

Holtek e-Link Q&A

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Chapter 1 When encountering programming and emulation problems during the use of e-Link, confirm the following contents:

1. Check if the USB cable is the original Holtek one?

The emulator and the target board circuit will both consume power during e-Link debugging. So if the used USB cable is of poor quality, a higher cable resistance may influence the emulation due to power voltage drops in the cable. The original USB cable is shown in the following figure:



Fig.1

2. Whether the e-Link emulation and programming software is the latest version?

The HT-IDE3000 software is for e-Link emulation.

The HOPE3000 software is for e-Link programming.

Log on to the Holtek official website(<https://www.holtek.com.tw/ice>) to download and install the latest software.

3. Whether the F/W matches during e-Link emulation and programming?

Update the corresponding F/W when switching between different modes.

During the emulation process, if the e-Link is in the programming mode, the HT-IDE3000 will pop up the following tips: update it to the OCDS mode through the software tip“Help-->Update Firmware”.

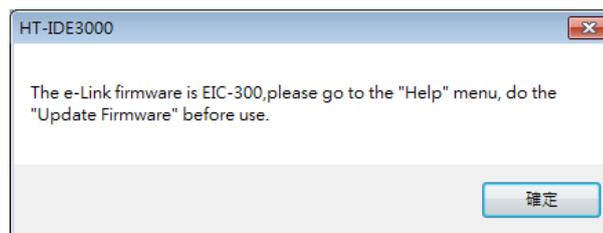


Fig.2

During the programming process, if the e-Link is in the emulation mode, the HOPE3000 for e-Link will pop up the following tips: click “start” to update it to the programming mode. It can also be updated using“Tools--> Update Firmware”.

Check the current F/W version of the e-Link using “Help-->About” in the software.

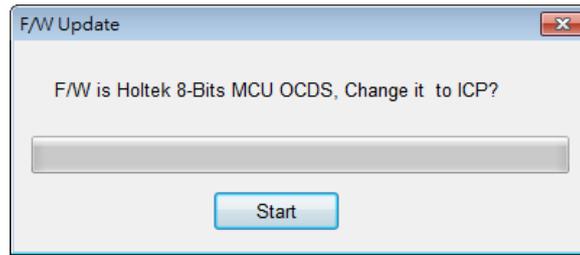


Fig. 3

Chapter 2 Holtek e-Link emulation Q & A:

1. Q: How is the e-Link connected for In-Circuit Emulation?

A: In the following figure, the Target Board is connected to e-Link through the four wires, VDD, GND, OCSDA and OCDSCK.

If the MCU has other VDD pins, such as AVDD or HVDD, which must be connected to the VDD or other power source according to the application requirements.

If not use a standard flat cable:

- a. Use a separate Dupont Line if possible to avoid signal crosstalk due to the materials.
- b. The length of the Dupont Line should be less than 20cm if possible.

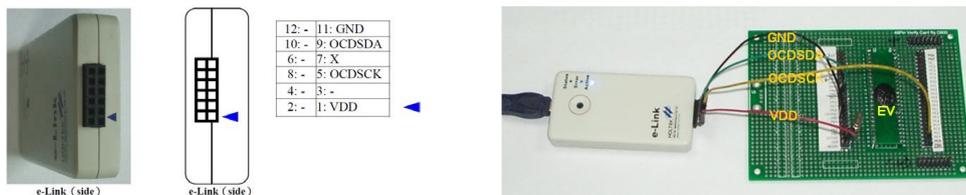


Fig.4

Name	Description	Direction	Parameter
VDD	e-Link voltage output pin when the power is supplied to the Target Board.	e-Link→	1.7V~5.5V
	e-Link voltage input pin when the external power is supplied to the Target Board.	e-Link←	1.7V~5.5V
OCDSCK	The OCDS CLK signal during programming	e-Link→	1.7V~5.5V
OCSDA	The OCDS Data signal during programming	e-Link ↔	1.7V~5.5V
GND	e-Link Ground	e-Link ↔	0V
Reserved	Reserved e-Link signal pin	Unknown	Unknown

Tab.1

However, due to the difference in the design characteristics of some OCDS EVs, when emulating, some OCDS EV pins must have pull-high resistors connected (the resistance reference value is 1KΩ) to make sure emulation normally.

Holtek has collated the EV types that are currently known to have this problem as shown in the following table:

	MCU Type	Require Pull-high Resistor Pin
1	BS82CV16A	PA7
2	BS82DV20A	PA7
3	BS83V04A	PA2
4	BS83V08A	PA7
5	BS84V08A	PA7
6	BS83V16A	PA7
7	BS84V12A	PA7
8	HT66V007/008	PA7
9	HT66V018	PC2
10	HT66V019	PC2
11	HT66V0174	PC2
12	HT66V70A	PB0
13	HT66V489/488	PB5
14	HT67V489/488	PA7
15	HT67V5640	PB0
16	HT45V3W	PB4
17	HT45V15B	PB0
18	HT69V50A	PA7
19	HT69V350/360	PA7

Tab.2

2. Q: Why does the HIRC have a deviation during e-Link emulation?

A: Generally, the EV has executed HIRC calibration at 5V before delivery.

If operating at other voltages, the HIRC will deviate slightly.

If the HIRC has a large deviation, this means that the EV is an engineering sample without factory calibration.

3. Q: Can the e-Link be powered by external during emulation?

A: Yes. Set the configuration options according to the following steps before selecting an external power supply.

Firstly ensure that the “External” option is not checked.

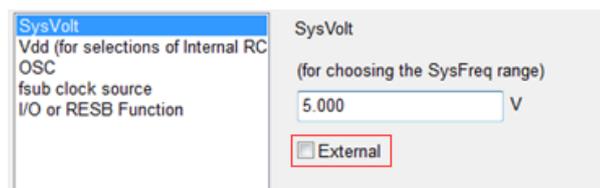


Fig.5

Secondly select the OCDS mode by clicking “Tools\Switch OCDS Mode” in the HT- IDE3000 software.

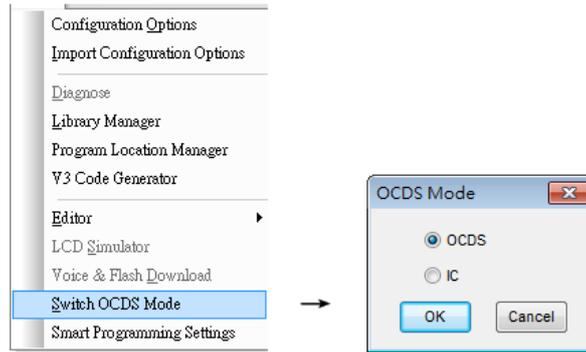


Fig.6

Finally check “External” in the configuration options.

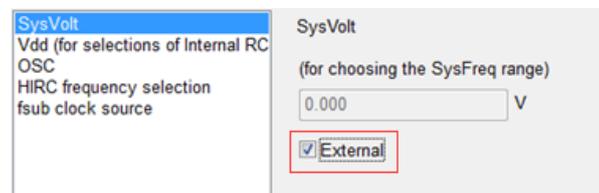


Fig.7

Now the following prompt box will pop up. **At this time, connect an external power supply to the IC, click “Yes”, and then compile and download to enter the OCDS normally.**

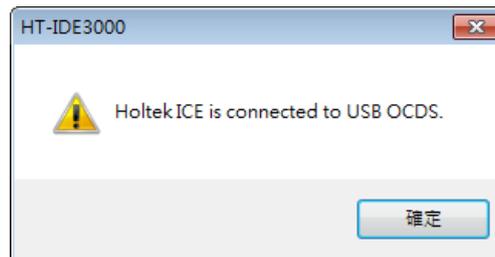


Fig.8

4. Q: During emulation, a prompt will pop up with the content of “e-Link is connected, but does not recognize the EV”

A: **First** ensure that the connected IC is an EV chip rather than a general IC and determine whether the IC is selected correctly.

Eg: The HT66V018 is the HT66F018 EV chip. The actually mass produced HT66F018 does not have emulation function.

Second ensure that the OCDS wirings, VDD, GND, OCDSCK and OCSDA are correct connection.

Ps: For some ICs, ensure that the external $\overline{\text{RES}}$ pin is connected to a pull-high resistor - refer to Table 2.

Finally ensure that the external oscillator pin is connected to a crystal oscillator if HXT is selected as the MCU system clock.

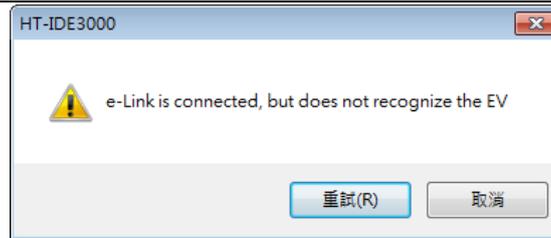


Fig.9

Chapter 3 Holtek e-Link programming Q & A:

1. Q: What MCU types does the e-Link supported for programming?

A: Holtek 8-Bit Flash MCUs and their corresponding EV

Ps: ※e-Link cannot support offline programming, it is only suitable for engineering verification and not suitable for mass production.

※The e-Link does not support Boot Loader Code programming, so it is not suitable for programming HT6XFB5X0 and other applications with ISP requirements.

If have programming requirement, it is recommended to use HT e-WriterPro.

2. Q: During programming, can the Target Board be powered externally?

A: During programming, the Target Board is powered by the e-Link and cannot be powered externally, otherwise it will prompt programming error, as shown in the following figure:

```
>Connected to writer
>Open "C:\Users\charlotte\Desktop\2-2_V3.MTP"
>Power Off
>Current MCU Type:HT66FB560
>Target Board Power is Detected ! Please remove this power to protect IC !
>
```

Fig.10

3. Q : After the OCDS EV is programmed using ICP, how does it resume emulation function?

A: After ICP programming, the OCDS EV will have the same behaviors with the MCU. To resume emulation function, ensure that the power supply of the target board is removed. Reconnect the e-Link to the target board for providing power to enter the OCDS MODE and manually switch to OCDS mode, as shown below.

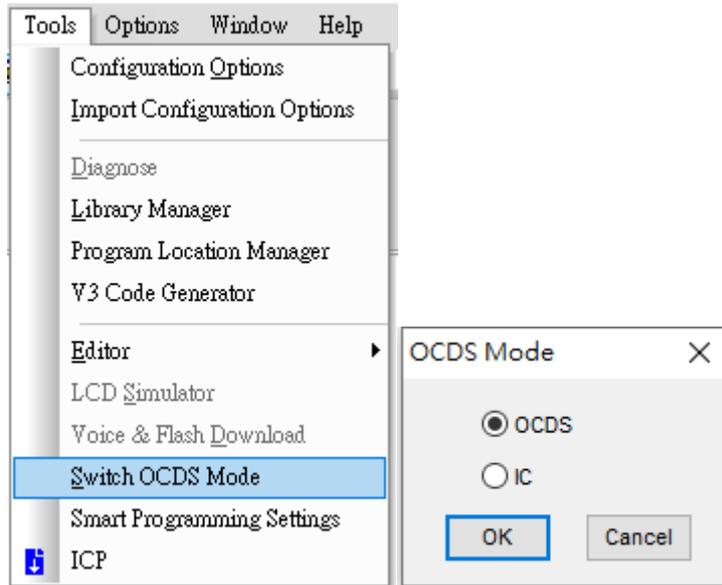


Fig.11

4. Q : OCDS EV is used on the target board, if the external reset circuit is used in the application, what should pay attention to in use?

A: Avoid OCDS EV using ICP programming and Lock. If the above behavior has been performed, perform the OCDS EV in HOPE3000 for e-Link to execute Erase All to resume OCDS EV emulation state, or change the pull-up resistance of the reset circuit on the target board to 10KΩ.

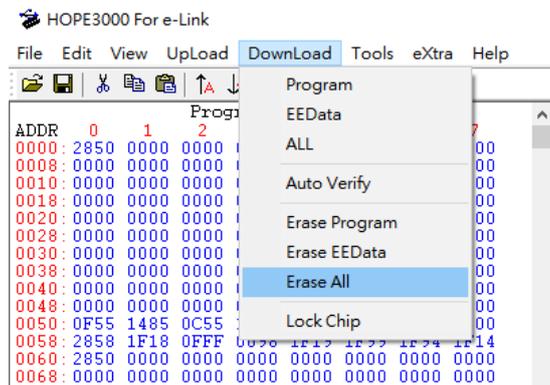


Fig.12

5. Q: How to select an external power supply when the OCDS EV is emulating?

- A: ①power supplied by the e-Link to enter OCDS mode
- ②Manually switch to the OCDS mode in the Tools menu

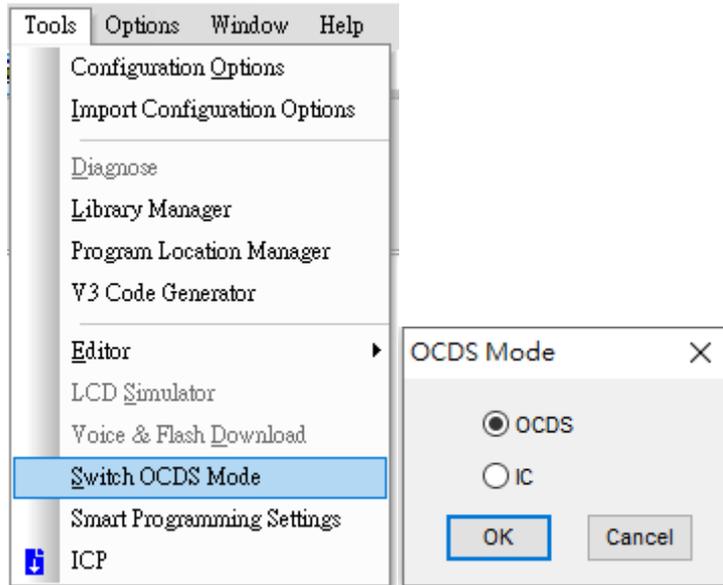


Fig.13

③Enter the Configuration Options to select external power supply. Power off the e-Link, after providing external power to the EV, reconnect the e-Link power supply, then the IDE will prompt that the OCDS is connected, this means that external power switching is completed.

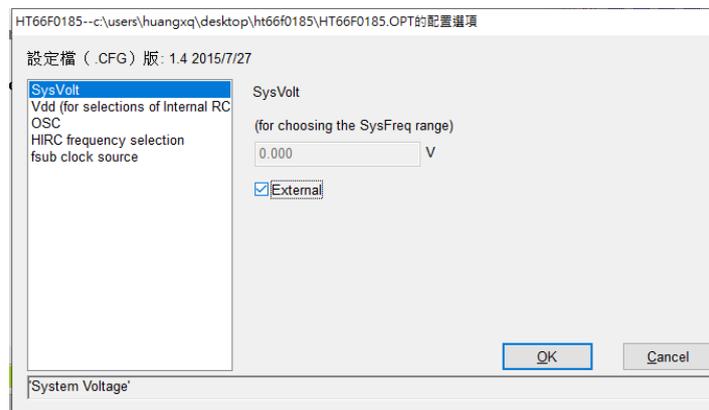


Fig.14