 1092 ms
```

evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-24 Download FW into Flash via “**Burning EVK**” mode

Step7: Reset MCU to make the newly-downloaded program run without the need to power down MCU. User can following either of the following two methods to make MCU boot and run.

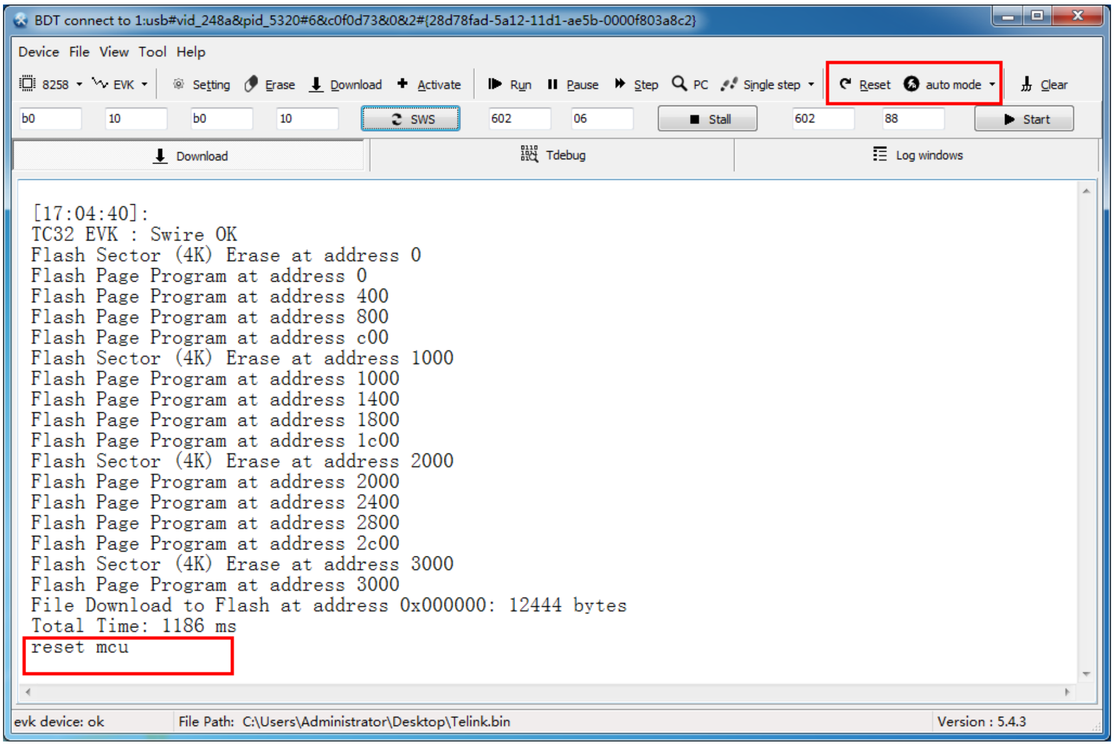
- ✧ If "manual mode" is selected via the drop-down menu, after FW burning user can click the "Reset" button at the top right corner of the tool to manually reset the MCU.
- ✧ User can also select "auto mode" via the drop-down menu before FW burning, so as to enable auto reset after FW burning.



```
TC32 EVK : Swire OK
Flash Sector (4K) Erase at address 0
Flash Page Program at address 0
Flash Page Program at address 400
Flash Page Program at address 800
Flash Page Program at address c00
Flash Sector (4K) Erase at address 1000
Flash Page Program at address 1000
Flash Page Program at address 1400
Flash Page Program at address 1800
Flash Page Program at address 1c00
Flash Sector (4K) Erase at address 2000
Flash Page Program at address 2000
Flash Page Program at address 2400
Flash Page Program at address 2800
Flash Page Program at address 2c00
Flash Sector (4K) Erase at address 3000
Flash Page Program at address 3000
File Download to Flash at address 0x000000: 12444 bytes
Total Time: 1092 ms

[17:03:55]:
reset mcu
```

evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-25 Manual MCU reset



```
[17:04:40]:
TC32 EVK : Swire OK
Flash Sector (4K) Erase at address 0
Flash Page Program at address 0
Flash Page Program at address 400
Flash Page Program at address 800
Flash Page Program at address c00
Flash Sector (4K) Erase at address 1000
Flash Page Program at address 1000
Flash Page Program at address 1400
Flash Page Program at address 1800
Flash Page Program at address 1c00
Flash Sector (4K) Erase at address 2000
Flash Page Program at address 2000
Flash Page Program at address 2400
Flash Page Program at address 2800
Flash Page Program at address 2c00
Flash Sector (4K) Erase at address 3000
Flash Page Program at address 3000
File Download to Flash at address 0x000000: 12444 bytes
Total Time: 1186 ms
reset mcu
```

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-26 Auto MCU reset

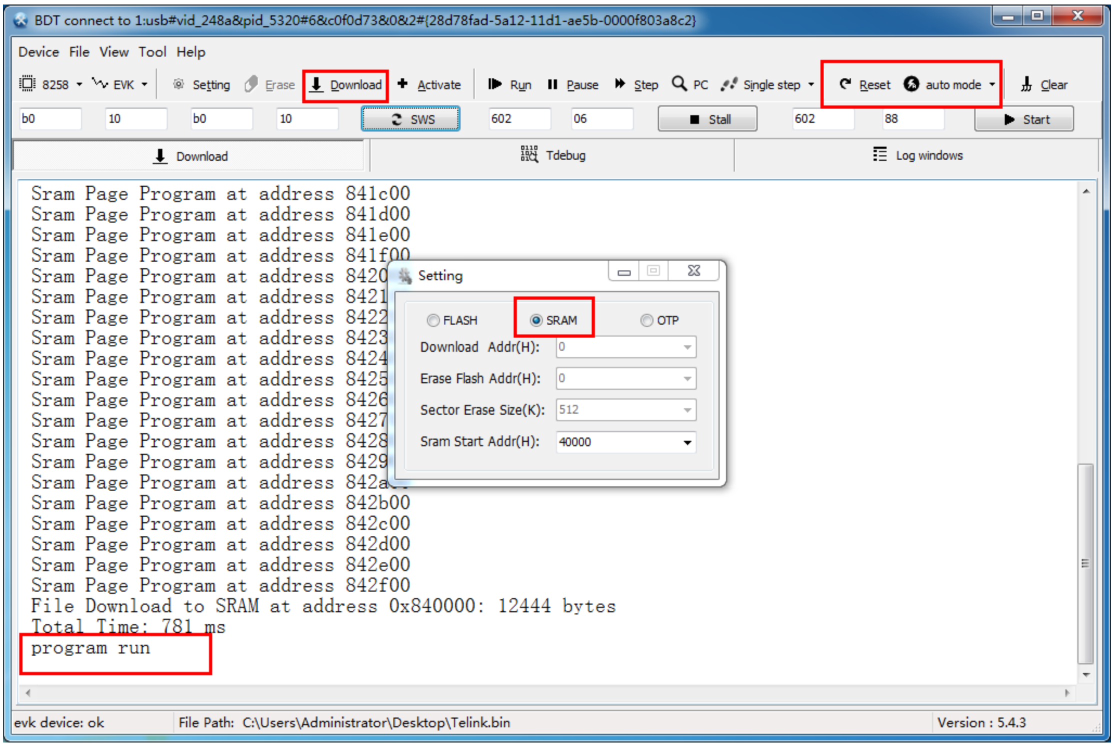
2.1.5 Download FW into “SRAM” or “OTP”

By default, the “Setting” option is set as “Flash”, i.e. by clicking the “Download” button, the target firmware will be downloaded into the target board’s “Flash” space.

User can also change the “Setting” option to “SRAM” or “OTP”. In this case, by clicking the “Download” button, the target firmware will be downloaded into the target board’s “SRAM” or “OTP” space correspondingly.

For the TLSR8258, the starting SRAM address for target firmware is 0x040000. For other Telink’s SoCs, the starting SRAM address for target firmware is 0x008000. Of course, user can set other address as needed in the editable box.

After the target file is downloaded successfully, the target board will not automatically run the new FW in “manual mode”, so user needs to click the “Reset” button to make program boot. User can also select “auto mode” via the drop-down menu before downloading, so as to enable auto MCU reset.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

b0 | 10 | b0 | 10 | 602 | 06 | 602 | 88

```
Sram Page Program at address 841c00
Sram Page Program at address 841d00
Sram Page Program at address 841e00
Sram Page Program at address 841f00
Sram Page Program at address 8420
Sram Page Program at address 8421
Sram Page Program at address 8422
Sram Page Program at address 8423
Sram Page Program at address 8424
Sram Page Program at address 8425
Sram Page Program at address 8426
Sram Page Program at address 8427
Sram Page Program at address 8428
Sram Page Program at address 8429
Sram Page Program at address 842a
Sram Page Program at address 842b00
Sram Page Program at address 842c00
Sram Page Program at address 842d00
Sram Page Program at address 842e00
Sram Page Program at address 842f00
File Download to SRAM at address 0x840000: 12444 bytes
Total Time: 781 ms
program run
```

Setting

○ FLASH ● SRAM ○ OTP

Download Addr(H): 0

Erase Flash Addr(H): 0

Sector Erase Size(K): 512

Sram Start Addr(H): 40000

evk device: ok | File Path: C:\Users\Administrator\Desktop\Telink.bin | Version : 5.4.3

Figure 2-27 Download firmware to “SRAM” via “auto mode”

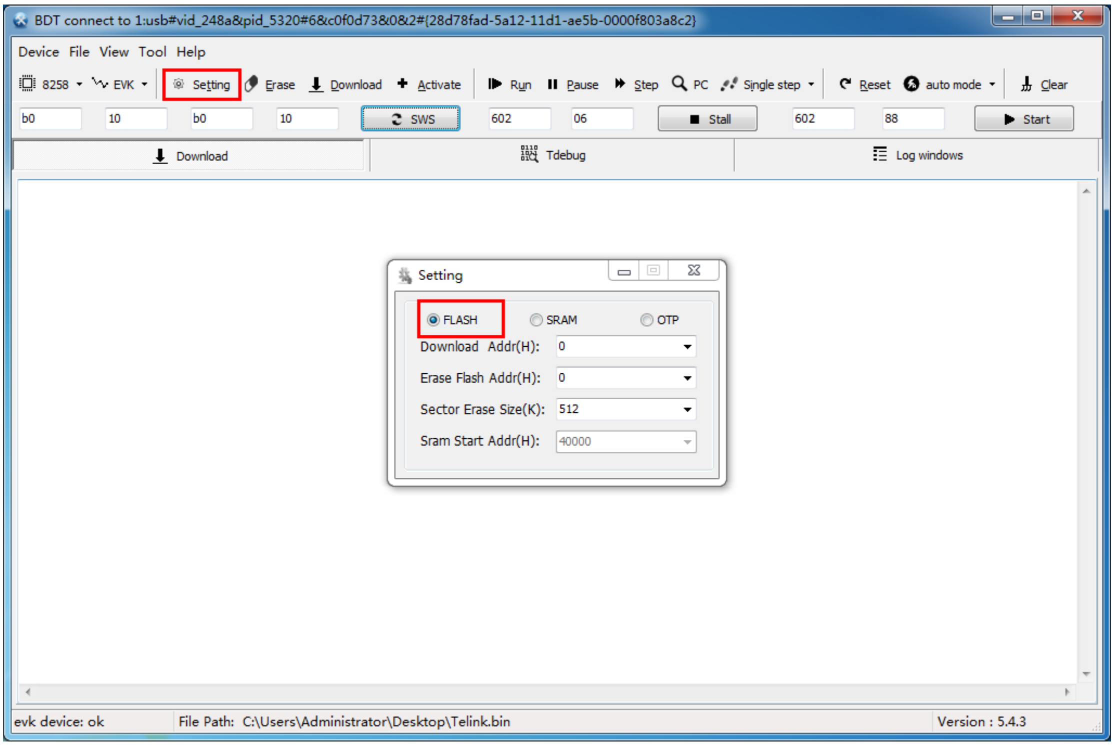
If target board supports OTP function, user can download firmware into “OTP”. Refer to section **4 Function Support List** for details.

2.1.6 Multi-address Download

Sometimes, it is necessary to download more than one firmware into different addresses of FLASH, SRAM or OTP.

For example, user can follow the steps below to download “Telink.bin” into the address “0x000000” and “0x005000” of FlASH.

Step 1: Select the destination memory space (e.g. FLASH) to store firmware to be downloaded.


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows
Setting

● FLASH ○ SRAM ○ OTP

Download Addr(H): 0

Erase Flash Addr(H): 0

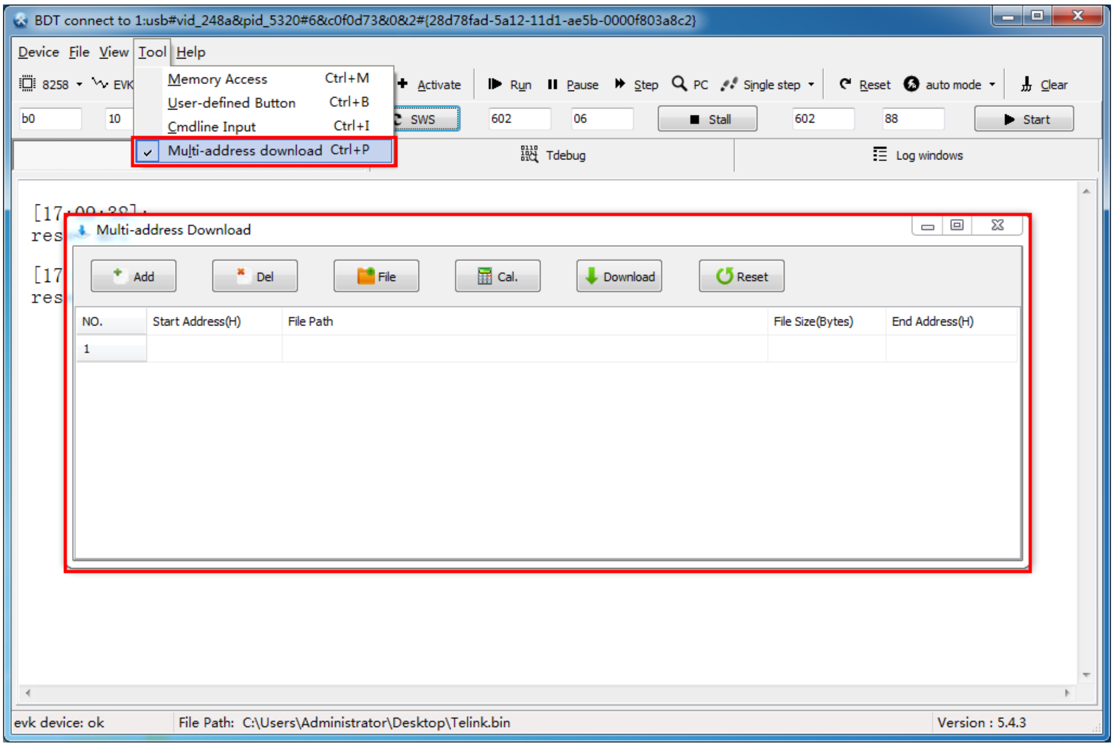
Sector Erase Size(K): 512

Sram Start Addr(H): 40000

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-28 Select destination space

Step 2: Click "Tool->Multi-address download" or press the shortcut key "Ctrl + P", so as to open the "Multi-address Download" interface.

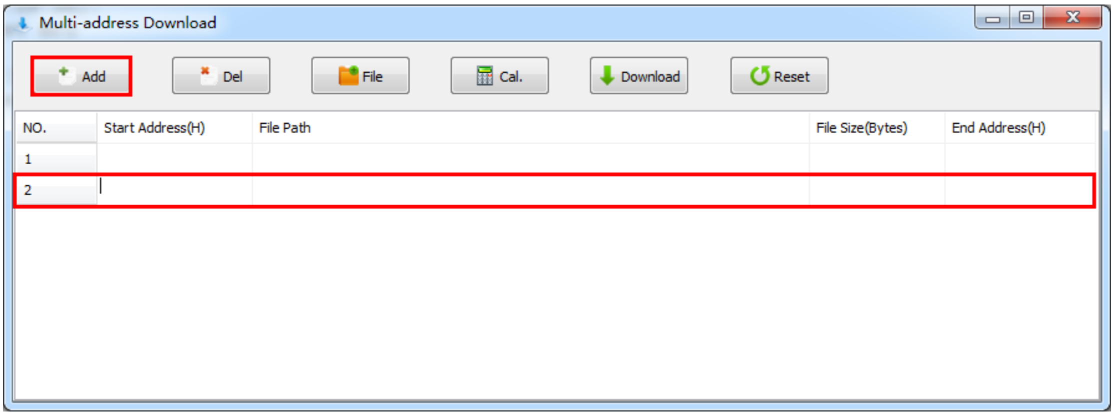


NO.	Start Address(H)	File Path	File Size(Bytes)	End Address(H)
1				

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-29 Open "Multi-address Download" interface

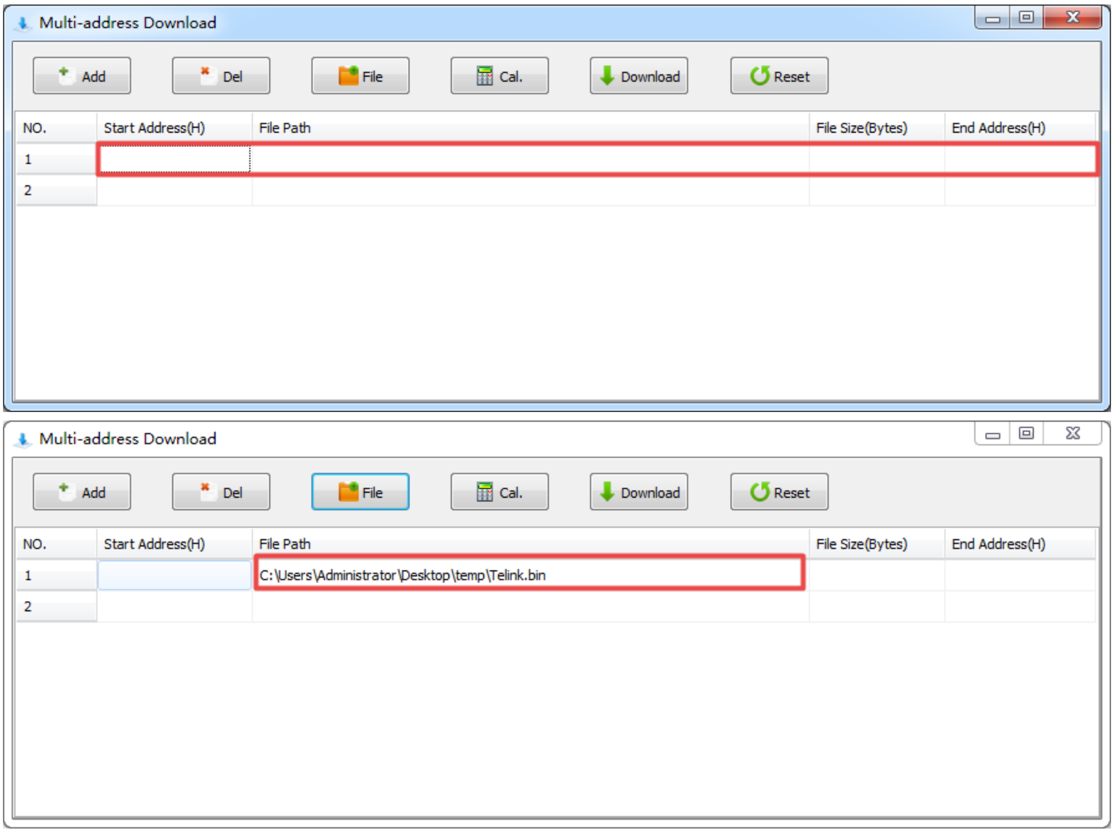
Step 3: Click the “Add” button so as to add firmware file and set target address.



NO.	Start Address(H)	File Path	File Size(Bytes)	End Address(H)
1				
2				

Step 4: Add the path of firmware 1 to the list and set the offset of starting address to store this firmware.

1) First, select the first line (No.1), and click the “File” button to add target bin file (e.g. “Telink.bin”) to the list. The corresponding directory will be shown in the “File Path” column.



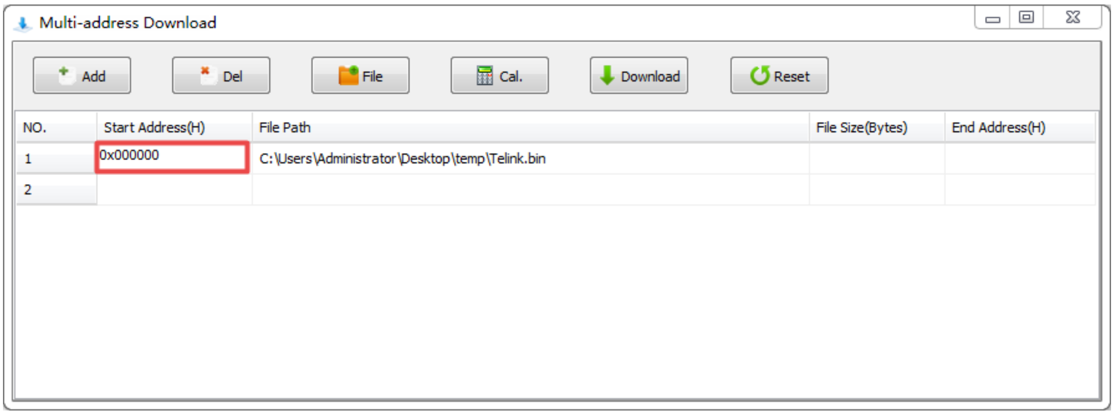
NO.	Start Address(H)	File Path	File Size(Bytes)	End Address(H)
1				
2				

NO.	Start Address(H)	File Path	File Size(Bytes)	End Address(H)
1		C:\Users\Administrator\Desktop\temp\Telink.bin		
2				

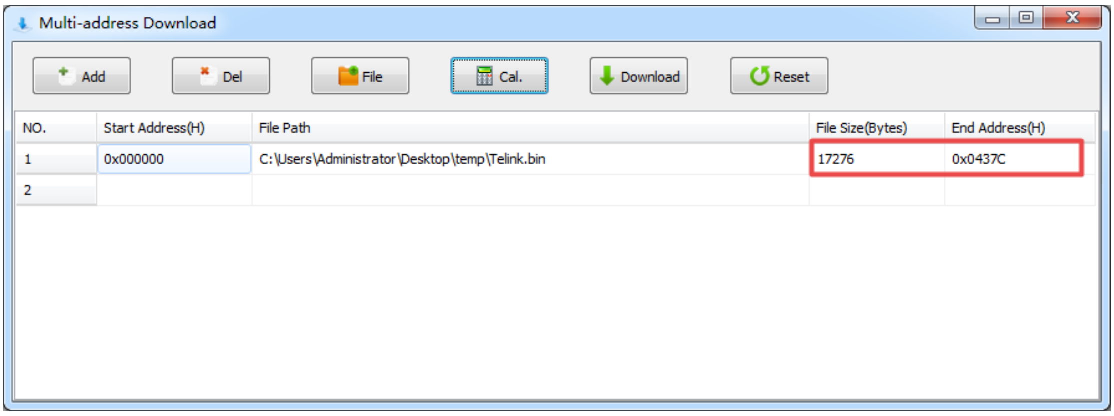
Figure 2-30 Add FW

2) Then set the offset of starting FLASH address to store this firmware in the “Start Address(H)” column.

To ensure that the destination area for firmware storage is valid, the tool will automatically calculate the firmware size and end address, and then show the calculation result in the “File Size(Bytes)” and “End Address(H)” column.



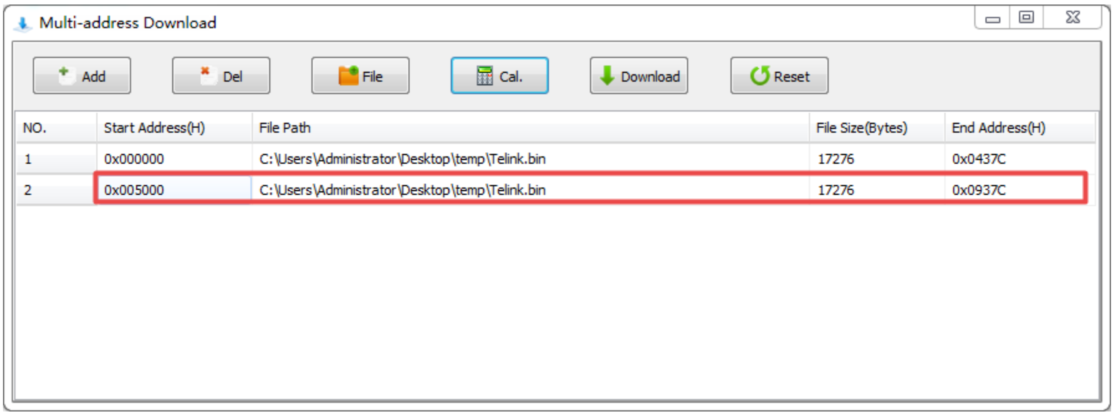
NO.	Start Address(H)	File Path	File Size(Bytes)	End Address(H)
1	0x000000	C:\Users\Administrator\Desktop\temp\Telink.bin		
2				



NO.	Start Address(H)	File Path	File Size(Bytes)	End Address(H)
1	0x000000	C:\Users\Administrator\Desktop\temp\Telink.bin	17276	0x0437C
2				

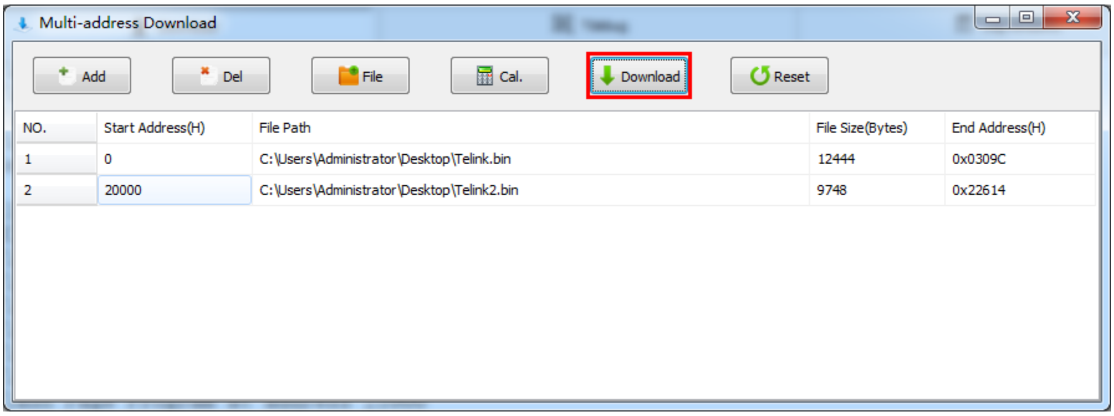
Figure 2-31 Set offset address

Step 5: Refer to step 4 to add the path of firmware 2 to the list and set the offset of starting address to store this firmware.

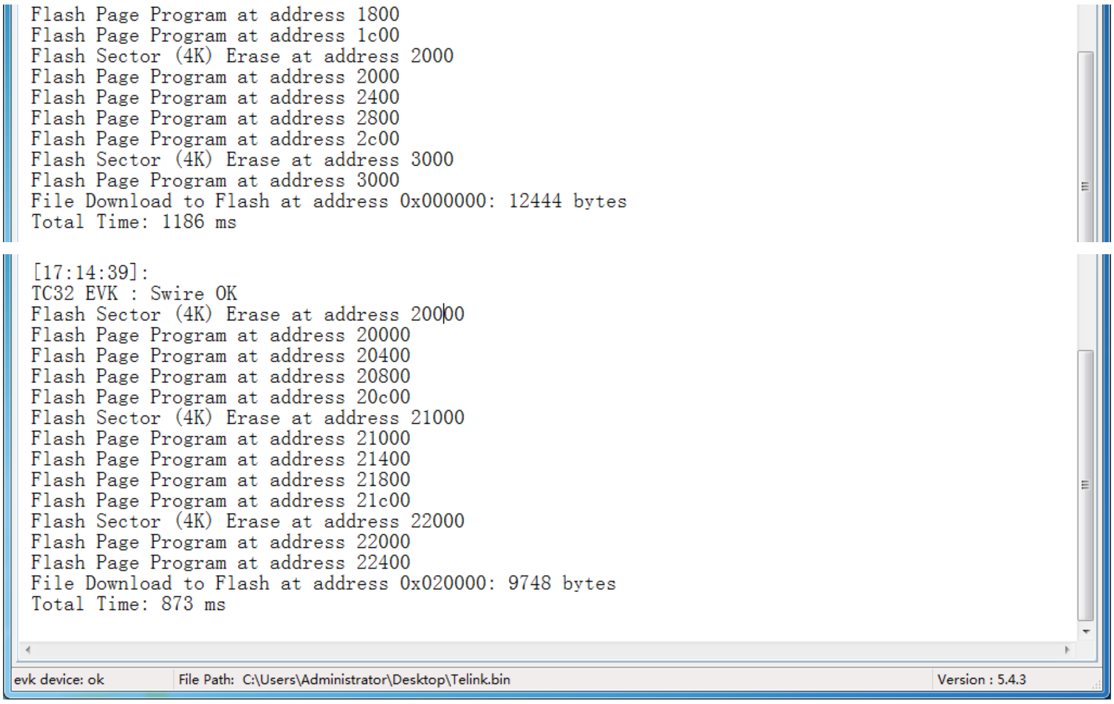


NO.	Start Address(H)	File Path	File Size(Bytes)	End Address(H)
1	0x000000	C:\Users\Administrator\Desktop\temp\Telink.bin	17276	0x0437C
2	0x005000	C:\Users\Administrator\Desktop\temp\Telink.bin	17276	0x0937C

Step 6: Click the “Download” button to download the added firmware1 and firmware2 into the specific memory locations of the target board.



NO.	Start Address(H)	File Path	File Size(Bytes)	End Address(H)
1	0	C:\Users\Administrator\Desktop\Telink.bin	12444	0x0309C
2	20000	C:\Users\Administrator\Desktop\Telink2.bin	9748	0x22614



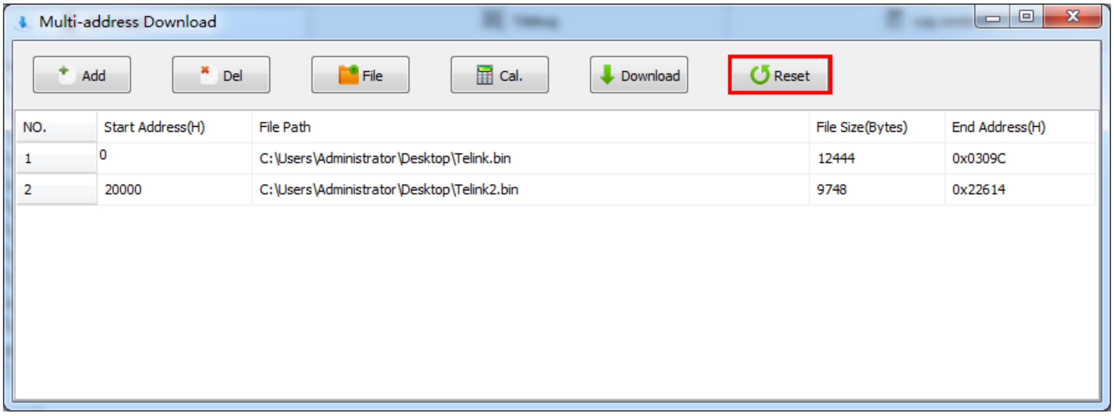
```
Flash Page Program at address 1800
Flash Page Program at address 1c00
Flash Sector (4K) Erase at address 2000
Flash Page Program at address 2000
Flash Page Program at address 2400
Flash Page Program at address 2800
Flash Page Program at address 2c00
Flash Sector (4K) Erase at address 3000
Flash Page Program at address 3000
File Download to Flash at address 0x000000: 12444 bytes
Total Time: 1186 ms
```

```
[17:14:39]:
TC32 EVK : Swire OK
Flash Sector (4K) Erase at address 20000
Flash Page Program at address 20000
Flash Page Program at address 20400
Flash Page Program at address 20800
Flash Page Program at address 20c00
Flash Sector (4K) Erase at address 21000
Flash Page Program at address 21000
Flash Page Program at address 21400
Flash Page Program at address 21800
Flash Page Program at address 21c00
Flash Sector (4K) Erase at address 22000
Flash Page Program at address 22000
Flash Page Program at address 22400
File Download to Flash at address 0x020000: 9748 bytes
Total Time: 873 ms
```

evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-32 Start downloading

Step 7: After downloading all firmware into the target board, click the “Reset” button to make program run without the need to power cycle the target board.



NO.	Start Address(H)	File Path	File Size(Bytes)	End Address(H)
1	0	C:\Users\Administrator\Desktop\Telink.bin	12444	0x0309C
2	20000	C:\Users\Administrator\Desktop\Telink2.bin	9748	0x22614

Figure 2-33 Reset

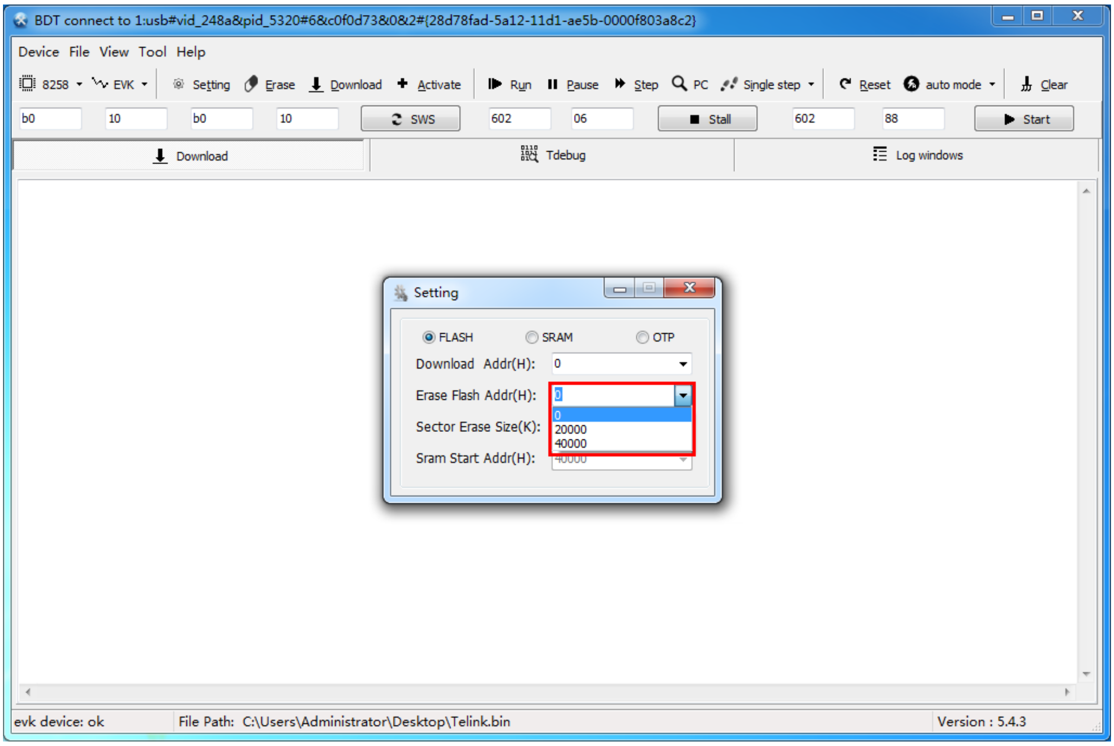
2.2 Flash sector erase

The “Flash sector erase” function is used to erase specific flash space starting from specific address in unit of 4kB.

For example, to erase 64kB flash space starting from address 0x040000, user can follow the steps below.

Step1: Click the “Setting” button to open the Setting dialog. Select the “FLASH” setting option.

To set the starting address of flash space to be erased, e.g. 0x040000 (default option: 0x000000), user can either select the offset option (if available) via the drop-down menu of “Erase Flash Addr” or directly input the offset address in the editable box.


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

Setting

● FLASH ○ SRAM ○ OTP

Download Addr(H): 0

Erase Flash Addr(H): 0

0
20000
40000

Sector Erase Size(K):

Sram Start Addr(H): 40000

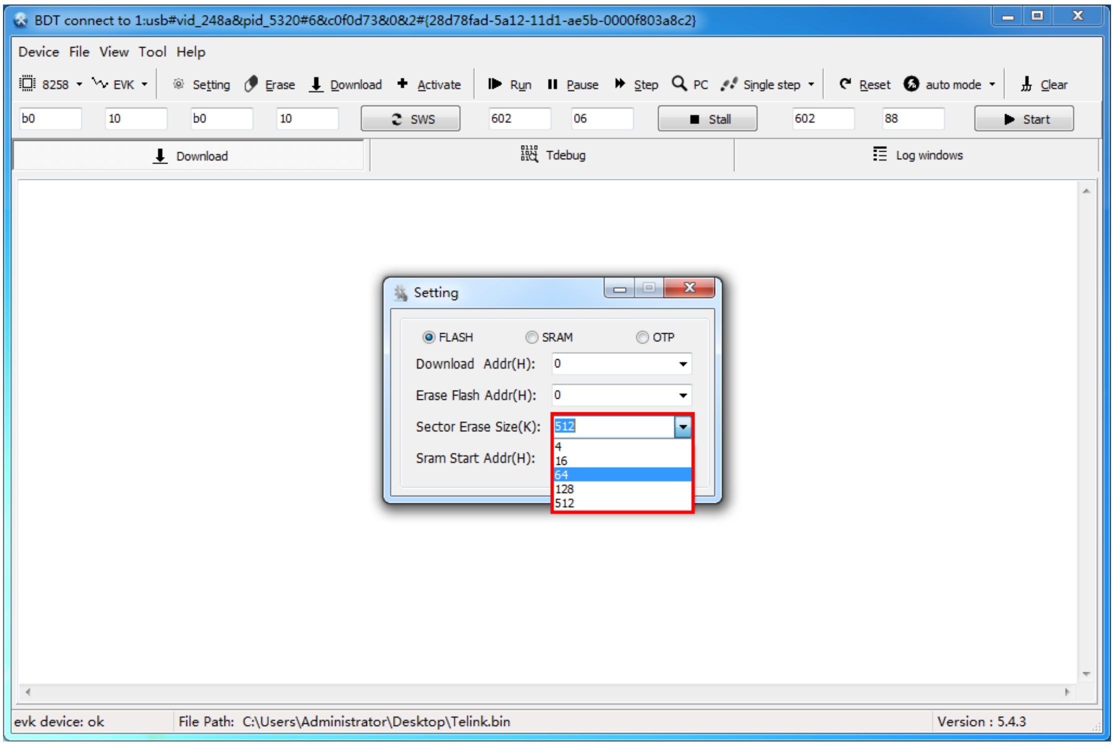
evk device: ok

File Path: C:\Users\Administrator\Desktop\Telink.bin

Version : 5.4.3

Figure 2-34 Select starting address

Step2: To set the size of flash space to be erased in unit of 4kB, e.g. 64kB (default option: 512kB), user can either select the size option (if available) via the drop-down menu of "Sector Erase Size" or directly input the size in the editable box.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

Setting

● FLASH ○ SRAM ○ OTP

Download Addr(H): 0

Erase Flash Addr(H): 0

Sector Erase Size(K): 512

Sram Start Addr(H):

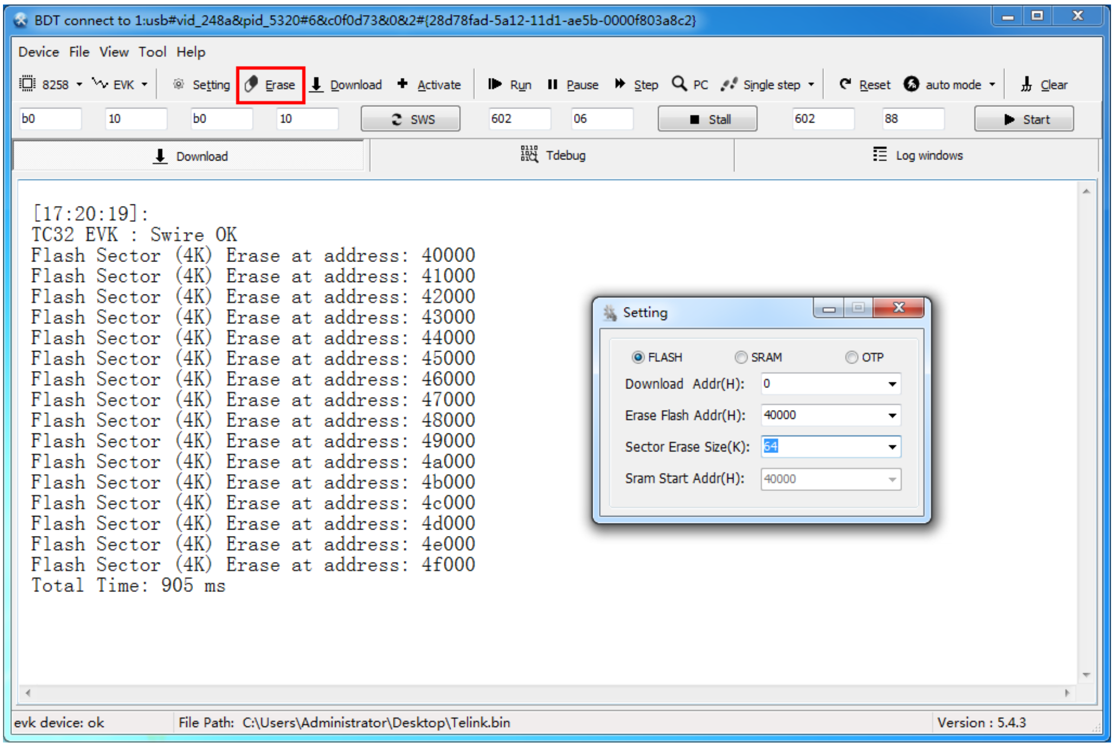
evk device: ok

File Path: C:\Users\Administrator\Desktop\Telink.bin

Version : 5.4.3

Figure 2-35 Set erase size

Step3: Click the "Erase" button to start erasing the specified flash space of the target board.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258
EVK
Setting
Erase
Download
Activate
Run
Pause
Step
PC
Single step
Reset
auto mode
Clear
SWS
Stall
Start
Download
Tdebug
Log windows

```
[17:20:19]:
TC32 EVK : Swire OK
Flash Sector (4K) Erase at address: 40000
Flash Sector (4K) Erase at address: 41000
Flash Sector (4K) Erase at address: 42000
Flash Sector (4K) Erase at address: 43000
Flash Sector (4K) Erase at address: 44000
Flash Sector (4K) Erase at address: 45000
Flash Sector (4K) Erase at address: 46000
Flash Sector (4K) Erase at address: 47000
Flash Sector (4K) Erase at address: 48000
Flash Sector (4K) Erase at address: 49000
Flash Sector (4K) Erase at address: 4a000
Flash Sector (4K) Erase at address: 4b000
Flash Sector (4K) Erase at address: 4c000
Flash Sector (4K) Erase at address: 4d000
Flash Sector (4K) Erase at address: 4e000
Flash Sector (4K) Erase at address: 4f000
Total Time: 905 ms
```

Setting

● FLASH ○ SRAM ○ OTP

Download Addr(H): 0

Erase Flash Addr(H): 40000

Sector Erase Size(K): 64

Sram Start Addr(H): 40000

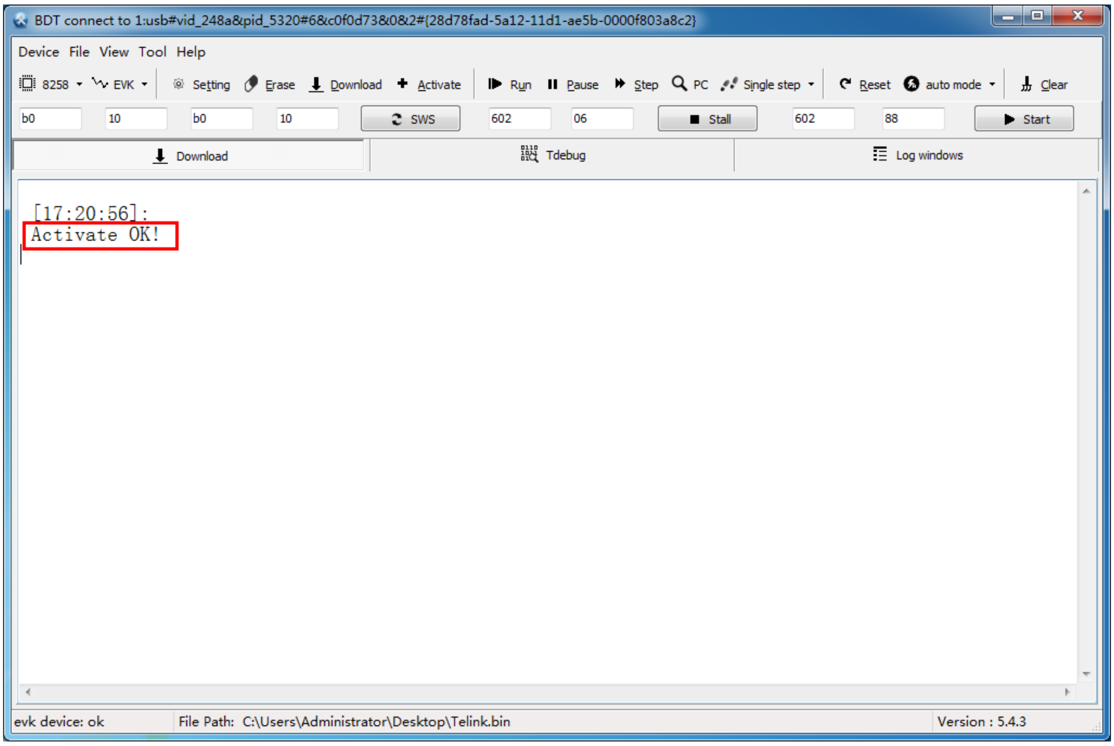
evk device: ok | File Path: C:\Users\Administrator\Desktop\Telink.bin | Version : 5.4.3

Figure 2-36 Erase 512kB flash space starting from 0x000000

2.3 Activate MCU

The function of “Activate MCU when communication with target board failed” only applies to Swire connection between “**Burning EVK**” and target board in “**EVK**” mode, i.e. it does NOT support “**USB**” mode or USB connection between “**Burning EVK**” and target board in “**EVK**” mode.

When firmware burning fails, please ensure the target board is connected with “**Burning EVK**” via Swire, and then click the “Activate” button to enable this function to activate the MCU.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

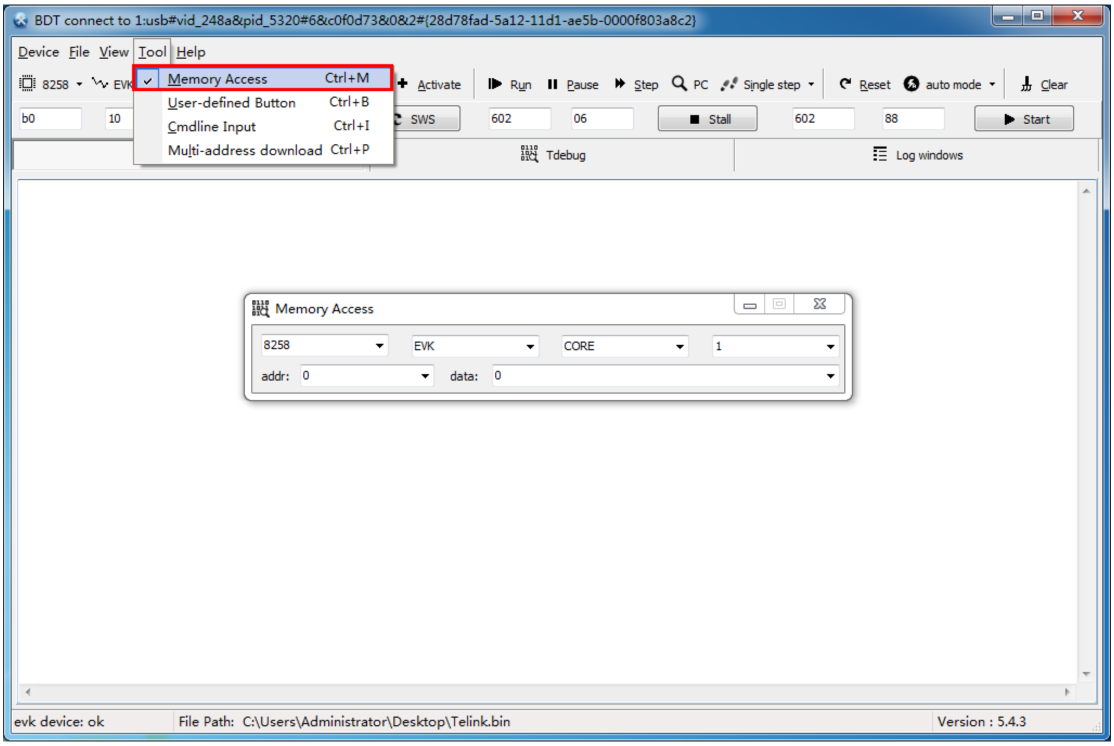
```
[17:20:56]:
Activate OK!
```

evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-37 Activate MCU

2.4 Debug

After MCU starts running, to access memory space (flash/core/analog/otp), user can open the “Memory Access” window as shown in Figure 2-38 by directly pressing the shortcut key combination “Ctrl + M”, or by clicking “Tool->Memory Access”.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

8258 | EVK | CORE | 1

addr: 0 data: 0

evk device: ok

File Path: C:\Users\Administrator\Desktop\Telink.bin

Version : 5.4.3

Figure 2-38 “Memory Access” interface

Table 2-1 Item list of Memory Access

ITEMS	Value list	Default	Shortcut
MCU Type	8366/8368/8266/8267/8269/8232/8233/8x5x	8258	Ctrl+Q
Communication Mode	EVK(Burning EVK)/USB	EVK	Ctrl+W
Operation Destination	FLASH/CORE[1]/ANALOG[2]/OTP	CORE	Ctrl+E
Operation Size (Unit: Byte)	1/2/4/8/16	1	Ctrl+R
Address	0	0	Ctrl+A
Data	0	0	Ctrl+D

[1] CORE includes digital registers and SRAM.

[2] ANALOG means analog registers.

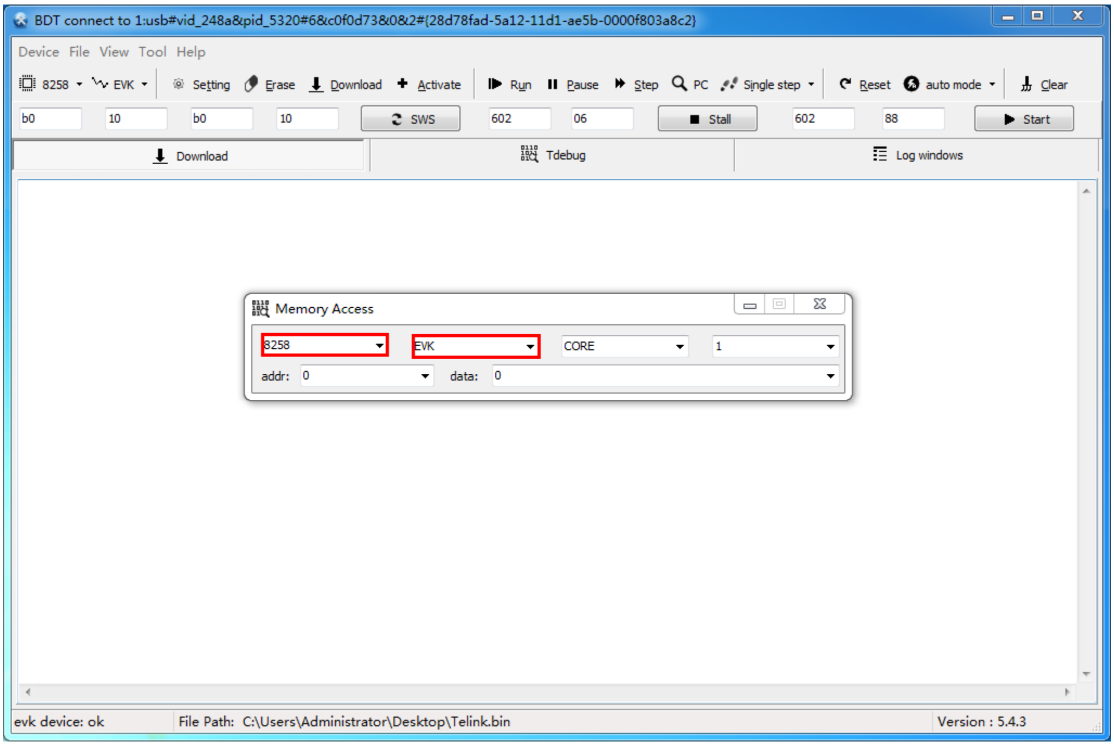
2.4.1 Access memory

2.4.1.1 Read data from memory space

To read data from specific memory space (FLASH/CORE/ANALOG/OTP), user can follow the steps below:

Step1: Select MCU type (e.g. “8258”) and communication mode (e.g. “EVK”) with target board on the “Memory Access” window.

*Note: If you select “USB” mode to communicate with target board, please ensure that the selected MCU supports USB function and its USB function is available.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

Memory Access

8258 EVK CORE 1

addr: 0 data: 0

evk device: ok

File Path: C:\Users\Administrator\Desktop\Telink.bin

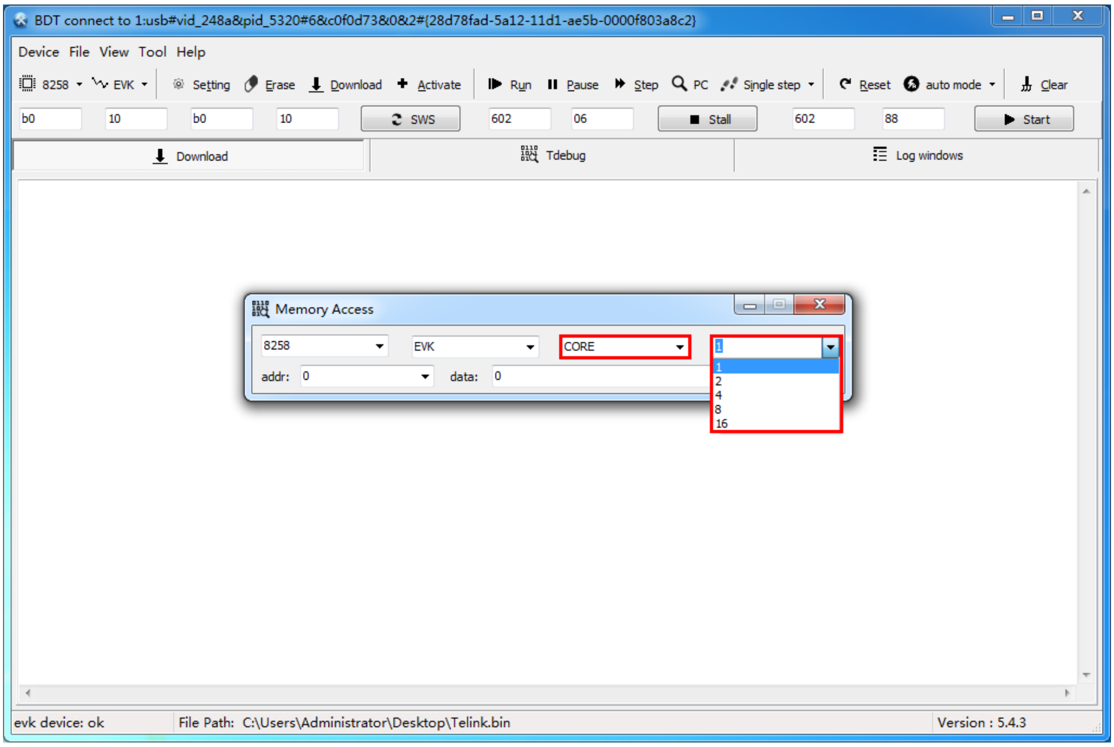
Version : 5.4.3

Figure 2-39 Select MCU type and communication mode

Step2: Select operation destination (e.g. “CORE”) and set operation size (e.g. “16”) on the “Memory Access” window.

*Notes:

- ✧ If you select “OTP” as operation destination, please ensure that the selected MCU supports “OTP” function.
- ✧ To set operation size, user can either select the size option (if available) via the drop-down menu, or directly set the size in the editable box.
- ✧ The maximum operation size is **1MB**.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

Memory Access

8258 EVK CORE 1

addr: 0 data: 0

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

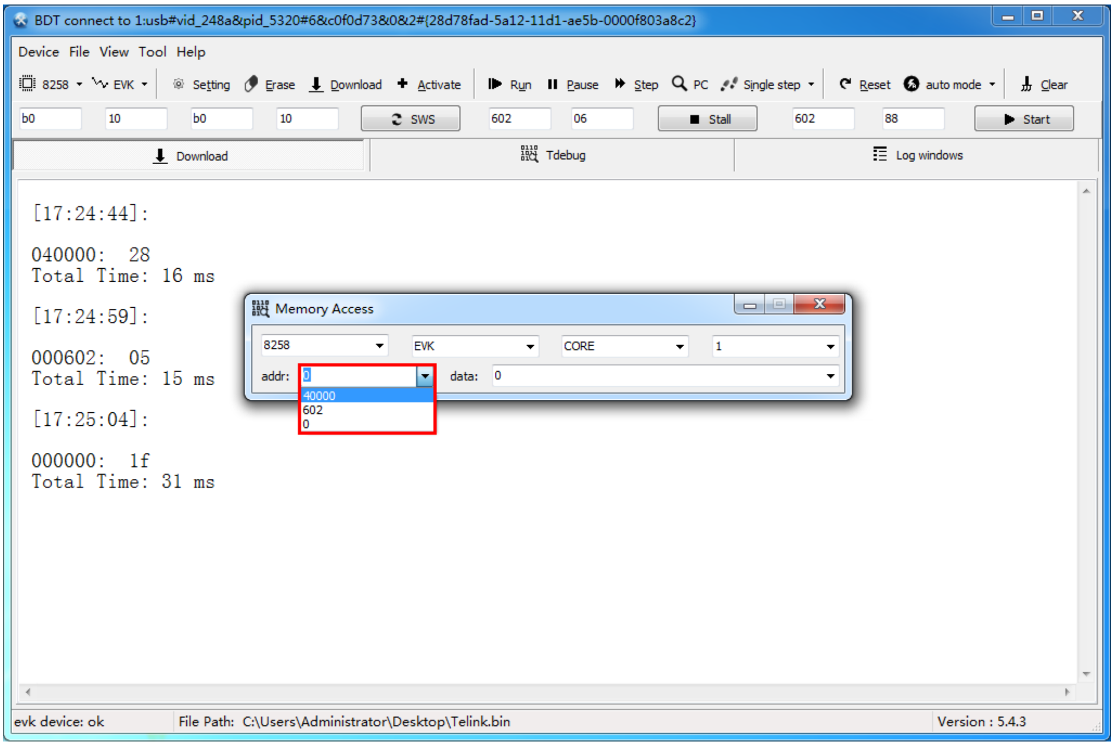
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows
1
2
4
8
16

Figure 2-40 Set operation destination and size

Step3: Move mouse cursor to the "addr" box, and then input the offset of the starting address to be read (e.g. "0x040000"). Keep the cursor in the "addr" box, by clicking the "Tab" key, user can read data from the specified memory space.

*Notes:

1) Every time when clicking the "Tab" key to initiate a memory reading operation, the value of editable box will be saved, so that you can directly select it via the drop-down menu next time.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
SWS Stall Start
Download Tdebug Log windows
Memory Access

Memory Access: 8258, EVK, CORE, 1; addr: 0 (drop-down: 40000, 602, 0); data: 0

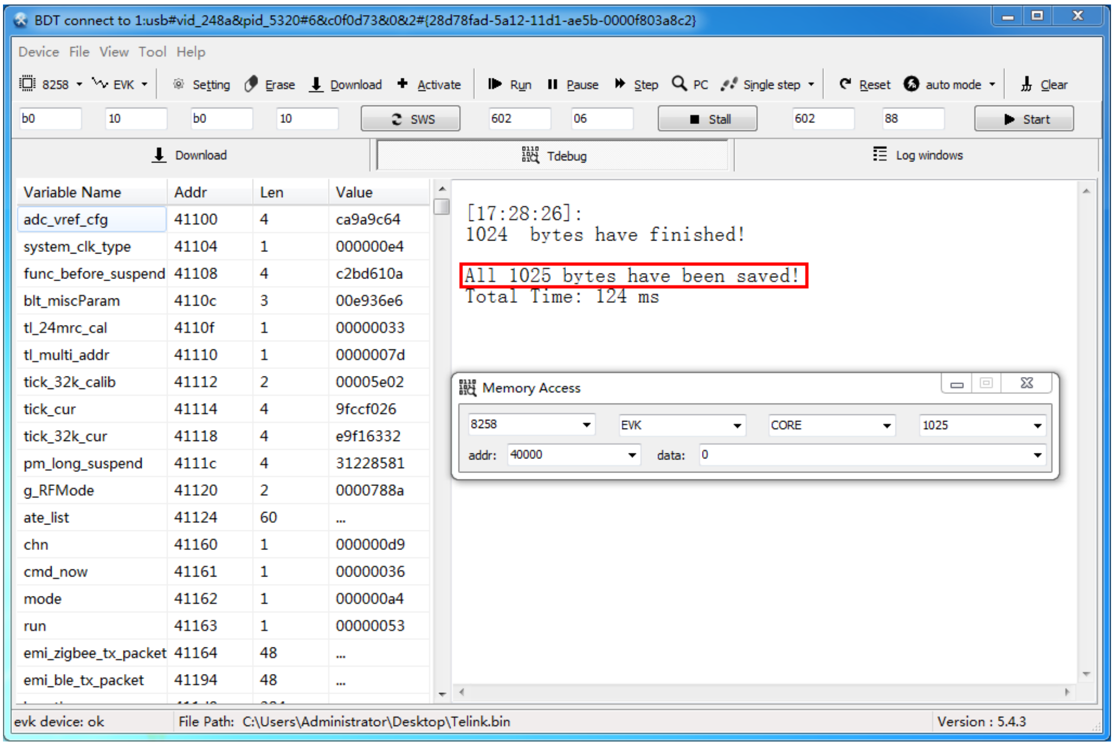
```
[17:24:44]:

040000:  28
Total Time: 16 ms

[17:24:59]:

000602:  05
Total Time: 15 ms

[17:25:04]:

000000:  1f
Total Time: 31 ms
```

evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-41 Set starting address and initiate reading

2) When reading memory space (e.g. CORE) larger than 1kB, the read data will be automatically saved to a file named "Read.bin" under the "user" folder.

   User can also use specific command line to change the name of file to save the read data. Refer to section **2.6 Command line** for details.



b0 | 10 | b0 | 10 | 602 | 06 | 602 | 88

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	ca9a9c64
system_clk_type	41104	1	000000e4
func_before_suspend	41108	4	c2bd610a
blt_miscParam	4110c	3	00e936e6
tl_24mrc_cal	4110f	1	00000033
tl_multi_addr	41110	1	0000007d
tick_32k_calib	41112	2	00005e02
tick_cur	41114	4	9fccf026
tick_32k_cur	41118	4	e9f16332
pm_long_suspend	4111c	4	31228581
g_RFMode	41120	2	0000788a
ate_list	41124	60	...
chn	41160	1	000000d9
cmd_now	41161	1	00000036
mode	41162	1	000000a4
run	41163	1	00000053
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
[17:28:26]:
1024  bytes have finished!

All 1025 bytes have been saved!
Total Time: 124 ms
```

Memory Access: 8258 | EVK | CORE | 1025

addr: 40000 data: 0

evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

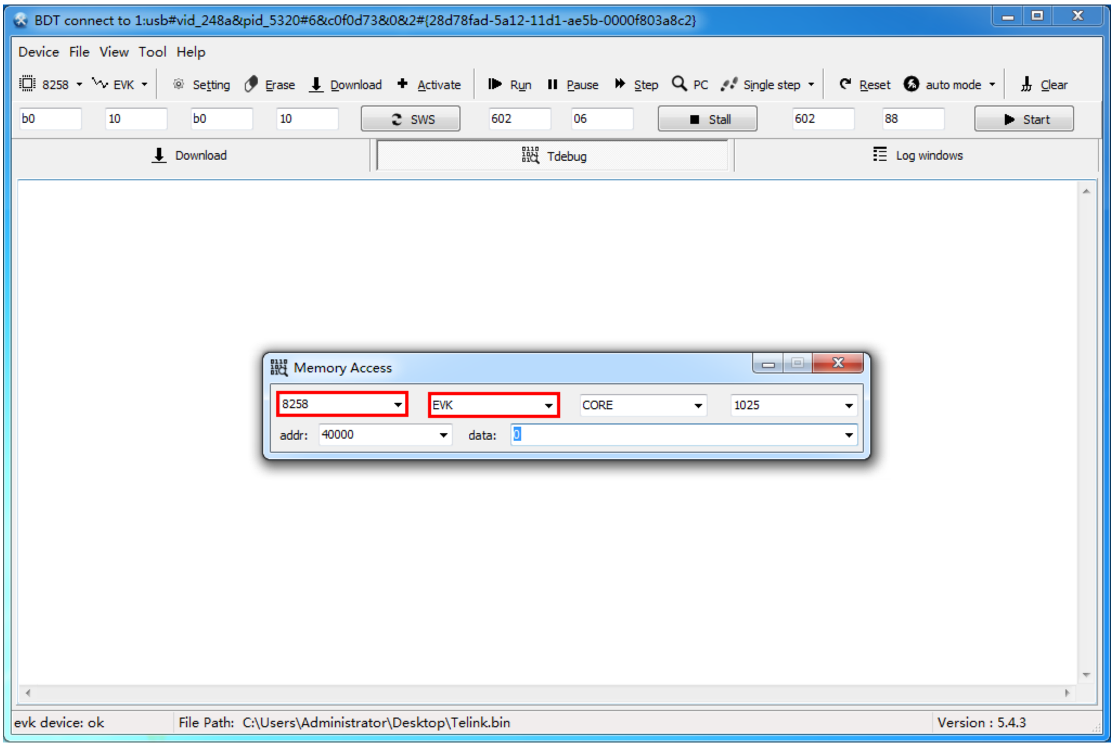
Figure 2-42 Save read data

2.4.1.2 Write data into memory space

To write data into specific memory space, user can follow the steps below:

Step1: Select MCU type (e.g. "8258") and communication mode (e.g. "EVK") with target board on the "Memory Access" window.

*Note: If you select "USB" mode to communicate with target board, please ensure that the selected MCU supports USB function and its USB function is available.



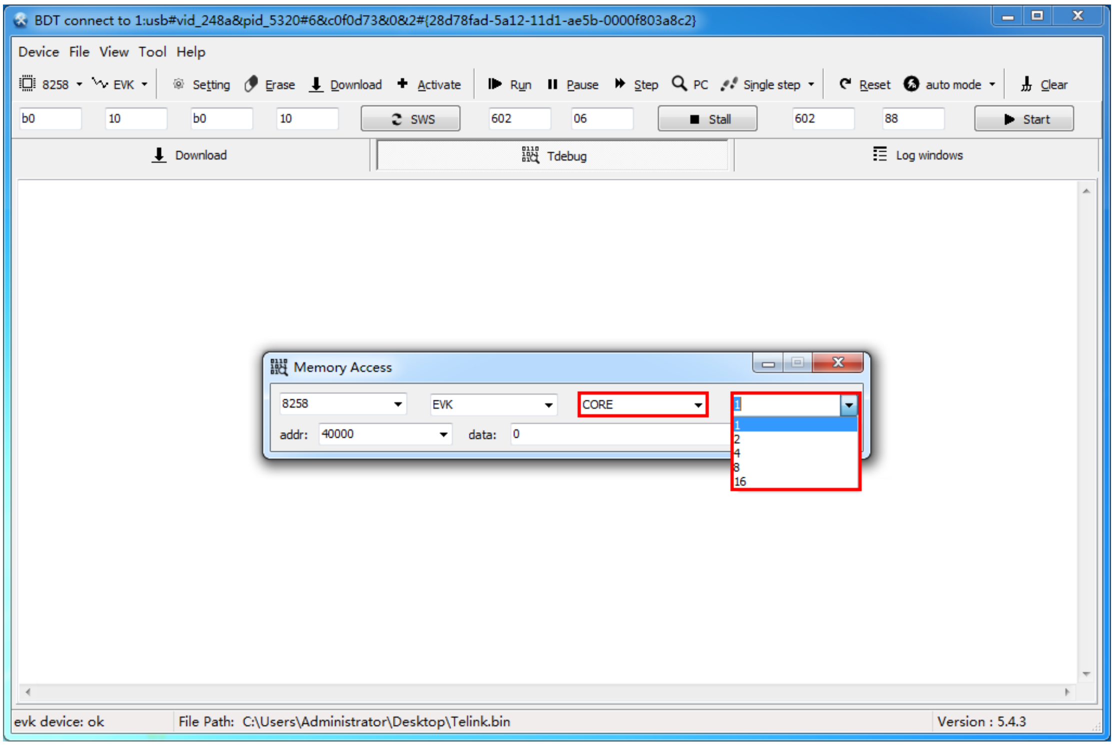
BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows
Memory Access
8258 EVK CORE 1025
addr: 40000 data: 0
evk device: ok
File Path: C:\Users\Administrator\Desktop\Telink.bin
Version : 5.4.3

Figure 2-43 Memory Access Window

Step2: Select operation destination (e.g. “CORE”) and set operation size (e.g. “16”) on the “Memory Access” window.

*Notes:

- If you select “OTP” as operation destination, please ensure that the selected MCU supports “OTP” function.
- To set operation size, user can either select the size option (if available) via the drop-down menu, or directly set the size in the editable box.
- The maximum operation size is **256 bytes**.


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

Memory Access: 8258, EVK, CORE, 1

addr: 40000 data: 0

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-44 Set Operation Size

Step3: Move mouse cursor to the "addr" box, and then input the offset of the starting address to be written (e.g. "0x040000").

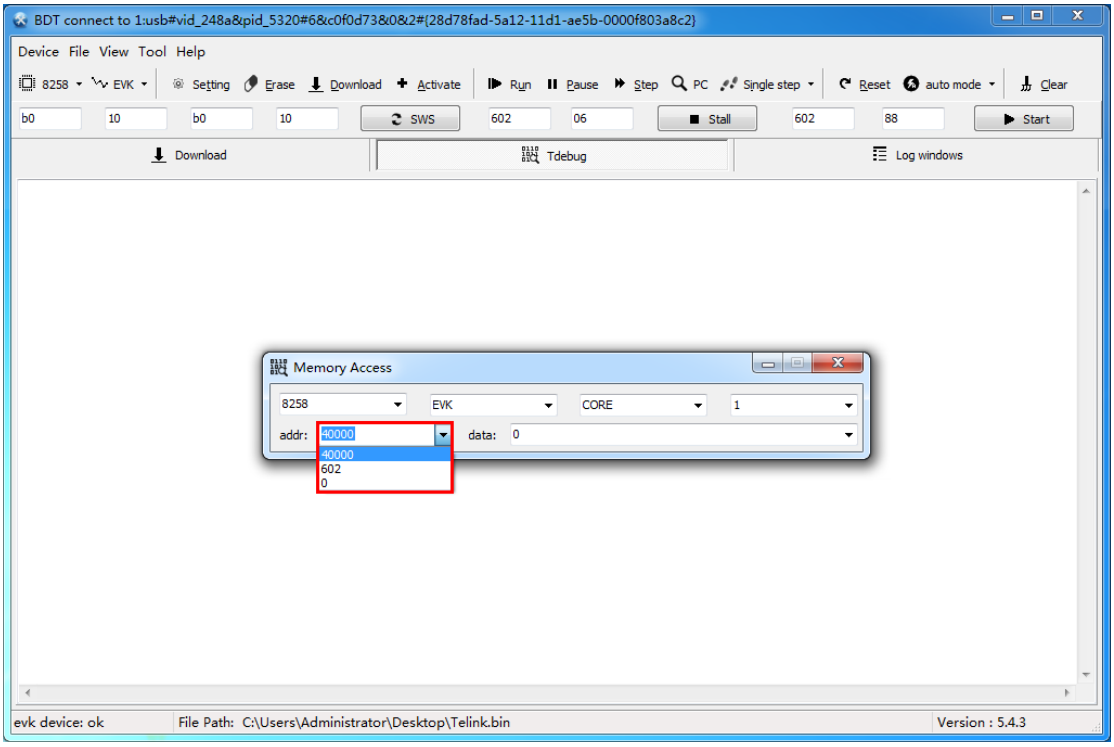

BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows
Memory Access
8258 EVK CORE 1
addr: 40000 data: 0
40000
602
0
evk device: ok
File Path: C:\Users\Administrator\Desktop\Telink.bin
Version : 5.4.3

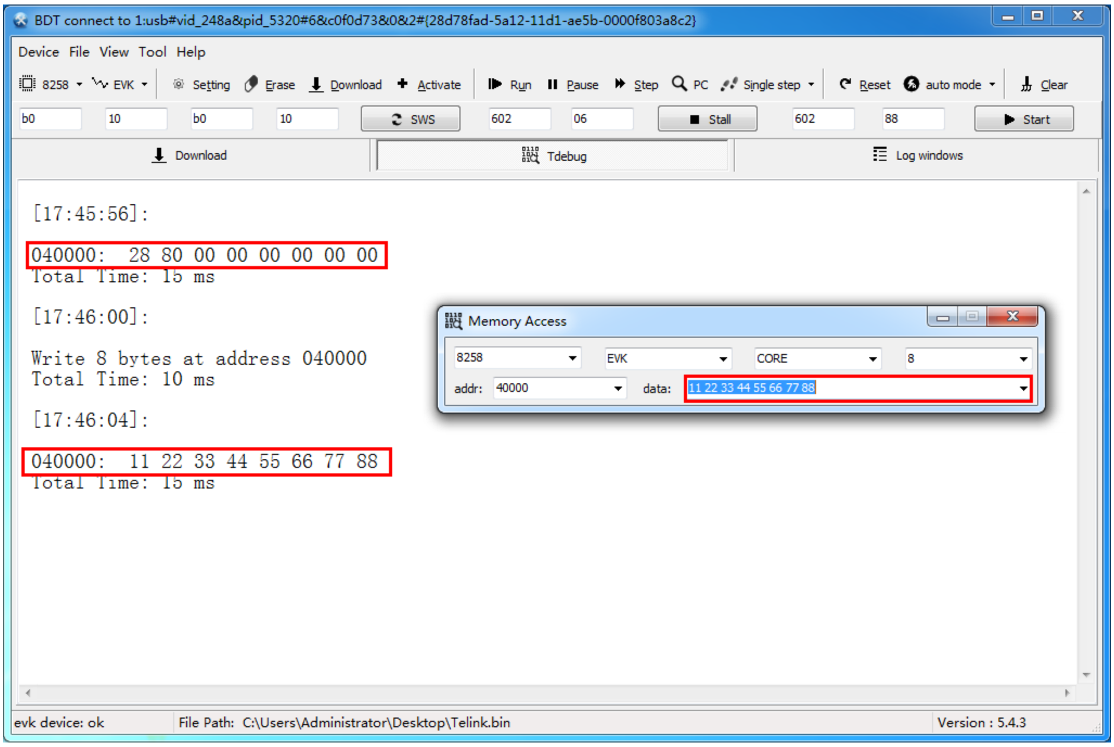
Figure 2-45 Offset of the Starting Address

*Note: When operation destination is selected as "CORE", if the address you set is less than the starting address of "SRAM", the destination memory space that is actually accessed is digital register; if the address you set is greater than the starting address of "SRAM", the destination memory space that is actually accessed is SRAM.

Step4: Write data to the specified address.

Move mouse cursor to the “data” box, and then input the target data to be written. Keep the cursor in the “data” box, by clicking the “Enter” key, user can write the specified data into the specified memory space.

*Note: When inputting the data, bytes must be separated from each other with space, as shown below:



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

```
[17:45:56]:

040000:  28 80 00 00 00 00 00 00
Total Time: 15 ms

[17:46:00]:

Write 8 bytes at address 040000
Total Time: 10 ms

[17:46:04]:

040000:  11 22 33 44 55 66 77 88
Total Time: 15 ms
```

Memory Access

8258 | EVK | CORE | 8

addr: 40000 data: 11 22 33 44 55 66 77 88

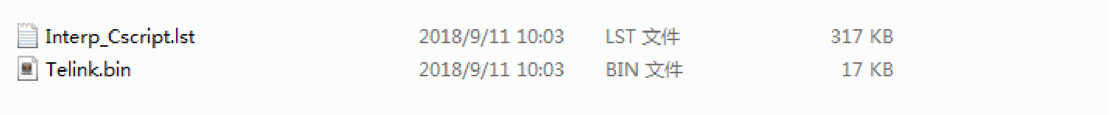
evk device: ok | File Path: C:\Users\Administrator\Desktop\Telink.bin | Version : 5.4.3

Figure 2-46 Set data and initiate writing

2.4.2 Operate Variable List

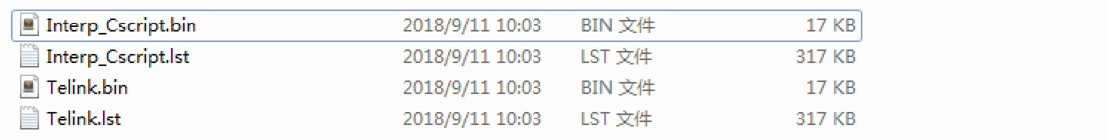
Before viewing all global variables, please ensure that the ".lst" file and the ".bin" file are placed under the same directory as shown in the following two supported cases.

Case 1: If only one pair of ".lst" file and the ".bin" file are placed under the same directory, this ".lst" file will be selected automatically.



Interp_Cscript.lst	2018/9/11 10:03	LST 文件	317 KB
Telink.bin	2018/9/11 10:03	BIN 文件	17 KB

Case 2: if multiple".lst" files and the ".bin" file are placed under the same directory, the ".lst" file with the name same as the selected ".bin" file will be selected automatically.

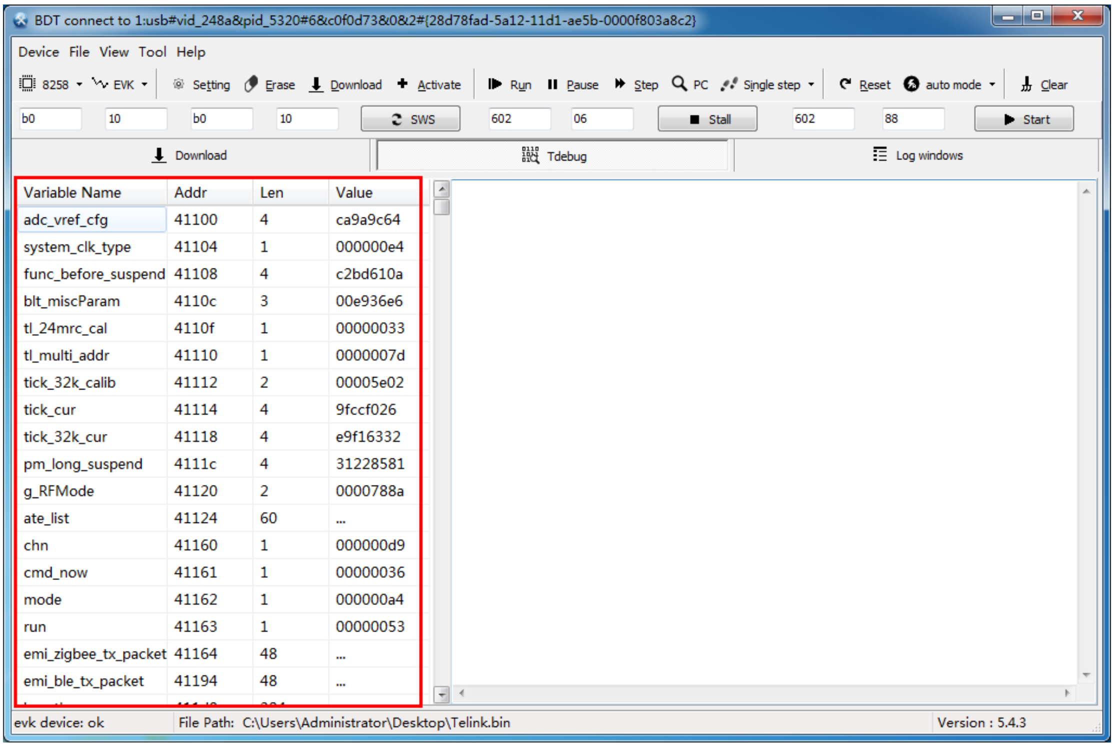


Interp_Cscript.bin	2018/9/11 10:03	BIN 文件	17 KB
Interp_Cscript.lst	2018/9/11 10:03	LST 文件	317 KB
Telink.bin	2018/9/11 10:03	BIN 文件	17 KB
Telink.lst	2018/9/11 10:03	LST 文件	317 KB

For example, if you select the "Telink.bin" file, the "Telink.lst" file will be selected automatically. If there is no "Telink.lst" and only one "xxx.lst" file is placed under the directory containing the selected "Telink.bin" file, this sole "xxx.lst" file will be selected.

2.4.2.1 Update variable list

To look through all global variables, user can select the “Tdebug” page, move mouse cursor to variable list, and then right click the mouse to choose “Refresh” or press the shortcut key “F3”. Each time by pressing “F3” anytime, variable list can be updated once.



Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	ca9a9c64
system_clk_type	41104	1	000000e4
func_before_suspend	41108	4	c2bd610a
blt_miscParam	4110c	3	00e936e6
tl_24mrc_cal	4110f	1	00000033
tl_multi_addr	41110	1	0000007d
tick_32k_calib	41112	2	00005e02
tick_cur	41114	4	9fccf026
tick_32k_cur	41118	4	e9f16332
pm_long_suspend	4111c	4	31228581
g_RFMode	41120	2	0000788a
ate_list	41124	60	...
chn	41160	1	000000d9
cmd_now	41161	1	00000036
mode	41162	1	000000a4
run	41163	1	00000053
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

evk device: ok

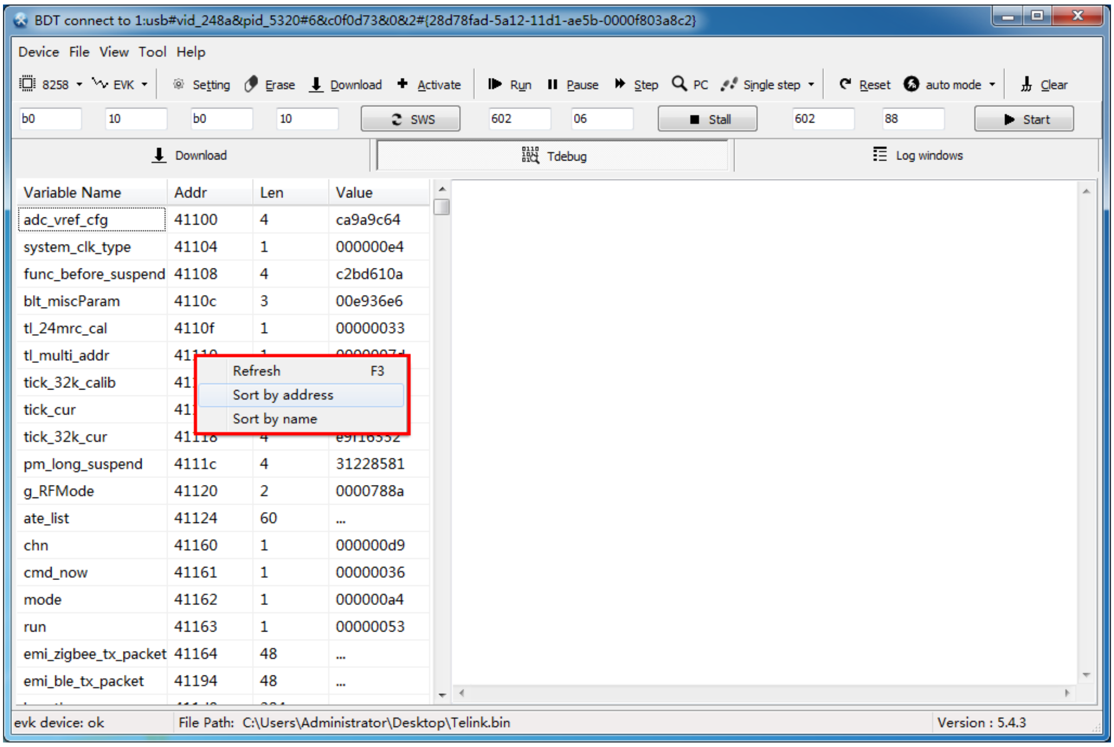
File Path: C:\Users\Administrator\Desktop\Telink.bin

Version : 5.4.3

Figure 2-47 Update variable list

2.4.2.2 Sort variables

As needed, user can also right click mouse, and choose the “Sort by address” to sort all variables by address from low to high (default), or choose the “Sort by name” to sort all variables by ASCII code value of variable name from A to z (compare the first different character).


Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download
Tdebug
Log windows
Refresh F3
Sort by address
Sort by name

BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	ca9a9c64
system_clk_type	41104	1	000000e4
func_before_suspend	41108	4	c2bd610a
blt_miscParam	4110c	3	00e936e6
tl_24mrc_cal	4110f	1	00000033
tl_multi_addr	41110	1	0000007d
tick_32k_calib	41	[illegible]	[illegible]
tick_cur	41	[illegible]	[illegible]
tick_32k_cur	41118	4	e9f16352
pm_long_suspend	4111c	4	31228581
g_RFMode	41120	2	0000788a
ate_list	41124	60	...
chn	41160	1	000000d9
cmd_now	41161	1	00000036
mode	41162	1	000000a4
run	41163	1	00000053
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

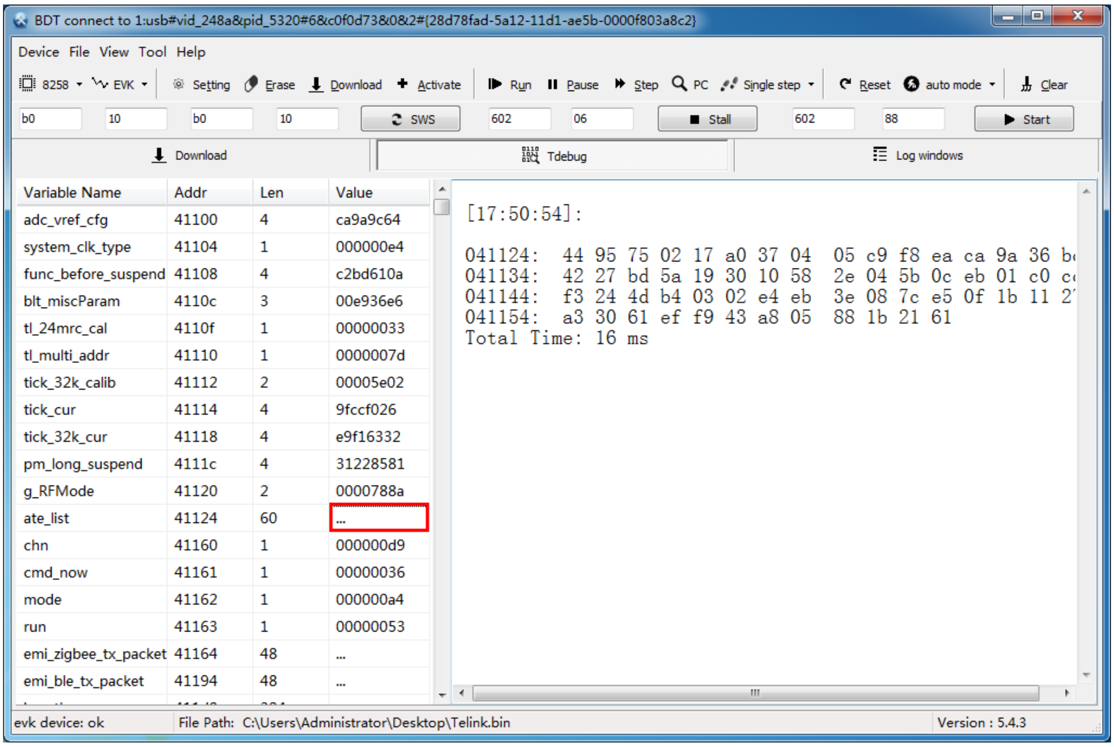
evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-48 Sort variable by name

2.4.2.3 View variable above 4 bytes

If a variable’s length is larger than 4 bytes, by clicking the “…” in the “Value” column of the “variable list”, its value will be available on the right log window.

If a variable’s length is greater than 1024 bytes, all values of the variable will be saved in a file named “Read.bin”.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d738&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	ca9a9c64
system_clk_type	41104	1	000000e4
func_before_suspend	41108	4	c2bd610a
blt_miscParam	4110c	3	00e936e6
tl_24mrc_cal	4110f	1	00000033
tl_multi_addr	41110	1	0000007d
tick_32k_calib	41112	2	00005e02
tick_cur	41114	4	9fccf026
tick_32k_cur	41118	4	e9f16332
pm_long_suspend	4111c	4	31228581
g_RFMode	41120	2	0000788a
ate_list	41124	60	...
chn	41160	1	000000d9
cmd_now	41161	1	00000036
mode	41162	1	000000a4
run	41163	1	00000053
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
[17:50:54]:

041124:  44 95 75 02 17 a0 37 04  05 c9 f8 ea ca 9a 36 b
041134:  42 27 bd 5a 19 30 10 58  2e 04 5b 0c eb 01 c0 c
041144:  f3 24 4d b4 03 02 e4 eb  3e 08 7c e5 0f 1b 11 2
041154:  a3 30 61 ef f9 43 a8 05  88 1b 21 61
Total Time: 16 ms
```

evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

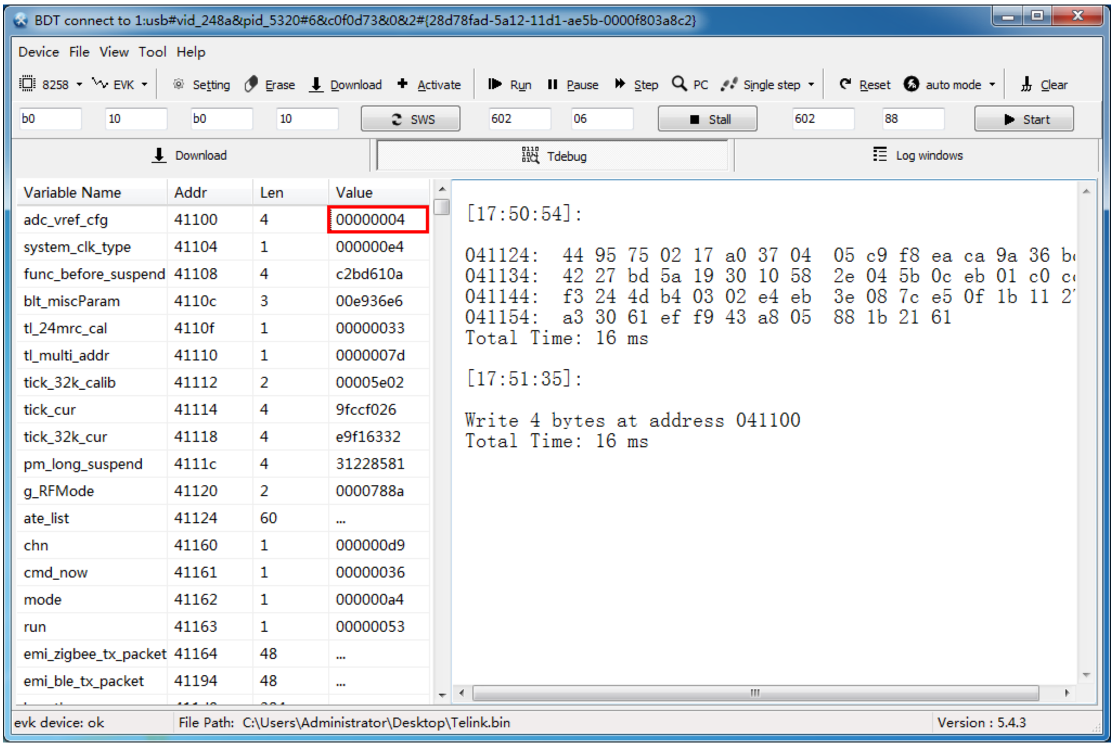
Figure 2-49 Read variable value more than 4 bytes

2.4.2.4 Modify variable value

The variable with the length no more than 4 bytes supports direct write operation, which means that its value can be directly modified by double clicking the corresponding box in the “Value” column.

For example, to modify the value of the variable “adc_vref_cfg” in the address “0x41100” to “0x00000004”, user can follow the steps below:

Step 1: Double click the box in the “Value” column corresponding to the specified variable (e.g. “adc_vref_cfg”), so as to make the box become editable.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download
Tdebug
Log windows

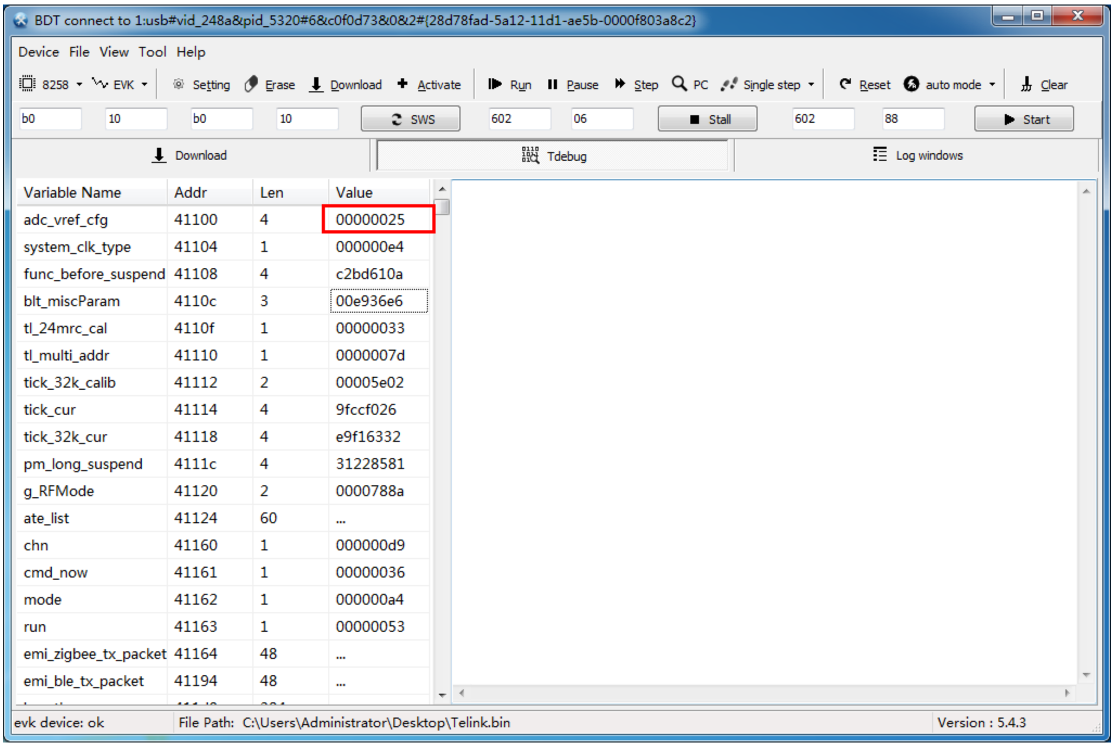
Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000004
system_clk_type	41104	1	000000e4
func_before_suspend	41108	4	c2bd610a
blt_miscParam	4110c	3	00e936e6
tl_24mrc_cal	4110f	1	00000033
tl_multi_addr	41110	1	0000007d
tick_32k_calib	41112	2	00005e02
tick_cur	41114	4	9fccf026
tick_32k_cur	41118	4	e9f16332
pm_long_suspend	4111c	4	31228581
g_RFMode	41120	2	0000788a
ate_list	41124	60	...
chn	41160	1	000000d9
cmd_now	41161	1	00000036
mode	41162	1	000000a4
run	41163	1	00000053
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
[17:50:54]:

041124:  44 95 75 02 17 a0 37 04  05 c9 f8 ea ca 9a 36 b
041134:  42 27 bd 5a 19 30 10 58  2e 04 5b 0c eb 01 c0 c
041144:  f3 24 4d b4 03 02 e4 eb  3e 08 7c e5 0f 1b 11 2
041154:  a3 30 61 ef f9 43 a8 05  88 1b 21 61
Total Time: 16 ms

[17:51:35]:

Write 4 bytes at address 041100
Total Time: 16 ms
```

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-50 Double click specified “Value” box

Step 2: Input new variable value (e.g. "0x00000025") to replace the old value ("0x00000004").

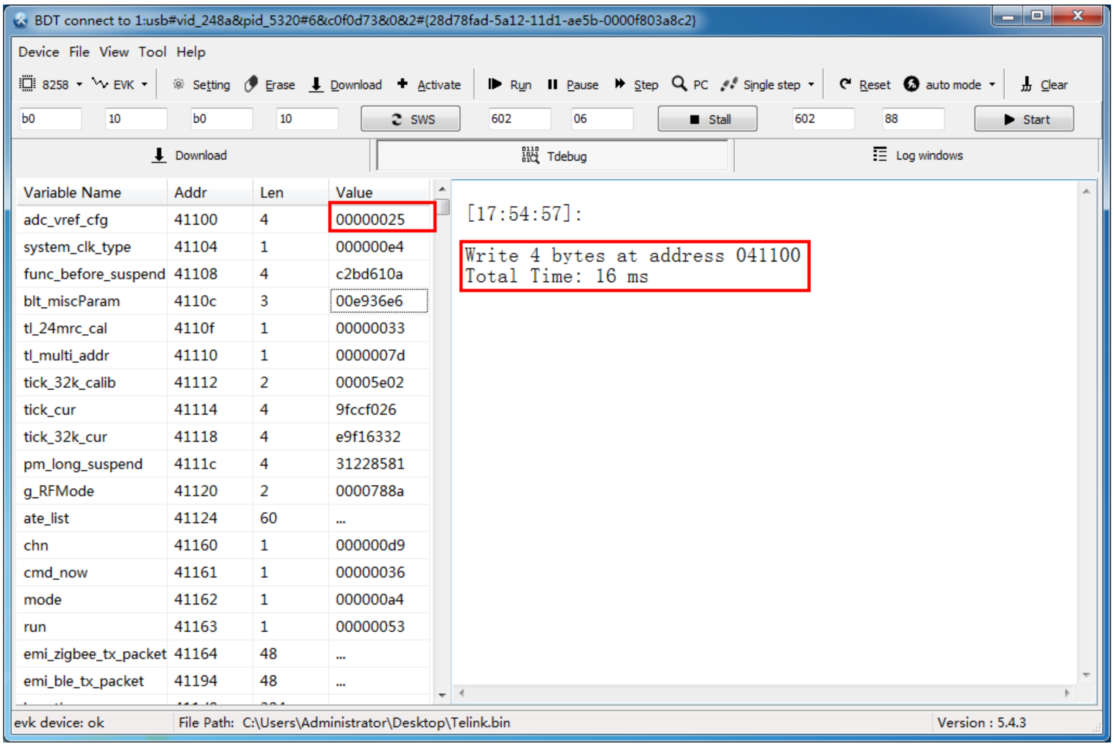


Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000025
system_clk_type	41104	1	000000e4
func_before_suspend	41108	4	c2bd610a
blt_miscParam	4110c	3	00e936e6
tl_24mrc_cal	4110f	1	00000033
tl_multi_addr	41110	1	0000007d
tick_32k_calib	41112	2	00005e02
tick_cur	41114	4	9fccf026
tick_32k_cur	41118	4	e9f16332
pm_long_suspend	4111c	4	31228581
g_RFMode	41120	2	0000788a
ate_list	41124	60	...
chn	41160	1	000000d9
cmd_now	41161	1	00000036
mode	41162	1	000000a4
run	41163	1	00000053
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

File Path: C:\Users\Administrator\Desktop\Telink.bin

Figure 2-51 Modify variable value

Step3: Press the “Enter” key to write the new value into the specified variable’s address.


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000025
system_clk_type	41104	1	000000e4
func_before_suspend	41108	4	c2bd610a
blt_miscParam	4110c	3	00e936e6
tl_24mrc_cal	4110f	1	00000033
tl_multi_addr	41110	1	0000007d
tick_32k_calib	41112	2	00005e02
tick_cur	41114	4	9fccf026
tick_32k_cur	41118	4	e9f16332
pm_long_suspend	4111c	4	31228581
g_RFMode	41120	2	0000788a
ate_list	41124	60	...
chn	41160	1	000000d9
cmd_now	41161	1	00000036
mode	41162	1	000000a4
run	41163	1	00000053
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
[17:54:57]:

Write 4 bytes at address 041100
Total Time: 16 ms
```

evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-52 Write data to specified address

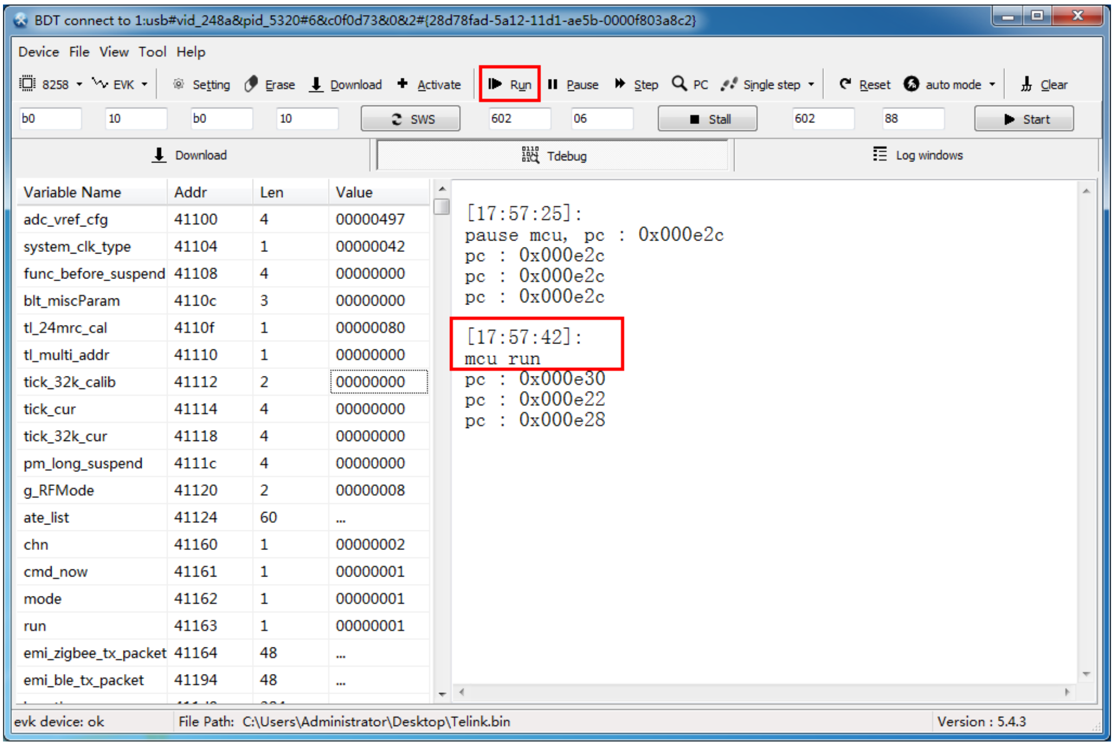
2.4.3 Debug MCU

Before using the buttons including “Run”, “Pause”, “Step” and “PC” to debug MCU, please ensure that the selected MCU supports this function. Refer to section **4 Function Support List** for details.

In the sub-sections below, the MCU “8258” is taken as an example to introduce this function.

2.4.3.1 Run MCU

After clicking the “Pause” or “Step” button, user can make MCU continue to run from the current position by clicking the “Run” button. Please check the status of MCU by clicking the “PC” button to read PC and ensure program is running again.



Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

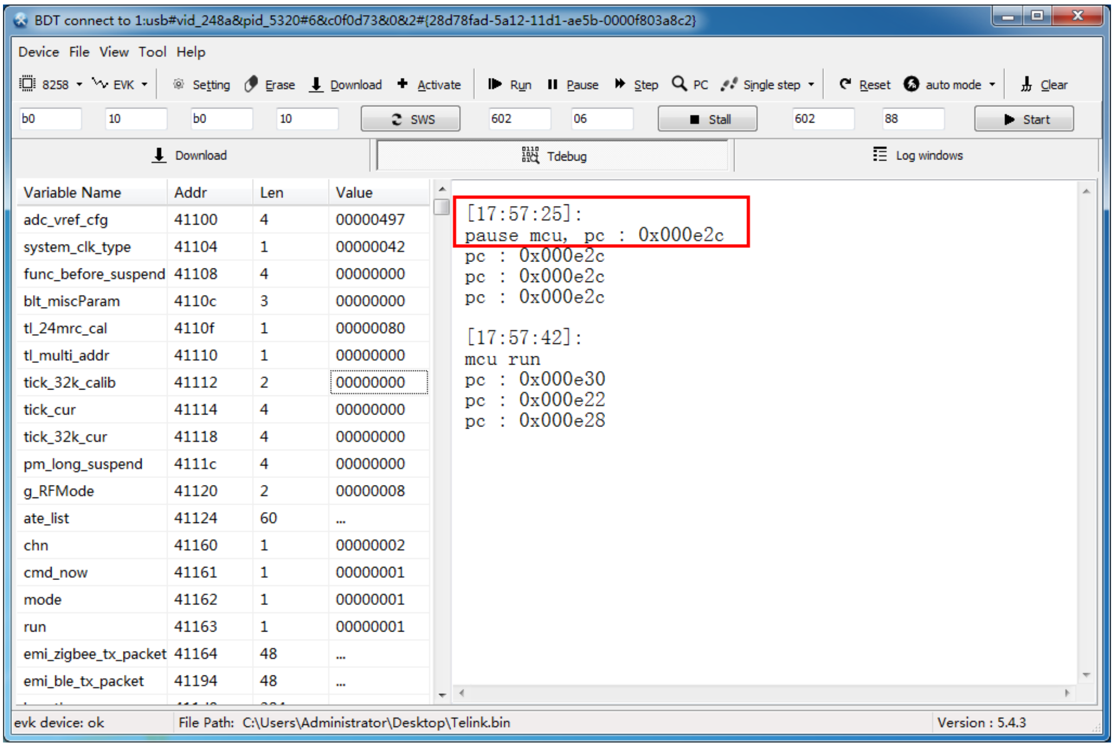
```
[17:57:25]:
pause mcu, pc : 0x000e2c
pc : 0x000e2c
pc : 0x000e2c
pc : 0x000e2c
[17:57:42]:
mcu run
pc : 0x000e30
pc : 0x000e22
pc : 0x000e28
```

evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-53 Run MCU

2.4.3.2 Pause MCU

To view the status of MCU for details, user can click the “Pause” button to stall MCU. Click the “Run” button, MCU will continue to run from the current position.


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
[17:57:25]:
pause mcu, pc : 0x000e2c
pc : 0x000e2c
pc : 0x000e2c
pc : 0x000e2c

[17:57:42]:
mcu run
pc : 0x000e30
pc : 0x000e22
pc : 0x000e28
```

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-54 Pause MCU

2.4.3.3 Step MCU

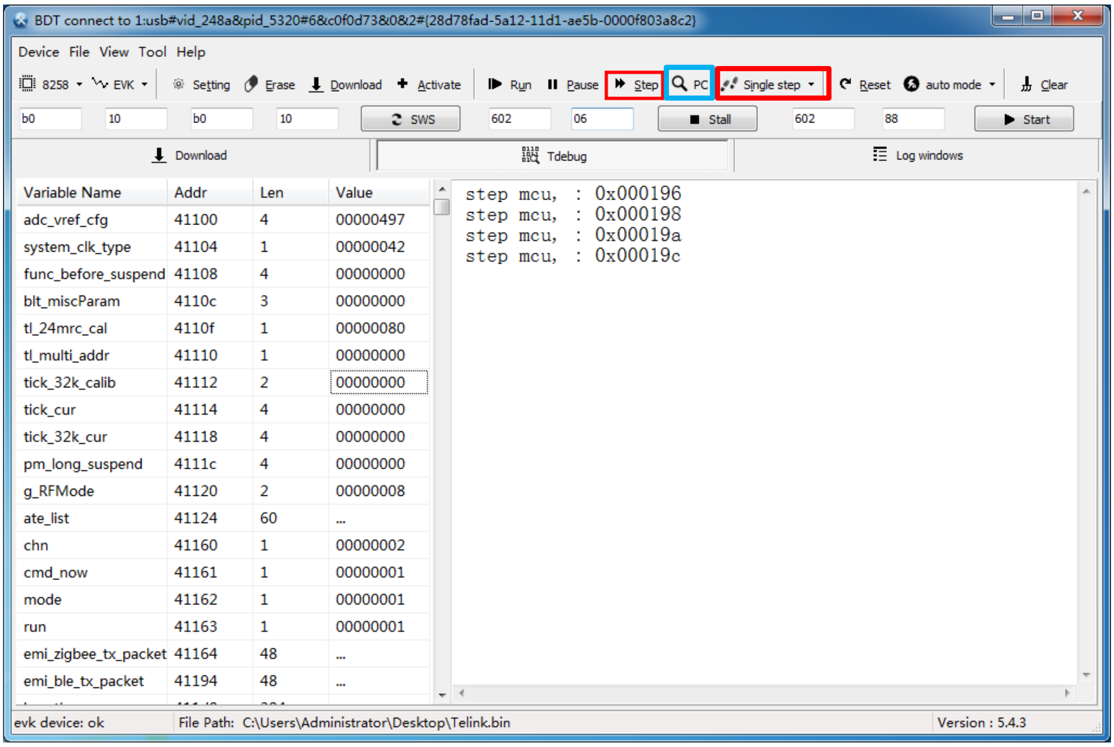
If the communication with target board is available, user can click the "Step" button to view the current position of instruction step by step.

Both "Trace MCU" and "Step MCU" support two modes, as shown below.

1) If the "**Single step**" mode is selected, MCU will enter single step mode, in which one PC tracing will be implemented after clicking the "PC" or "Step" button.

2) If the "**continuous**" mode is selected, MCU will enter continuous mode and implement continuous PC tracing or make MCU step continuously.

To cancel "**continuous**" mode, user can either switch mode to "**Single step**" mode, or click the "**Run**"/"**Pause**" button.

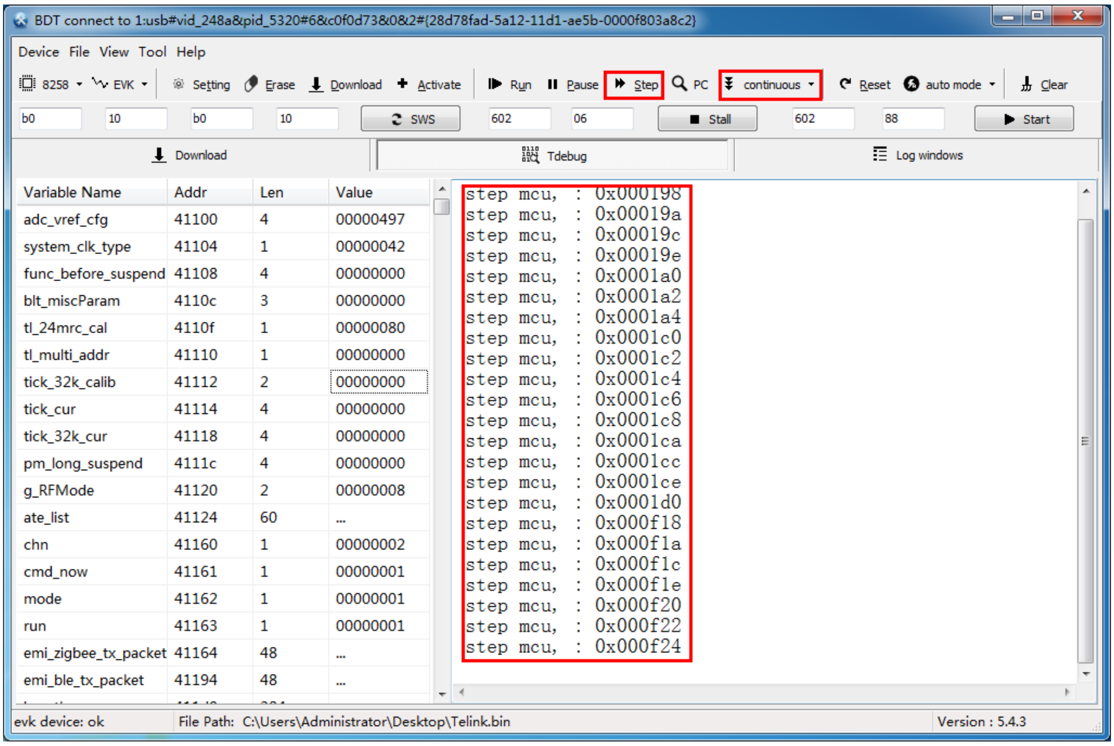


Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
step mcu,  : 0x000196
step mcu,  : 0x000198
step mcu,  : 0x00019a
step mcu,  : 0x00019c
```

evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-55 Step MCU in "Single step" mode


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC continuous Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

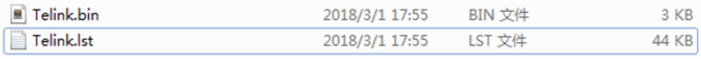
Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
step mcu,  : 0x000198
step mcu,  : 0x00019a
step mcu,  : 0x00019c
step mcu,  : 0x00019e
step mcu,  : 0x0001a0
step mcu,  : 0x0001a2
step mcu,  : 0x0001a4
step mcu,  : 0x0001c0
step mcu,  : 0x0001c2
step mcu,  : 0x0001c4
step mcu,  : 0x0001c6
step mcu,  : 0x0001c8
step mcu,  : 0x0001ca
step mcu,  : 0x0001cc
step mcu,  : 0x0001ce
step mcu,  : 0x0001d0
step mcu,  : 0x000f18
step mcu,  : 0x000f1a
step mcu,  : 0x000f1c
step mcu,  : 0x000f1e
step mcu,  : 0x000f20
step mcu,  : 0x000f22
step mcu,  : 0x000f24
```

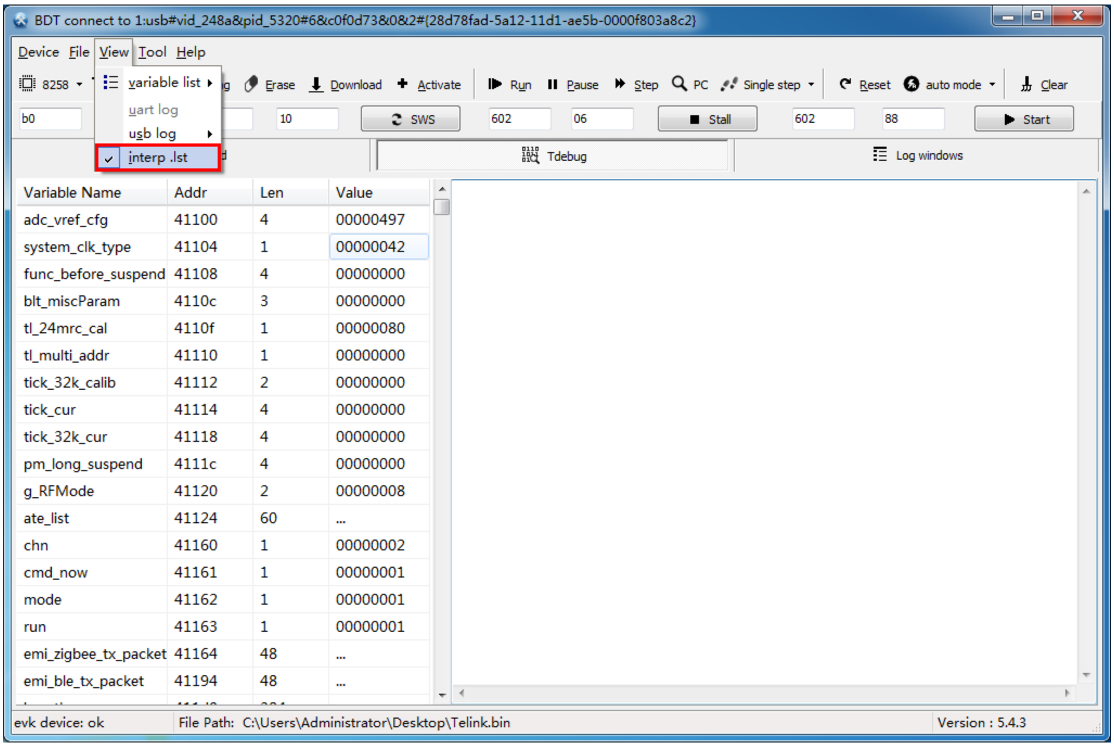
evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-56 Step MCU in "continuous" mode

If the target firmware (bin file) and "xxx.lst" file are under the same directory, user can view more details by selecting "View->interp .lst" and clicking the "PC" button to analyze the "xxx.lst" file, as shown below. Refer to section **2.4.2 Operate Variable List**.



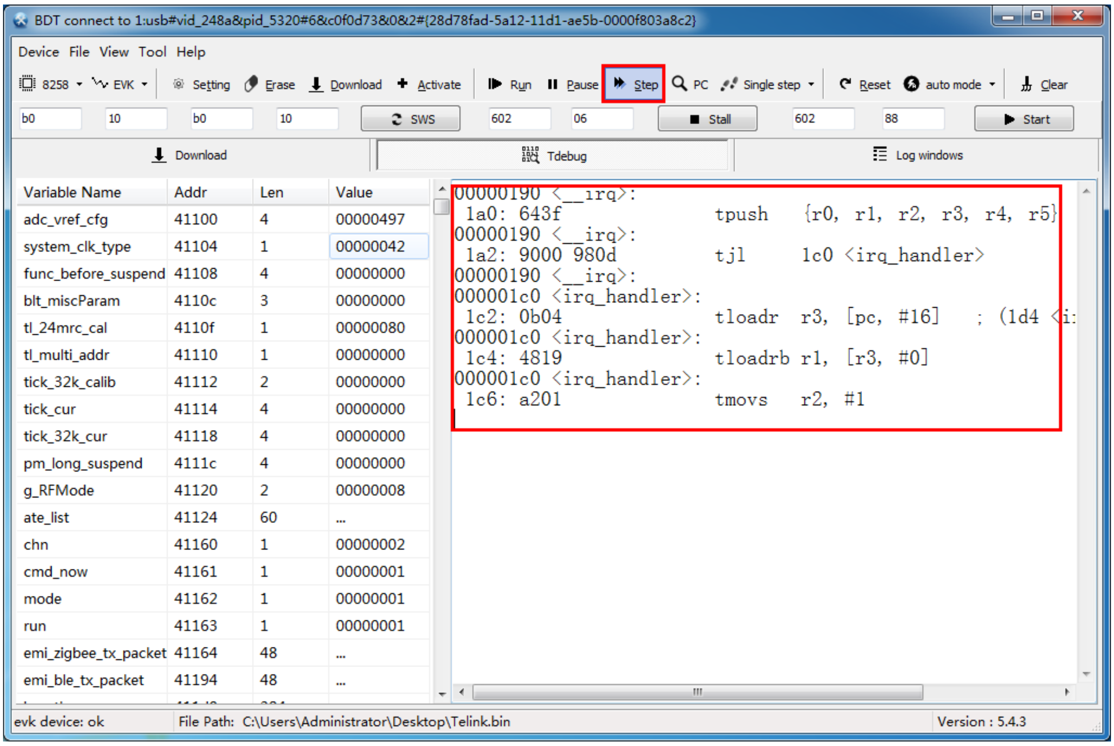
Telink.bin	2018/3/1 17:55	BIN 文件	3 KB
Telink.lst	2018/3/1 17:55	LST 文件	44 KB


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
variable list
uart log
usb log
interp .lst
8258 Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 SWS 602 06 Stall 602 88 Start
Tdebug Log windows

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-57 Select “interp .lst”

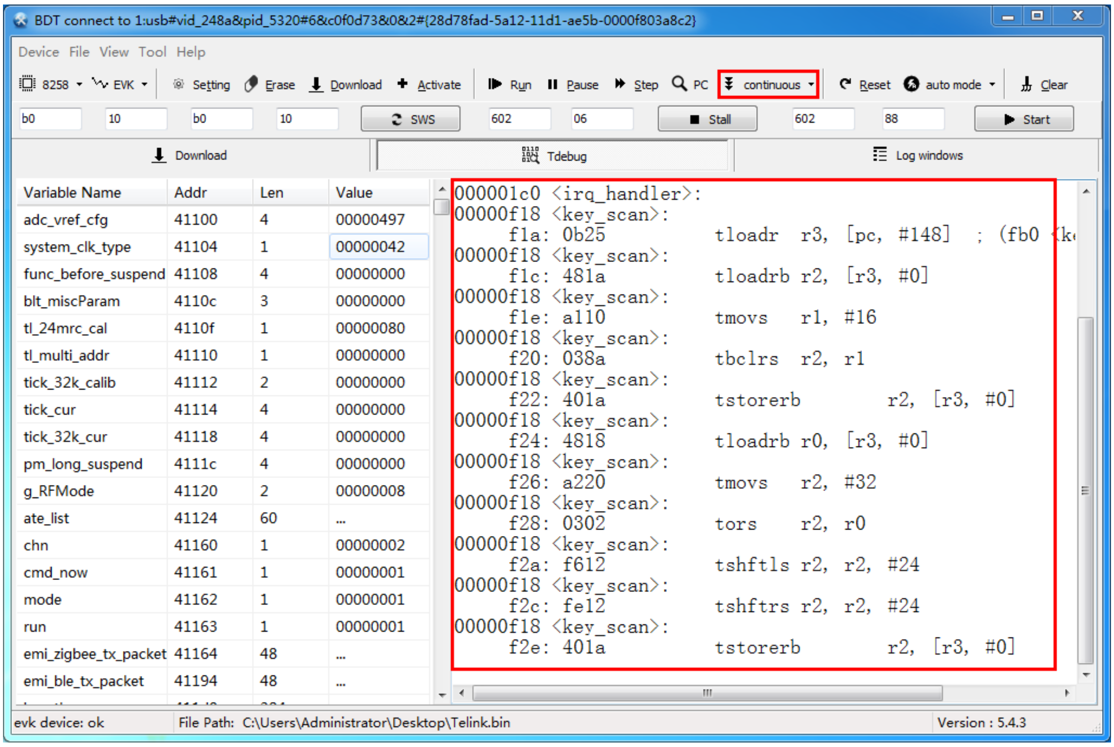

BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
00000190 <__irq>:
 1a0: 643f          tpush   {r0, r1, r2, r3, r4, r5}
00000190 <__irq>:
 1a2: 9000 980d     tjl     1c0 <irq_handler>
00000190 <__irq>:
000001c0 <irq_handler>:
 1c2: 0b04          tloadr  r3, [pc, #16]    ; (1d4 <i:
000001c0 <irq_handler>:
 1c4: 4819          tloadrb r1, [r3, #0]
000001c0 <irq_handler>:
 1c6: a201          tmovs   r2, #1
```

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-58 Step MCU with “interp .lst” selected in “Single step” mode


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC continuous Reset auto mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

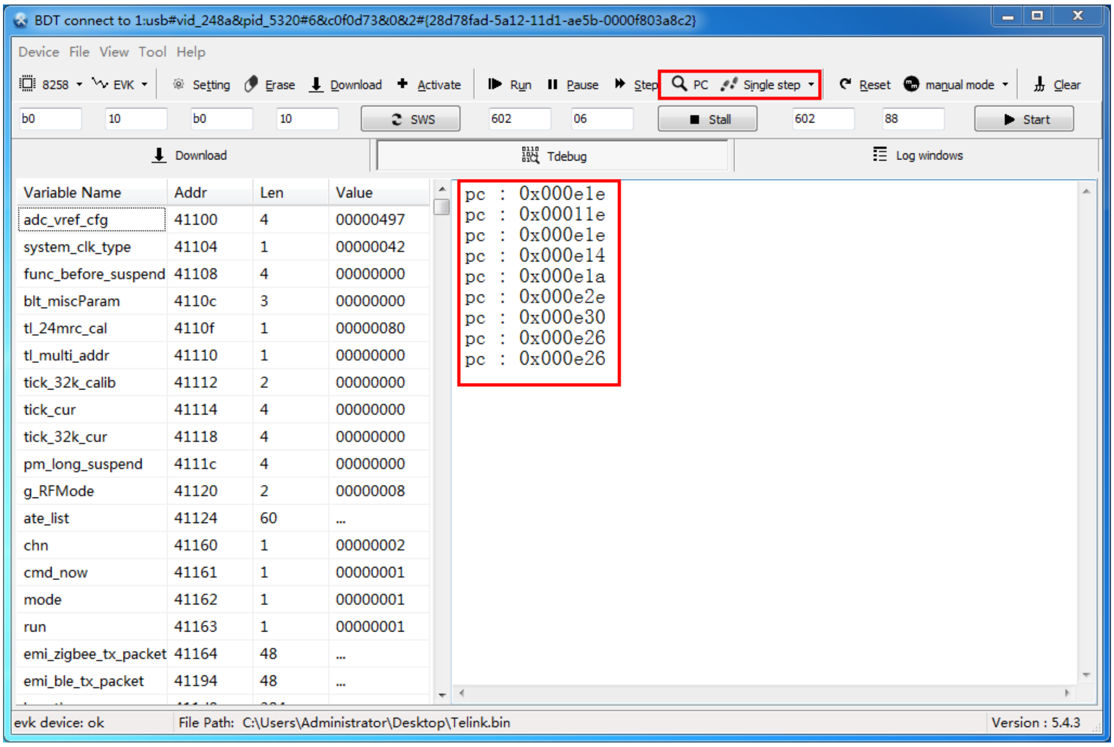
```
000001c0 <irq_handler>:
00000f18 <key_scan>:
     f1a: 0b25          tloadr  r3, [pc, #148]   ; (fb0 <k
00000f18 <key_scan>:
     f1c: 481a          tloadrb r2, [r3, #0]
00000f18 <key_scan>:
     f1e: a110          tmovs   r1, #16
00000f18 <key_scan>:
     f20: 038a          tbclrs  r2, r1
00000f18 <key_scan>:
     f22: 401a          tstorerb        r2, [r3, #0]
00000f18 <key_scan>:
     f24: 4818          tloadrb r0, [r3, #0]
00000f18 <key_scan>:
     f26: a220          tmovs   r2, #32
00000f18 <key_scan>:
     f28: 0302          tors    r2, r0
00000f18 <key_scan>:
     f2a: f612          tshftls r2, r2, #24
00000f18 <key_scan>:
     f2c: fe12          tshftrs r2, r2, #24
00000f18 <key_scan>:
     f2e: 401a          tstorerb        r2, [r3, #0]
```

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-59 Step MCU with “interp .lst” selected in “continuous” mode

2.4.3.4 Trace PC

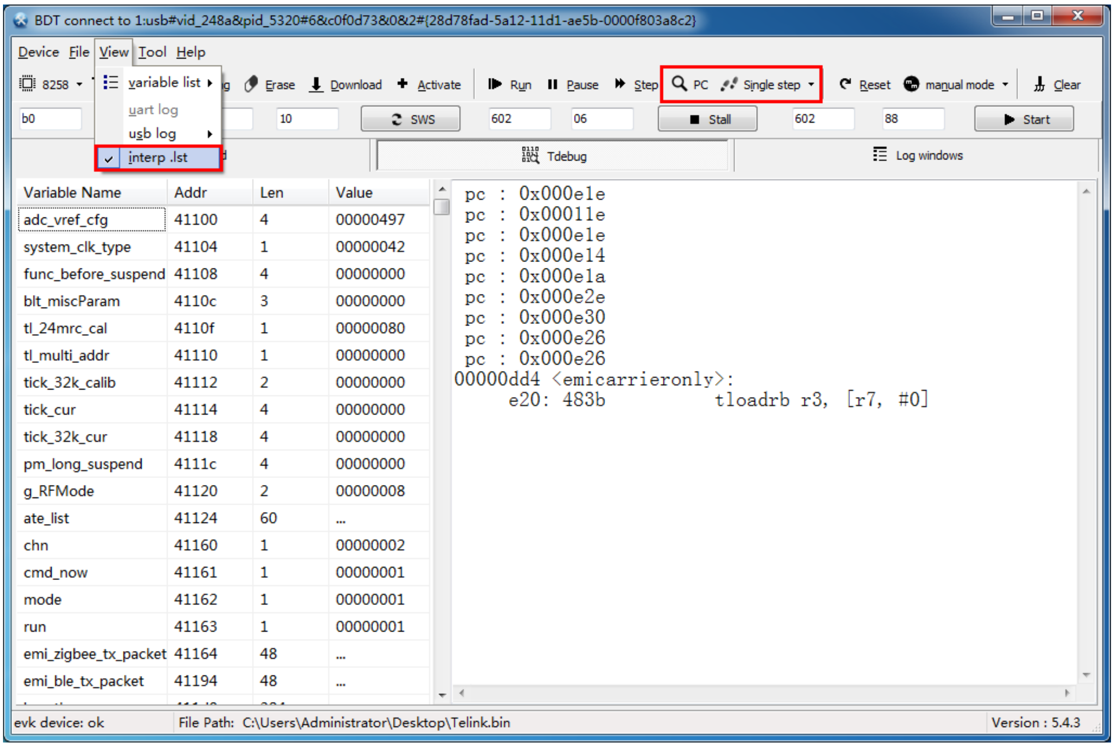
If the communication with target board is available, user can click the “PC” button to view the current position of instruction, as shown below:


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258
EVK
Setting
Erase
Download
Activate
Run
Pause
Step
PC
Single step
Reset
manual mode
Clear
b0
10
b0
10
SWS
602
06
Stall
602
88
Start
Download
Tdebug
Log windows
evk device: ok
File Path: C:\Users\Administrator\Desktop\Telink.bin
Version : 5.4.3

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
pc  :  0x000e1e
pc  :  0x00011e
pc  :  0x000e1e
pc  :  0x000e14
pc  :  0x000e1a
pc  :  0x000e2e
pc  :  0x000e30
pc  :  0x000e26
pc  :  0x000e26
```

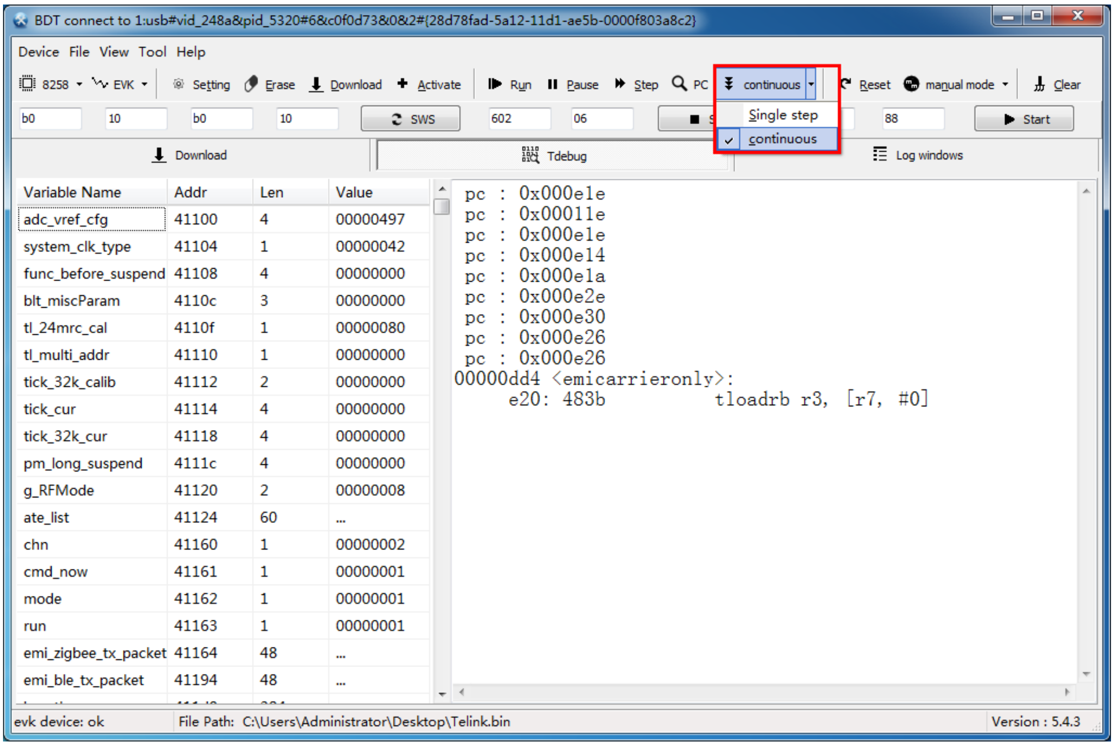
Figure 2-60 Trace PC in “Single step” mode



Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
pc  :  0x000e1e
pc  :  0x00011e
pc  :  0x000e1e
pc  :  0x000e14
pc  :  0x000e1a
pc  :  0x000e2e
pc  :  0x000e30
pc  :  0x000e26
pc  :  0x000e26
00000dd4 <emicarrieronly>:
     e20:  483b          tloadrb r3,  [r7,  #0]
```

Figure 2-61 Trace PC with “interp .lst” selected in “Single step” mode

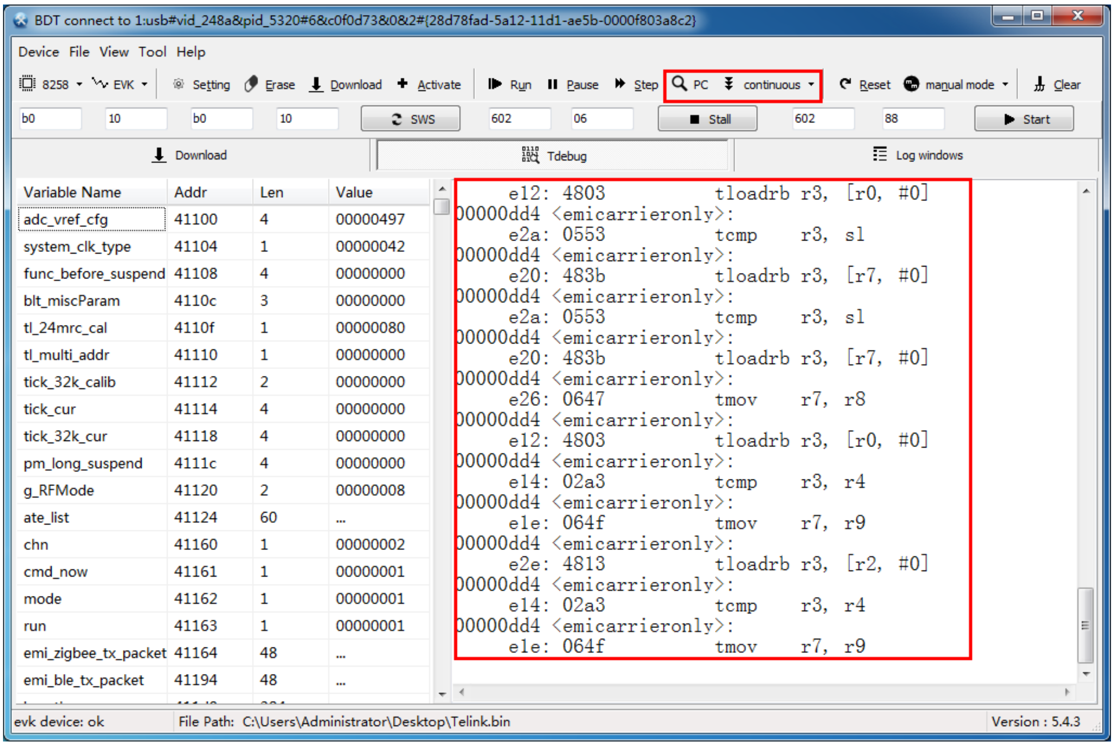

BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC continuous Reset manual mode Clear
b0 10 b0 10 SWS 602 06 88 Start
Single step
continuous
Download Tdebug Log windows

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
 pc  : 0x000e1e
 pc  : 0x00011e
 pc  : 0x000e1e
 pc  : 0x000e14
 pc  : 0x000e1a
 pc  : 0x000e2e
 pc  : 0x000e30
 pc  : 0x000e26
 pc  : 0x000e26
00000dd4 <emicarrieronly>:
     e20: 483b          tloadrb r3, [r7, #0]
```

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-62 Switch “Single step” mode to “continuous” mode


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC continuous Reset manual mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

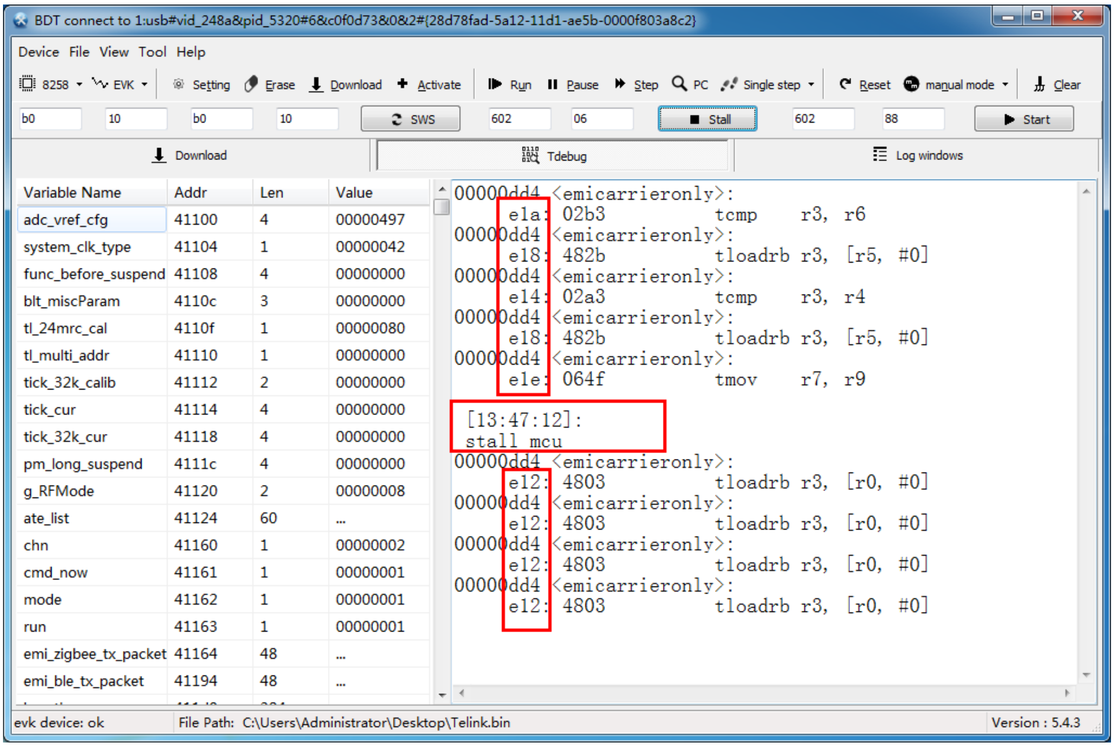
```
     e12: 4803          tloadrb r3, [r0, #0]
00000dd4 <emicarrieronly>:
     e2a: 0553          tcmp    r3, sl
00000dd4 <emicarrieronly>:
     e20: 483b          tloadrb r3, [r7, #0]
00000dd4 <emicarrieronly>:
     e2a: 0553          tcmp    r3, sl
00000dd4 <emicarrieronly>:
     e20: 483b          tloadrb r3, [r7, #0]
00000dd4 <emicarrieronly>:
     e26: 0647          tmov    r7, r8
00000dd4 <emicarrieronly>:
     e12: 4803          tloadrb r3, [r0, #0]
00000dd4 <emicarrieronly>:
     e14: 02a3          tcmp    r3, r4
00000dd4 <emicarrieronly>:
     e1e: 064f          tmov    r7, r9
00000dd4 <emicarrieronly>:
     e2e: 4813          tloadrb r3, [r2, #0]
00000dd4 <emicarrieronly>:
     e14: 02a3          tcmp    r3, r4
00000dd4 <emicarrieronly>:
     e1e: 064f          tmov    r7, r9
```

evk device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin Version : 5.4.3

Figure 2-63 Trace PC with “interp .lst” selected in “continuous” mode

2.4.3.5 Stall MCU

When there is no enough time to view the status of MCU, user can click the “stall” button to stall MCU and view the status of MCU or change the configuration of MCU.


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset manual mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
00000dd4 <emicarrieronly>:
     e1a:  02b3          tcmp    r3, r6
00000dd4 <emicarrieronly>:
     e18:  482b          tloadrb r3, [r5, #0]
00000dd4 <emicarrieronly>:
     e14:  02a3          tcmp    r3, r4
00000dd4 <emicarrieronly>:
     e18:  482b          tloadrb r3, [r5, #0]
00000dd4 <emicarrieronly>:
     e1e:  064f          tmov    r7, r9

 [13:47:12]:
 stall mcu
00000dd4 <emicarrieronly>:
     e12:  4803          tloadrb r3, [r0, #0]
00000dd4 <emicarrieronly>:
     e12:  4803          tloadrb r3, [r0, #0]
00000dd4 <emicarrieronly>:
     e12:  4803          tloadrb r3, [r0, #0]
00000dd4 <emicarrieronly>:
     e12:  4803          tloadrb r3, [r0, #0]
```

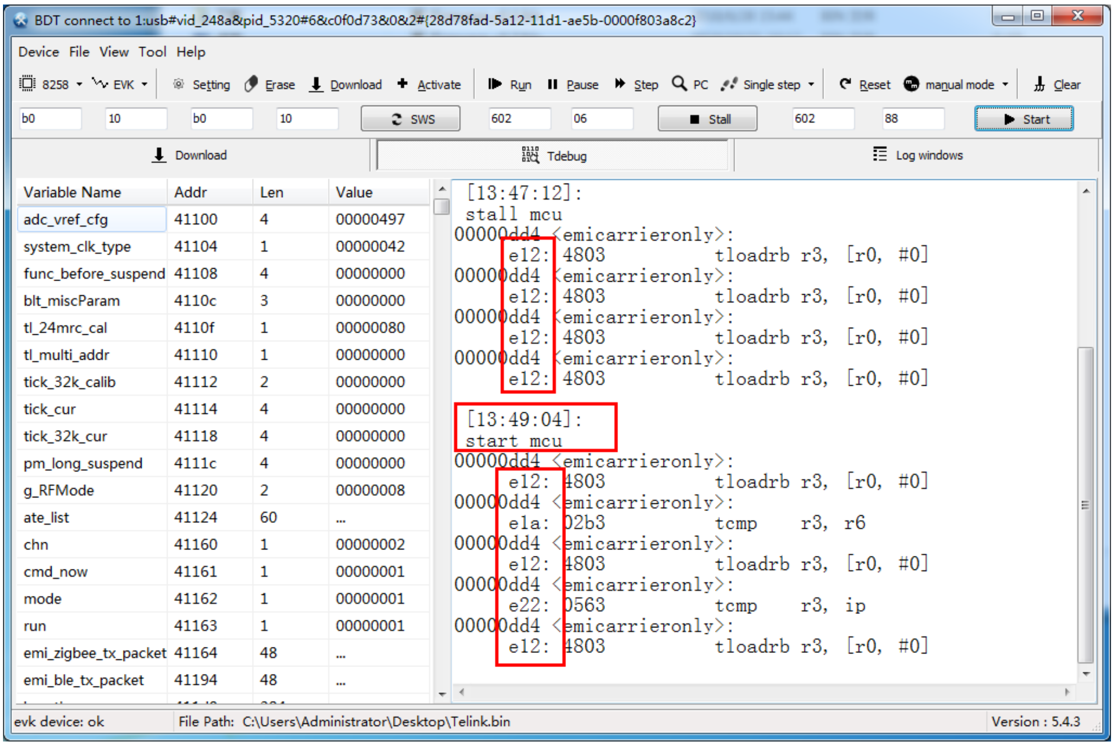
evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-64 Stall MCU

*Note: In EVK mode, only the EVK burned with the “Firmware_v3.2.bin” (or higher version) supports this function.

2.4.3.6 Start MCU

After stalling MCU, click the “start” button to start MCU, so that MCU will run from the beginning of SRAM.



Variable Name	Addr	Len	Value
adc_vref_cfg	41100	4	00000497
system_clk_type	41104	1	00000042
func_before_suspend	41108	4	00000000
blt_miscParam	4110c	3	00000000
tl_24mrc_cal	4110f	1	00000080
tl_multi_addr	41110	1	00000000
tick_32k_calib	41112	2	00000000
tick_cur	41114	4	00000000
tick_32k_cur	41118	4	00000000
pm_long_suspend	4111c	4	00000000
g_RFMode	41120	2	00000008
ate_list	41124	60	...
chn	41160	1	00000002
cmd_now	41161	1	00000001
mode	41162	1	00000001
run	41163	1	00000001
emi_zigbee_tx_packet	41164	48	...
emi_ble_tx_packet	41194	48	...

```
 [13:47:12]:
 stall mcu
00000dd4 <emicarrieronly>:
     e12: 4803           tloadrb r3, [r0, #0]
00000dd4 <emicarrieronly>:
     e12: 4803           tloadrb r3, [r0, #0]
00000dd4 <emicarrieronly>:
     e12: 4803           tloadrb r3, [r0, #0]
00000dd4 <emicarrieronly>:
     e12: 4803           tloadrb r3, [r0, #0]

 [13:49:04]:
 start mcu
00000dd4 <emicarrieronly>:
     e12: 4803           tloadrb r3, [r0, #0]
00000dd4 <emicarrieronly>:
     e1a: 02b3           tcmp    r3, r6
00000dd4 <emicarrieronly>:
     e12: 4803           tloadrb r3, [r0, #0]
00000dd4 <emicarrieronly>:
     e22: 0563           tcmp    r3, ip
00000dd4 <emicarrieronly>:
     e12: 4803           tloadrb r3, [r0, #0]
```

evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-65 Start MCU

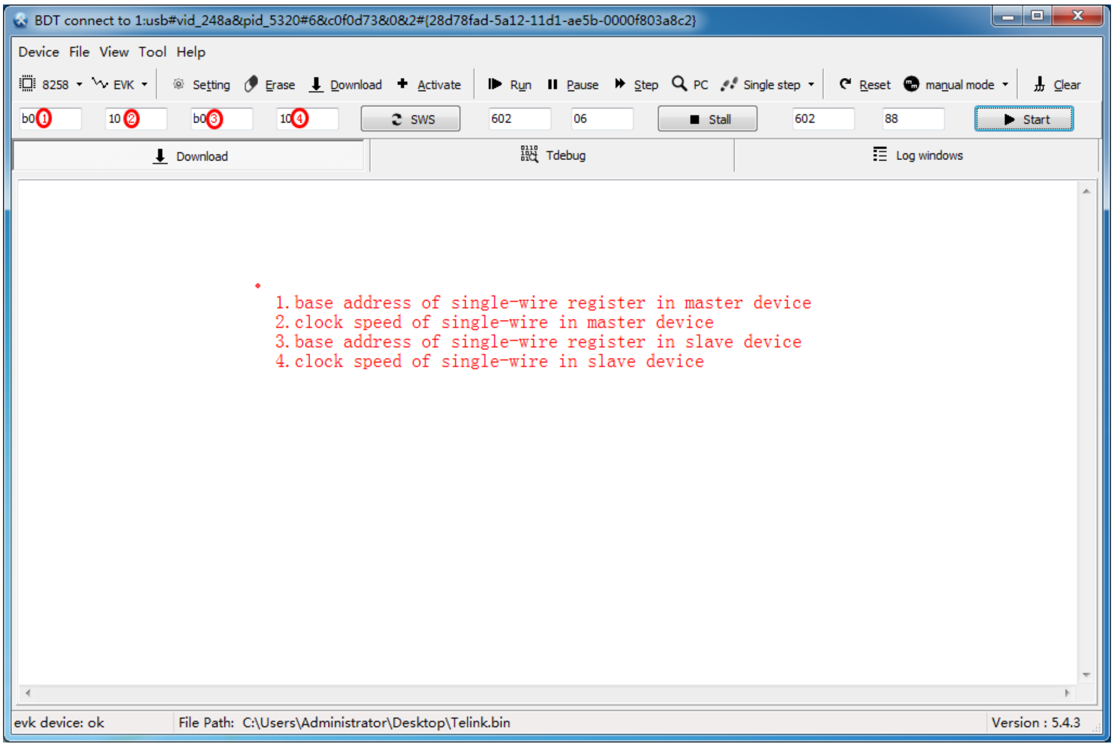
2.5 Single-wire synchronization

Before setting Single wire synchronization speed, please ensure the following items:

1) Power supply is normal;
2) MCU IS NOT in “**Low Power**” mode;
3) Single wire function of MCU is available;
4) System clock is normal.

When connection fails to be established between “**Burning EVK**” and the target board, user can try to set Swire (single wire) synchronization speed to improve communication. *Note: Swire register address may vary with different chip types.

1) Change the speed of Master and the speed of Slave in the four editable boxes, as shown below. Note that Swire register address may vary with chip types.
2) Click the “SWS” button to implement Swire synchronization.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

1. base address of single-wire register in master device
2. clock speed of single-wire in master device
3. base address of single-wire register in slave device
4. clock speed of single-wire in slave device

evk device: ok | File Path: C:\Users\Administrator\Desktop\Telink.bin | Version : 5.4.3

Figure 2-66 Set Swire synchronization speed

Before downloading firmware to target board or debugging MCU, it is suggested that every time on MCU power on, user should implement one Swire synchronization to check whether communication with target board is OK.

If the status of communication with target board is wrong, user can solve the problem according to the methods mentioned at the beginning of section 2.5.

2.6 Command line

User can also use command line to access memory or download file into target board. In the sub-sections below, "read core" is taken as an example.

2.6.1 Single command line

Step 1: Open command line input window by selecting the "Tool->Cmdline Input" or pressing the shortcut key combination "Ctrl + I".

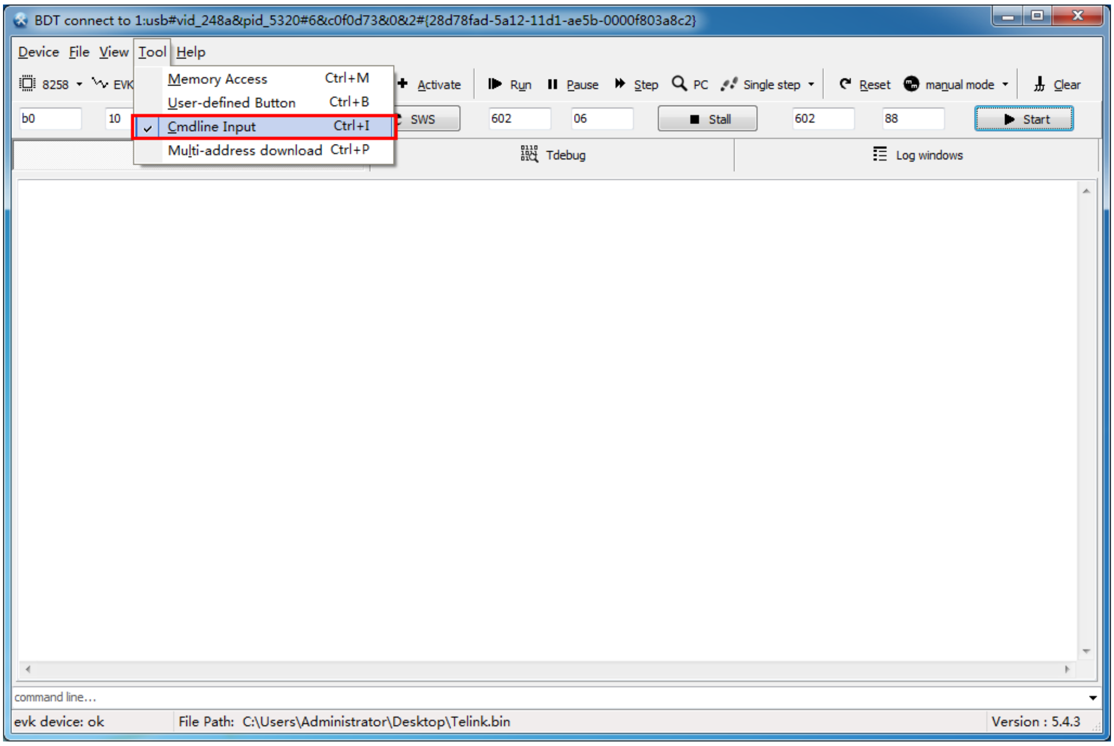
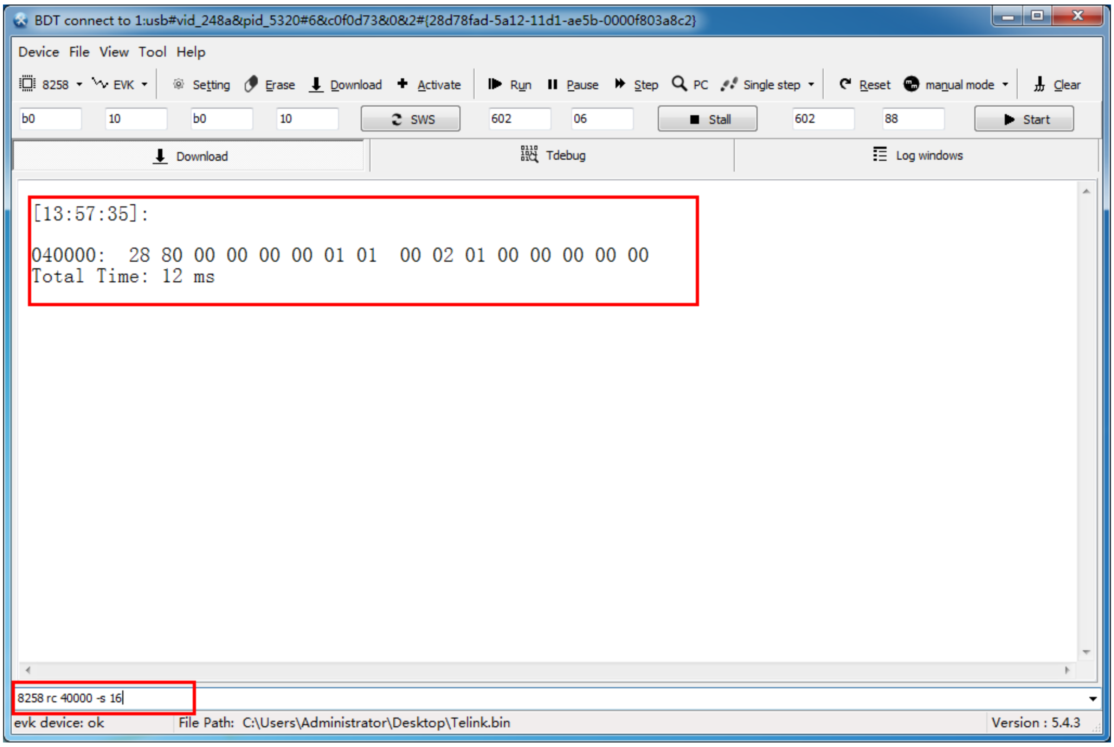

BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK
Memory Access Ctrl+M
User-defined Button Ctrl+B
Cmdline Input Ctrl+I
Multi-address download Ctrl+P
Activate Run Pause Step PC Single step Reset manual mode Clear
b0 10 SWS 602 06 Stall 602 88 Start
Tdebug
Log windows
command line...
evk device: ok
File Path: C:\Users\Administrator\Desktop\Telink.bin
Version : 5.4.3

Figure 2-67 Open cmdline input window

Step 2: Input the needed single command as follows and then press the "Enter" key.

The file with the specified named will be available in the specified location.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset manual mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

```
[13:57:35]:

040000:  28 80 00 00 00 00 01 01  00 02 01 00 00 00 00 00
Total Time: 12 ms
```

```
8258 rc 40000 -s 16
```

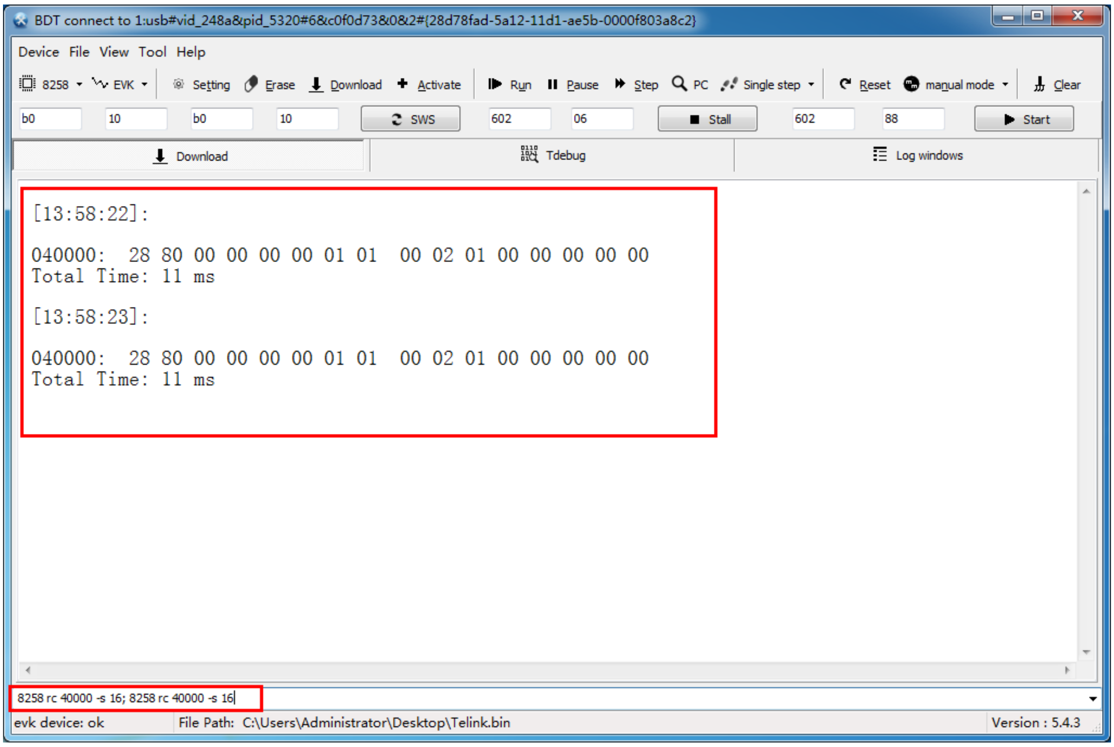
evk device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-68 Enter single command line

2.6.2 Multi-command line

The tool supports multi-command line operation.

All commands need to be separated from each other by semicolon, as shown below.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
Device File View Tool Help
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset manual mode Clear
b0 10 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows

```
[13:58:22]:

040000:  28 80 00 00 00 00 01 01  00 02 01 00 00 00 00 00
Total Time: 11 ms

[13:58:23]:

040000:  28 80 00 00 00 00 01 01  00 02 01 00 00 00 00 00
Total Time: 11 ms
```

```
8258 rc 40000 -s 16; 8258 rc 40000 -s 16
```

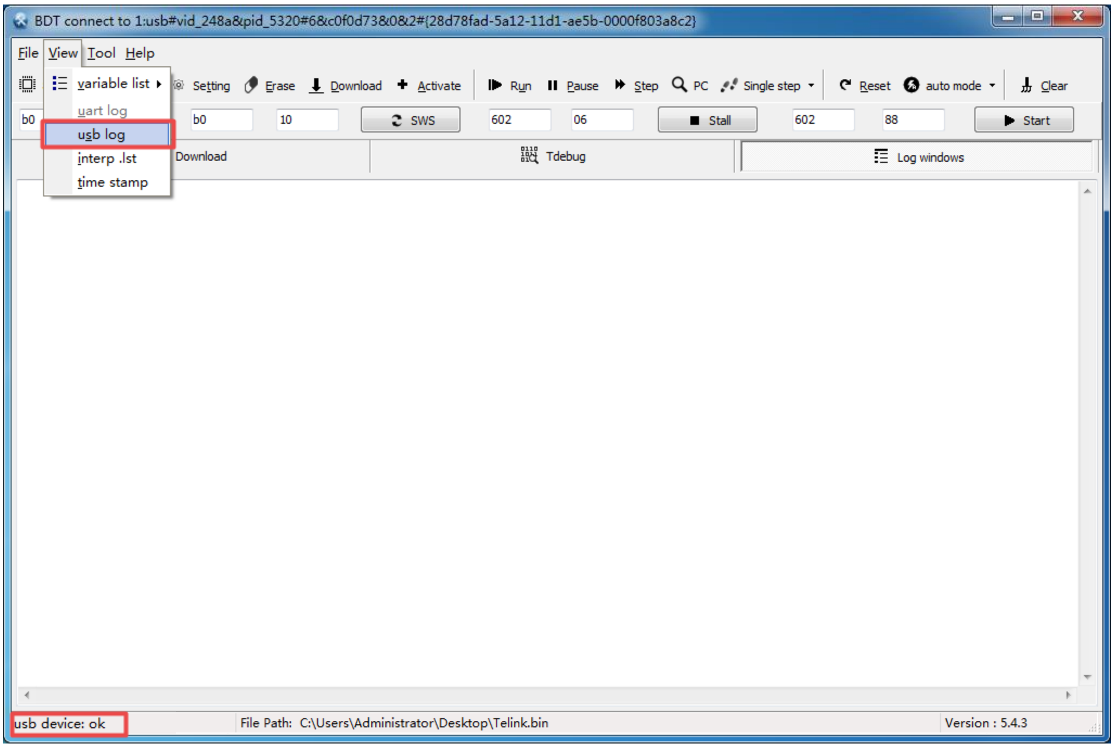
evk device: ok
File Path: C:\Users\Administrator\Desktop\Telink.bin
Version : 5.4.3

Figure 2-69 Enter multiple commands

2.7 Log windows

This tool supports USB print function, so MCUs with USB function can use USB print function to output information in log windows on PC side.

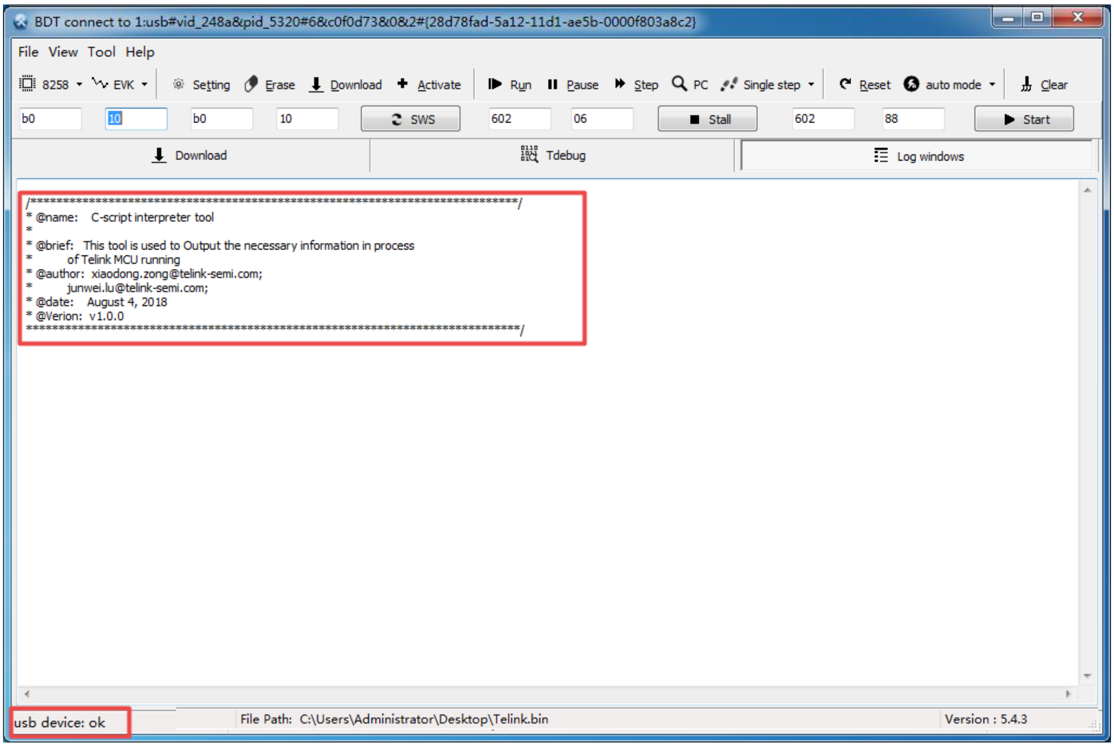
Step 1: Click the “View->usb log” to open usb log windows.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
File View Tool Help
variable list
uart log
usb log
interp .lst
time stamp
Setting Erase Download Activate Run Pause Step PC Single step Reset auto mode Clear
b0 b0 10 SWS 602 06 Stall 602 88 Start
Download Tdebug Log windows
usb device: ok
File Path: C:\Users\Administrator\Desktop\Telink.bin
Version : 5.4.3

Figure 2-70 Open usb log windows

Step 2: In the “usb log” mode, all output characters will be displayed in “Ascii” mode;

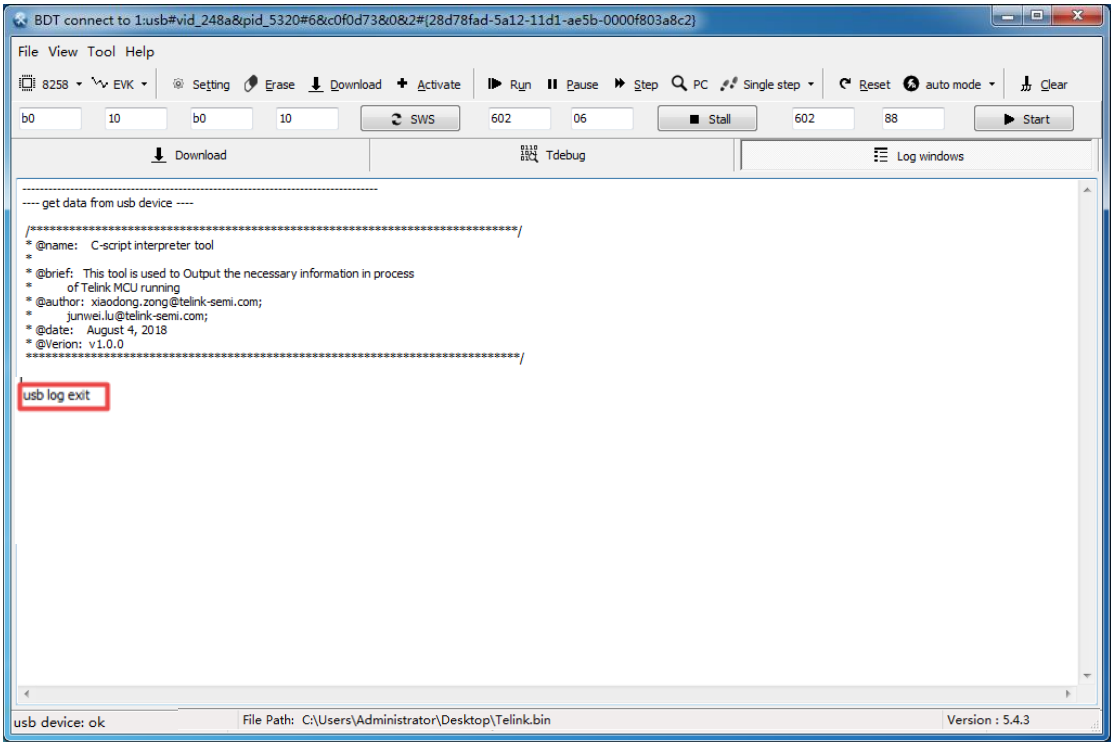


```
/*****************************************************************************/
* @name:   C-script interpreter tool
*
* @brief:  This tool is used to Output the necessary information in process
*          of Telink MCU running
* @author: xiaodong.zong@telink-semi.com;
*          junwei.lu@telink-semi.com;
* @date:   August 4, 2018
* @Verion:  v1.0.0
*****************************************************************************/
```

usb device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-71 Display output characters

Step 3: Click the “View->usb log” again to exit the “usb log” mode.



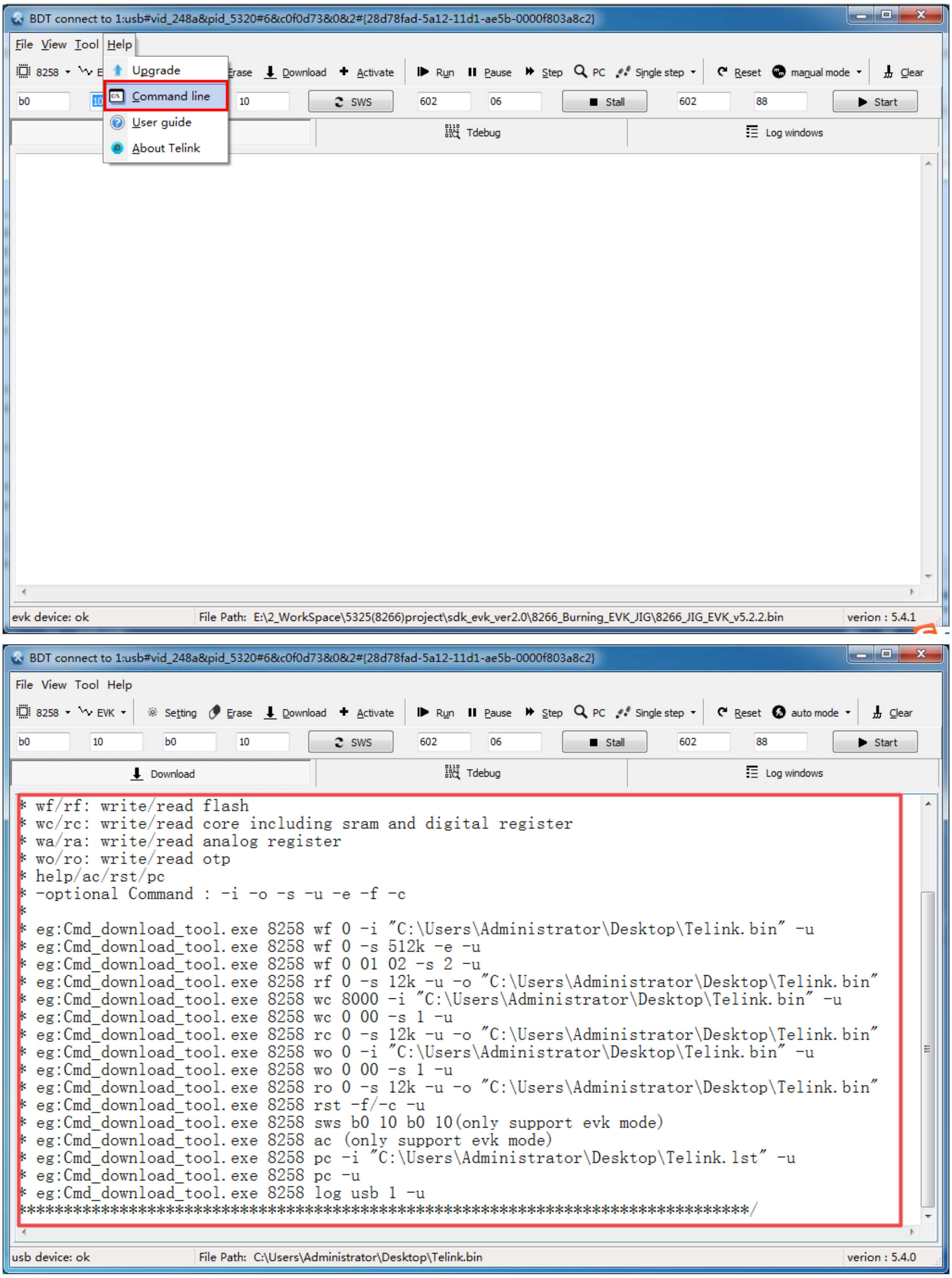
```
--------------------------------------------------------------------------------
---- get data from usb device ----

/*****************************************************************************/
* @name:   C-script interpreter tool
*
* @brief:  This tool is used to Output the necessary information in process
*          of Telink MCU running
* @author: xiaodong.zong@telink-semi.com;
*          junwei.lu@telink-semi.com;
* @date:   August 4, 2018
* @Verion:  v1.0.0
*****************************************************************************/

usb log exit
```

usb device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   Version : 5.4.3

Figure 2-72 Exit usb log mode

2.8 Help

By clicking the “Help->Command line”, all commands will be shown in log windows of the “Download” or “Tdebug” page.


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}
File View Tool Help
Upgrade
Command line
User guide
About Telink
8258 EVK Setting Erase Download Activate Run Pause Step PC Single step Reset manual mode auto mode Clear
SWS Stall Start
Download Tdebug Log windows

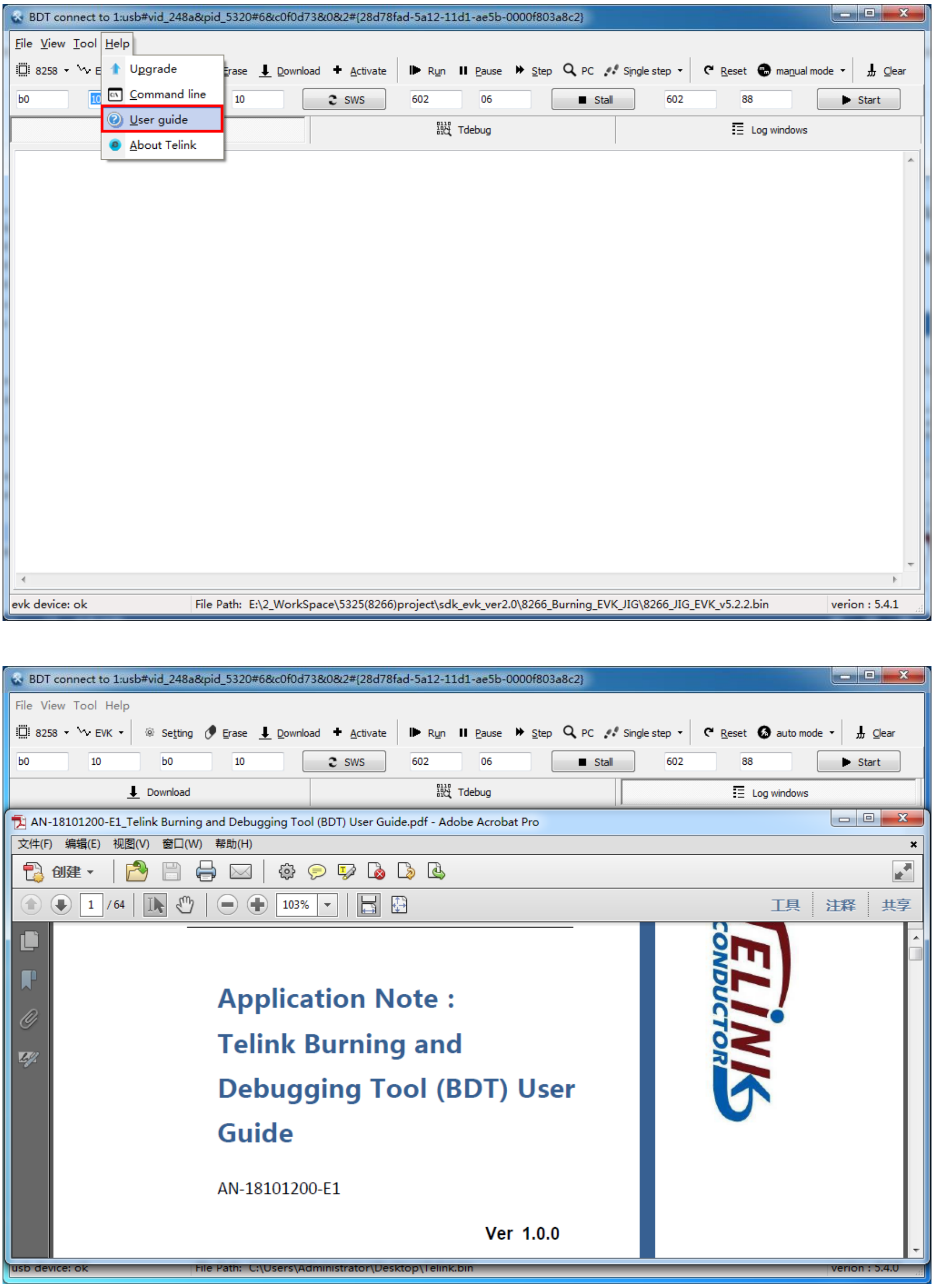
evk device: ok   File Path: E:\2_WorkSpace\5325(8266)project\sdk_evk_ver2.0\8266_Burning_EVK_JIG\8266_JIG_EVK_v5.2.2.bin   verion : 5.4.1

```
* wf/rf: write/read flash
* wc/rc: write/read core including sram and digital register
* wa/ra: write/read analog register
* wo/ro: write/read otp
* help/ac/rst/pc
* -optional Command : -i -o -s -u -e -f -c
*
* eg:Cmd_download_tool.exe 8258 wf 0 -i "C:\Users\Administrator\Desktop\Telink.bin" -u
* eg:Cmd_download_tool.exe 8258 wf 0 -s 512k -e -u
* eg:Cmd_download_tool.exe 8258 wf 0 01 02 -s 2 -u
* eg:Cmd_download_tool.exe 8258 rf 0 -s 12k -u -o "C:\Users\Administrator\Desktop\Telink.bin"
* eg:Cmd_download_tool.exe 8258 wc 8000 -i "C:\Users\Administrator\Desktop\Telink.bin" -u
* eg:Cmd_download_tool.exe 8258 wc 0 00 -s 1 -u
* eg:Cmd_download_tool.exe 8258 rc 0 -s 12k -u -o "C:\Users\Administrator\Desktop\Telink.bin"
* eg:Cmd_download_tool.exe 8258 wo 0 -i "C:\Users\Administrator\Desktop\Telink.bin" -u
* eg:Cmd_download_tool.exe 8258 wo 0 00 -s 1 -u
* eg:Cmd_download_tool.exe 8258 ro 0 -s 12k -u -o "C:\Users\Administrator\Desktop\Telink.bin"
* eg:Cmd_download_tool.exe 8258 rst -f/-c -u
* eg:Cmd_download_tool.exe 8258 sws b0 10 b0 10(only support evk mode)
* eg:Cmd_download_tool.exe 8258 ac (only support evk mode)
* eg:Cmd_download_tool.exe 8258 pc -i "C:\Users\Administrator\Desktop\Telink.lst" -u
* eg:Cmd_download_tool.exe 8258 pc -u
* eg:Cmd_download_tool.exe 8258 log usb 1 -u
*****************************************************************************/
```

usb device: ok   File Path: C:\Users\Administrator\Desktop\Telink.bin   verion : 5.4.0

Figure 2-73 Show all commands

By clicking the "Help->User guide", the embedded "Help" document "**Telink Burning and Debugging Tool (BDT) User Guide**" will be opened, as shown below.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

evk device: ok File Path: E:\2_WorkSpace\5325(8266)project\sdk_evk_ver2.0\8266_Burning_EVK_JIG\8266_JIG_EVK_v5.2.2.bin verion : 5.4.1

AN-18101200-E1_Telink Burning and Debugging Tool (BDT) User Guide.pdf - Adobe Acrobat Pro

Application Note : Telink Burning and Debugging Tool (BDT) User Guide

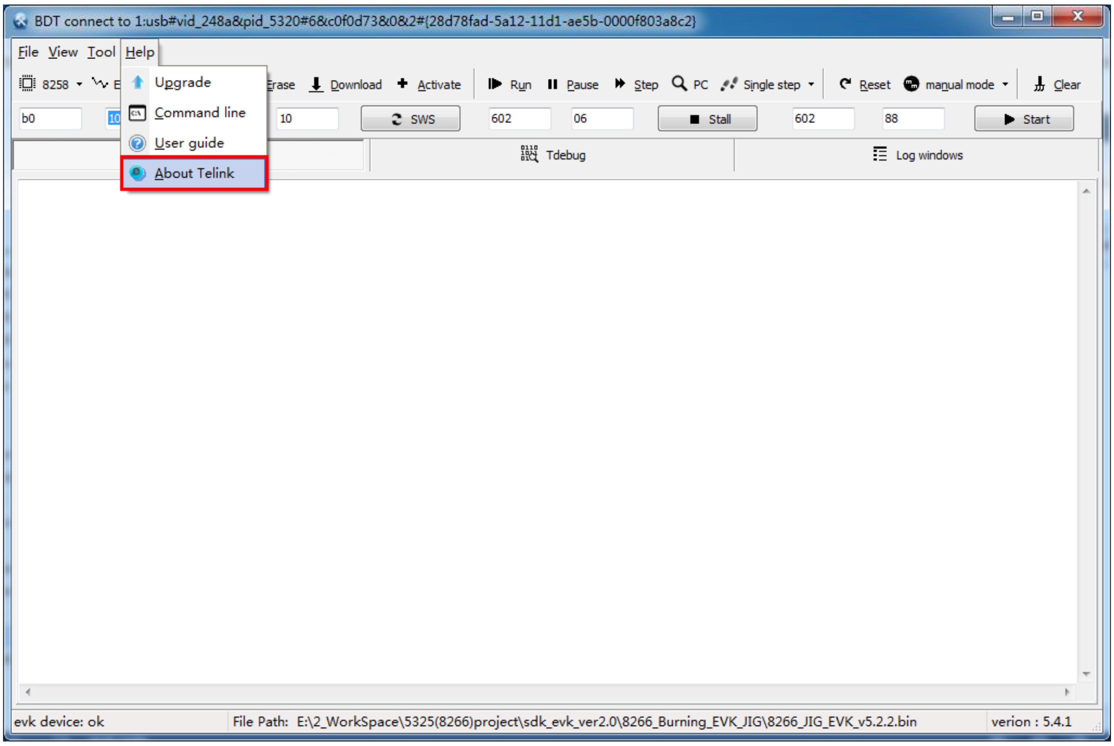
AN-18101200-E1

Ver 1.0.0

usb device: ok File Path: C:\Users\Administrator\Desktop\Telink.bin verion : 5.4.0

Figure 2-74 Open Help document

To get more information about Telink, user can click the “Help->About Telink”.

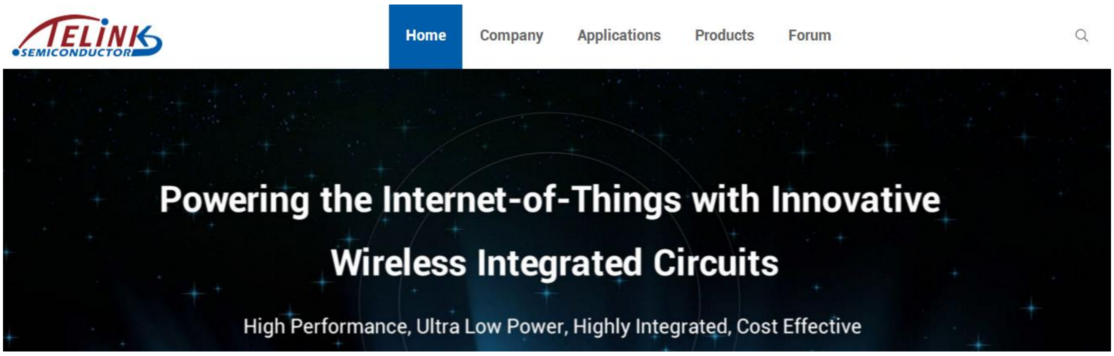


BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d738&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

evk device: ok

File Path: E:\2_WorkSpace\5325(8266)project\sdk_evk_ver2.0\8266_Burning_EVK_JIG\8266_JIG_EVK_v5.2.2.bin

verion : 5.4.1



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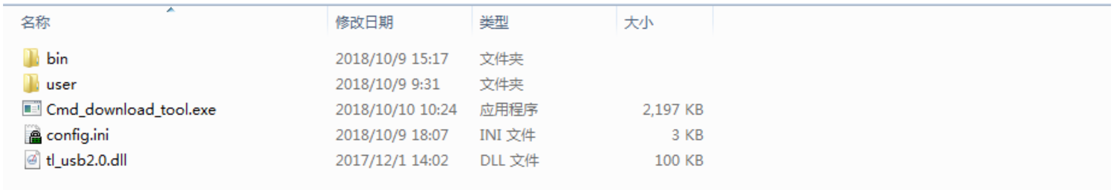
High Performance, Ultra Low Power, Highly Integrated, Cost Effective

Figure 2-75 Get information about Telink

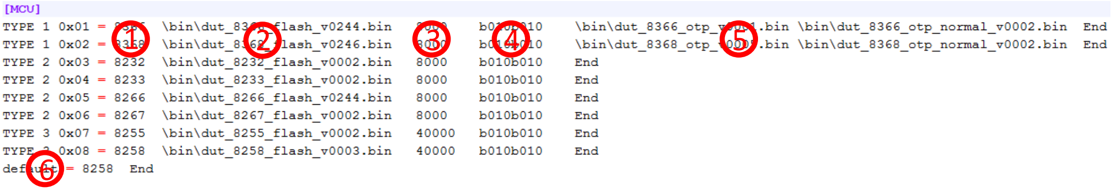
2.9 Default configuration

Open the folder “config” in the root directory of this tool as follows.



名称	修改日期	类型	大小
bin	2018/10/9 15:17	文件夹	
user	2018/10/9 9:31	文件夹	
Cmd_download_tool.exe	2018/10/10 10:24	应用程序	2,197 KB
config.ini	2018/10/9 18:07	INI 文件	3 KB
tl_usb2.0.dll	2017/12/1 14:02	DLL 文件	100 KB

All default configurations in this tool can be changed by modifying the “config.ini” file. Following shows detailed explanations.



```
[MCU]
TYPE 1 0x01 = 8366  \bin\dut_8366_flash_v0244.bin  8000   b010b010  \bin\dut_8366_otp_v0001.bin \bin\dut_8366_otp_normal_v0002.bin  End
TYPE 1 0x02 = 8368  \bin\dut_8368_flash_v0246.bin  8000   b010b010  \bin\dut_8368_otp_v0005.bin \bin\dut_8368_otp_normal_v0002.bin  End
TYPE 2 0x03 = 8232  \bin\dut_8232_flash_v0002.bin  8000   b010b010  End
TYPE 2 0x04 = 8233  \bin\dut_8233_flash_v0002.bin  8000   b010b010  End
TYPE 2 0x05 = 8266  \bin\dut_8266_flash_v0244.bin  8000   b010b010  End
TYPE 2 0x06 = 8267  \bin\dut_8267_flash_v0002.bin  8000   b010b010  End
TYPE 3 0x07 = 8255  \bin\dut_8255_flash_v0002.bin  40000  b010b010  End
TYPE 3 0x08 = 8258  \bin\dut_8258_flash_v0003.bin  40000  b010b010  End
default = 8258  End
```

① MCU Type:8368

② The path of the firmware: \bin\dut_8368_flash_v0246.bin

This firmware is used to operate flash, e.g. download the specified firmware into flash, read/write flash, erase sectors of flash and check flash data when downloading firmware to flash or erase some sector of flash

③ SRAM Starting Address: 0x8000, e.g.8258:0x40000;

④ Single wire communication:

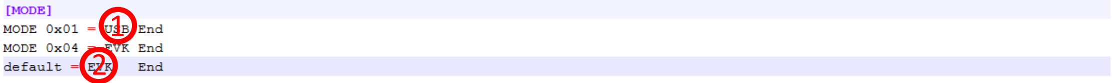
1) Swire register base address of master device:0xb0
2) Swire clock of master device:0x10
3) Swire register base address of slave device:0xb0
4) Swire clock of slave device:0x10

⑤ The path of the firmware:

Firmware1: \bin\dut_8368_otp_v0005.bin, which is used to operate OTP, e.g. download firmware to OTP, read/write OTP, check OTP data during writing data to OTP or downloading firmware to OTP or write data to OTP

Firmware2: \bin\dut_8368_otp_normal_v0002.bin,which is used to check OTP data during downloading firmware to OTP or write date to OTP

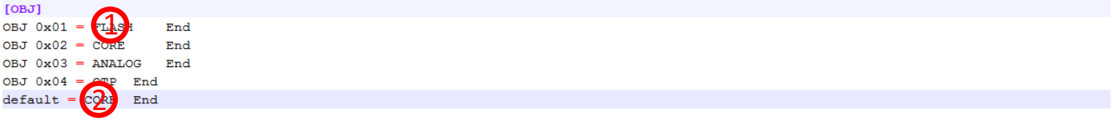
⑥ default: 8258



```
[MODE]
MODE 0x01 = USB End
MODE 0x04 = EVK End
default = EVK   End
```

① Mode of Communication: USB

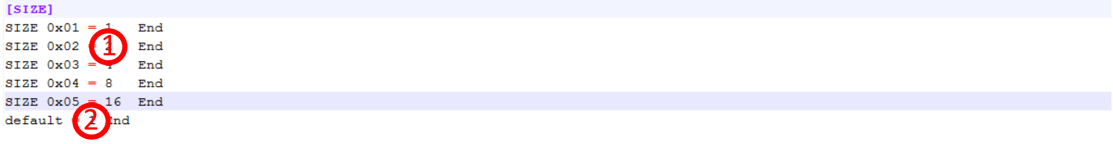
② default: EVK(Burning EVK)



```
[OBJ]
OBJ 0x01 = FLASH    End
OBJ 0x02 = CORE     End
OBJ 0x03 = ANALOG   End
OBJ 0x04 = OTP  End
default = CORE  End
```

① Access Objection: FLASH

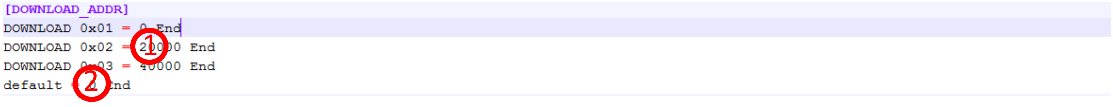
② default: CORE



```
[SIZE]
SIZE 0x01 = 1   End
SIZE 0x02 = 2   End
SIZE 0x03 = 4   End
SIZE 0x04 = 8   End
SIZE 0x05 = 16  End
default = 1 End
```

① Size of Read / Write data: 2

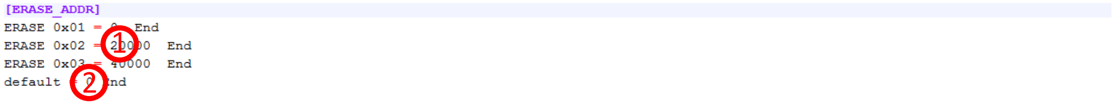
② default: 1



```
[DOWNLOAD_ADDR]
DOWNLOAD 0x01 = 0 End
DOWNLOAD 0x02 = 20000 End
DOWNLOAD 0x03 = 40000 End
default = 0 End
```

① Download address: 0x20000

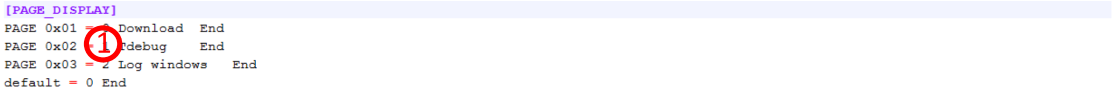
② default: 0



```
[ERASE_ADDR]
ERASE 0x01 = 0  End
ERASE 0x02 = 20000  End
ERASE 0x03 = 40000  End
default = 0 End
```

① Erase address: 0x20000

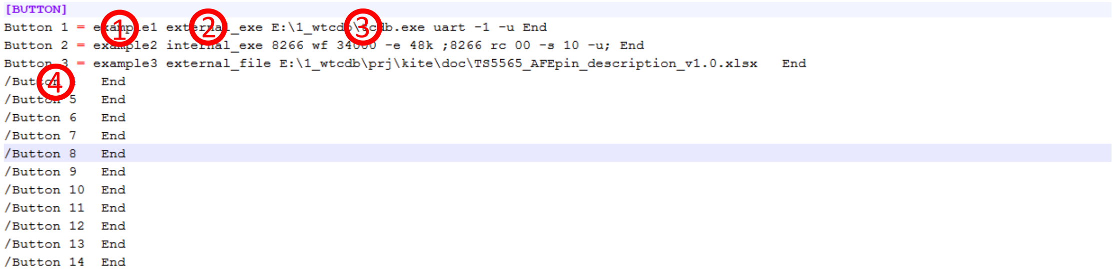
② default: 0



```
[PAGE_DISPLAY]
PAGE 0x01 = 0 Download  End
PAGE 0x02 = 1 Tdebug    End
PAGE 0x03 = 2 Log windows   End
default = 0 End
```

① Page Display: 1 - Tdebug

② default: 0 - Download



```
[BUTTON]
Button 1 = example1 external_exe E:\1_wtcdb\tcdb.exe uart -1 -u End
Button 2 = example2 internal_exe 8266 wf 34000 -e 48k ;8266 rc 00 -s 10 -u; End
Button 3 = example3 external_file E:\1_wtcdb\prj\kite\doc\TS5565_AFEpin_description_v1.0.xlsx   End
/Button 4   End
/Button 5   End
/Button 6   End
/Button 7   End
/Button 8   End
/Button 9   End
/Button 10  End
/Button 11  End
/Button 12  End
/Button 13  End
/Button 14  End
```

① The Name of Button1: example1

② The property of Button1: external executable application

③ The Path of external executable application: E:\1_wtcdb\tcdb.exe uart -1 –u

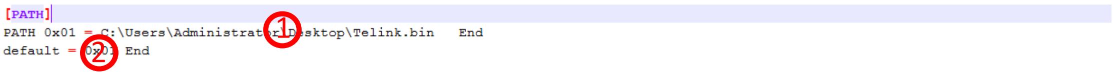
④ undefined Button: Button4

The property of Button includes three types:

1) external_exe: external executable application

2) internal_exe: internal executable application, which means this tool.

3) external_file: open any external file by default



```
[PATH]
PATH 0x01 = C:\Users\Administrator\Desktop\Telink.bin   End
default = 0x01 End
```

① The Path of firmware: “C:\Users\Administrator\Desktop\Telink.bin”

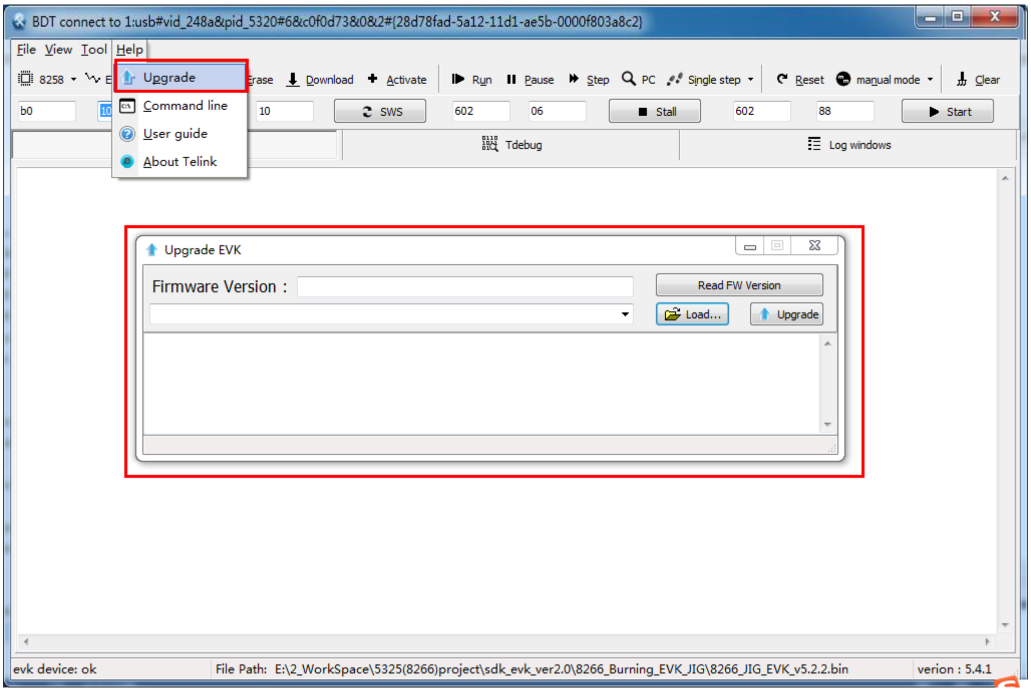
Download this firmware into target board to update firmware. When there’re too many file paths, you can directly delete these. However, the first path can’t be deleted.

② default file path: “C:\Users\Administrator\Desktop\Telink.bin”

3 Upgrade Firmware

User can follow the steps below to upgrade firmware of “**Burning EVK**”.

Step 1: Click “Help->Upgrade” to open the dialog window “Upgrade EVK”.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

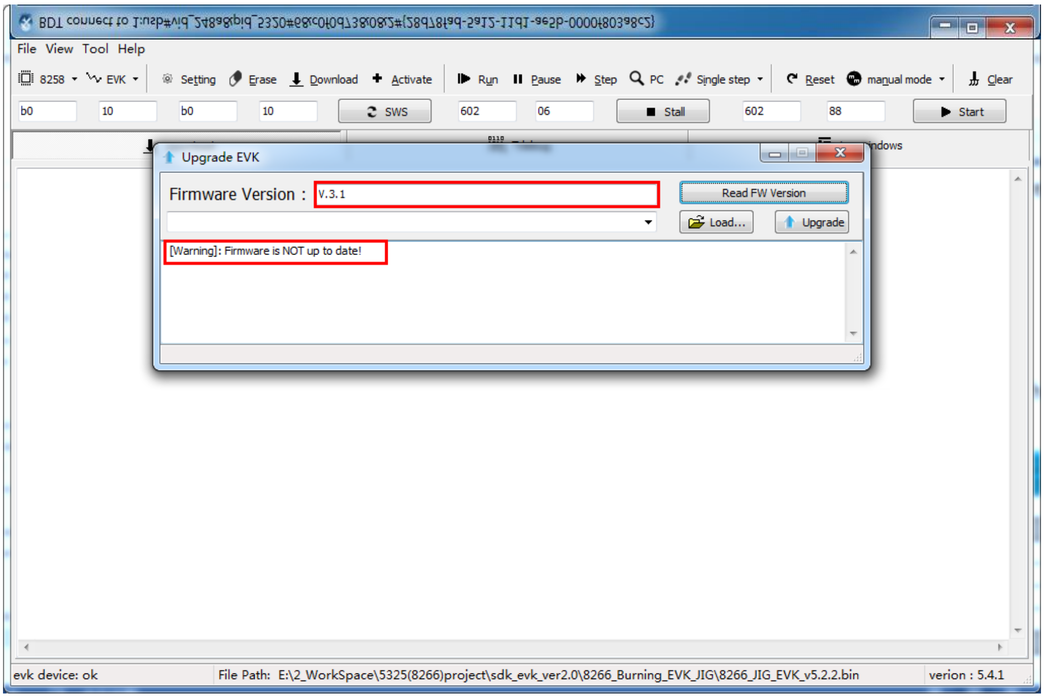
b0 | 10 | 10 | 602 | 06 | 602 | 88

Firmware Version :

evk device: ok   File Path: E:\2_WorkSpace\5325(8266)project\sdk_evk_ver2.0\8266_Burning_EVK_JIG\8266_JIG_EVK_v5.2.2.bin   verion : 5.4.1

Figure 3-1 “Upgrade EVK” window

Step 2: Click the button “Read FW Version” to check the current firmware version.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d73&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

b0 | 10 | b0 | 10 | 602 | 06 | 602 | 88

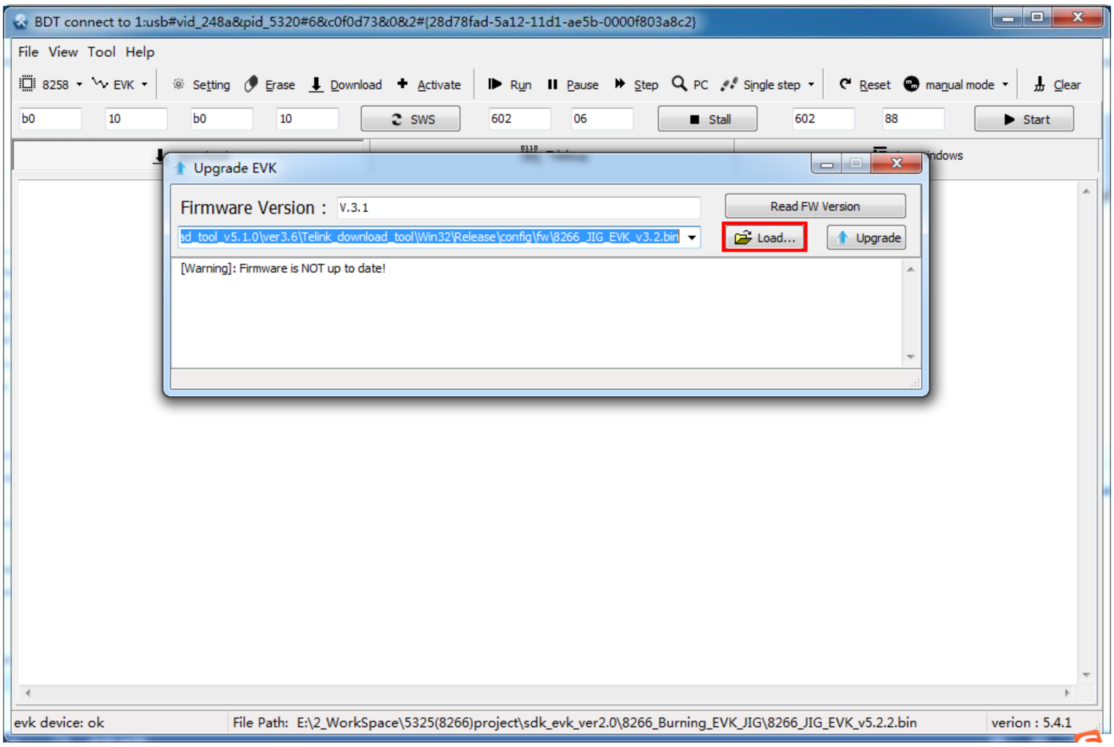
Firmware Version : V.3.1

[Warning]: Firmware is NOT up to date!

evk device: ok   File Path: E:\2_WorkSpace\5325(8266)project\sdk_evk_ver2.0\8266_Burning_EVK_JIG\8266_JIG_EVK_v5.2.2.bin   verion : 5.4.1

Figure 3-2 Check current FW version

Step 3: Click the "Load..." button to load the new firmware.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d738&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

b0 10 b0 10 602 06 602 88

Firmware Version : V.3.1

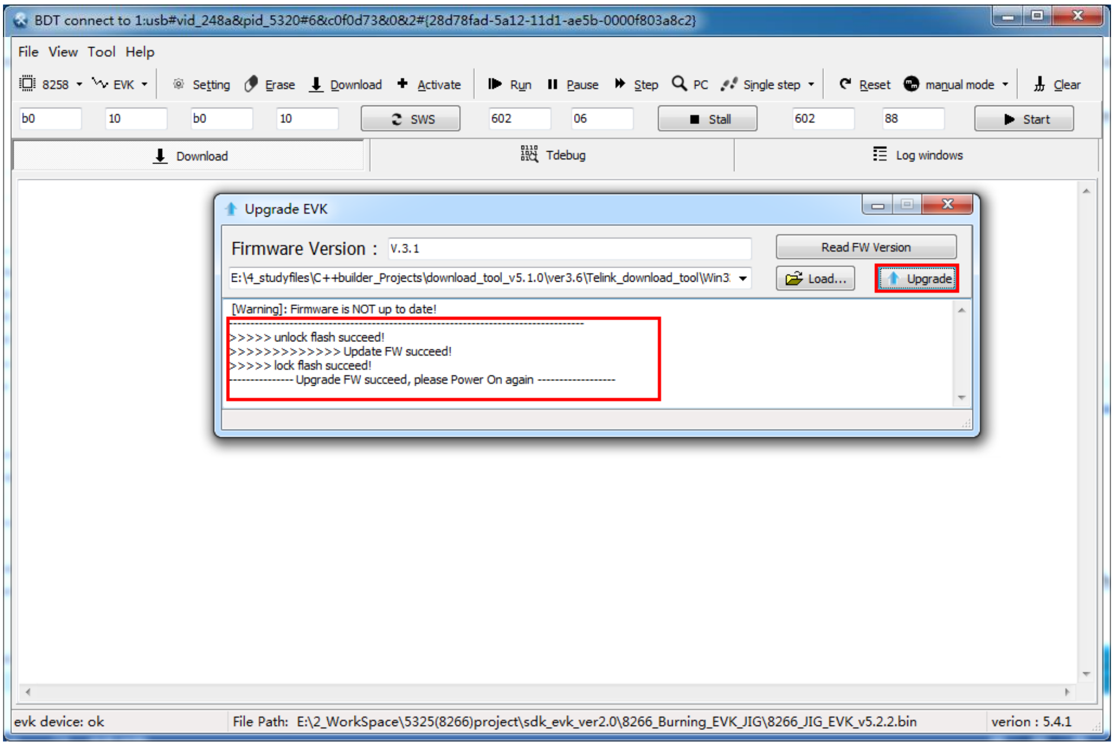
ad_tool_v5.1.0\ver3.6\Telink_download_tool\Win32\Release\config\fw\8266_JIG_EVK_v3.2.bin

```
[Warning]: Firmware is NOT up to date!
```

evk device: ok File Path: E:\2_WorkSpace\5325(8266)project\sdk_evk_ver2.0\8266_Burning_EVK_JIG\8266_JIG_EVK_v5.2.2.bin verion : 5.4.1

Figure 3-3 Load new FW

Step 4: Click the "Upgrade" button to upgrade the new firmware into the "Burning EVK". Note: User MUST power cycle the EVK before using it.



BDT connect to 1:usb#vid_248a&pid_5320#6&c0f0d738&0&2#{28d78fad-5a12-11d1-ae5b-0000f803a8c2}

b0 10 b0 10 602 06 602 88

Firmware Version : V.3.1

E:\4_studyfiles\C++builder_Projects\download_tool_v5.1.0\ver3.6\Telink_download_tool\Win3:

```
[Warning]: Firmware is NOT up to date!
--------------------------------------------------------------------------------
>>>>> unlock flash succeed!
>>>>>>>>>>>>> Update FW succeed!
>>>>> lock flash succeed!
-------------- Upgrade FW succeed, please Power On again ------------------
```

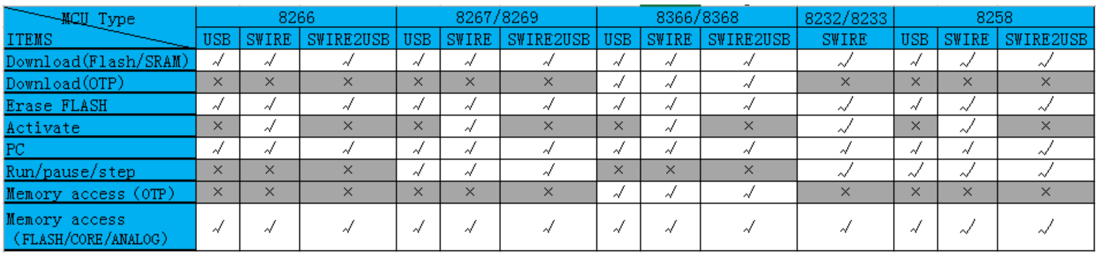
evk device: ok File Path: E:\2_WorkSpace\5325(8266)project\sdk_evk_ver2.0\8266_Burning_EVK_JIG\8266_JIG_EVK_v5.2.2.bin verion : 5.4.1

Figure 3-4 Upgrade FW into EVK

4 Function Support List

Not all MCU types support all functions of this tool. Please refer to the table below.

Table 4-1 Function Support List



MCU Type / ITEMS	8266			8267/8269			8366/8368			8232/8233	8258		
	USB	SWIRE	SWIRE2USB	USB	SWIRE	SWIRE2USB	USB	SWIRE	SWIRE2USB	SWIRE	USB	SWIRE	SWIRE2USB
Download(Flash/SRAM)	√	√	√	√	√	√	√	√	√	√	√	√	√
Download(OTP)	×	×	×	×	×	×	√	√	√	×	×	×	×
Erase FLASH	√	√	√	√	√	√	√	√	√	√	√	√	√
Activate	×	√	×	×	√	×	×	√	×	√	×	√	×
PC	√	√	√	√	√	√	√	√	√	√	√	√	√
Run/pause/step	×	×	×	√	√	√	×	×	×	√	√	√	√
Memory access (OTP)	×	×	×	×	×	×	√	√	√	×	×	×	×
Memory access (FLASH/CORE/ANALOG)	√	√	√	√	√	√	√	√	√	√	√	√	√